
Draft

SSFL NASA Area I LOX and Area II Groundwater Monitoring Report Third Quarter 2016

Prepared for
**National Aeronautics and Space Administration
Santa Susana Field Laboratory
Ventura County, California**

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Professional Geologist's Certification

I certify that this document was prepared by me or under my direct control and personal supervision, based on knowledge and information in general accordance with commonly accepted standards of practice. This certification is not a guarantee or warranty, either expressed or implied.



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Acronyms and Abbreviations

| | |
|----------|---|
| % C | percent correct |
| µg/L | microgram(s) per liter |
| AIG | area of impacted groundwater |
| Boeing | The Boeing Company |
| CAIM | corrective action interim measure |
| CCR | California Code of Regulations |
| COC | contaminant of concern |
| DCE | dichloroethene |
| DOE | U.S. Department of Energy |
| DRO | diesel range organic |
| DTSC | Department of Toxic Substances Control |
| DUA | data usability assessment |
| EB | equipment blank |
| EPA | U.S. Environmental Protection Agency |
| FB | field blank |
| FD | field duplicate |
| FLUTe | Flexible Liner Underground Technologies |
| GRO | gasoline range organics |
| LOX | liquid oxygen |
| MCL | maximum contaminant level |
| mg/L | milligram(s) per liter |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| NASA | National Aeronautics and Space Administration |
| NDMA | n-nitrosodimethylamine |
| NGVD29 | National Geodetic Vertical Datum of 1929 |
| pCi/L | picoCurie(s) per liter |
| PCP | Post-Closure Permit |
| POC | point of compliance |
| QA | quality assurance |
| QC | quality control |
| SSFL | Santa Susana Field Laboratory |
| SVOC | semivolatile organic compound |
| SWGWRBSL | sitewide groundwater risk-based screening level |
| TB | trip blank |
| TCE | trichloroethene |
| VOC | volatile organic compound |
| WQSAP | Water Quality Sampling and Analysis Plan |

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Executive Summary

This report provides a summary of the groundwater monitoring activities conducted during the third quarter 2016 at the Santa Susana Field Laboratory (SSFL) in Ventura County, California. The monitoring activities included the following:

- Collecting groundwater quality samples in accordance with the Post-Closure Permit Monitoring Program (DTSC, 2013), the associated Regulated Unit Water Quality Sampling and Analysis Plans (WQSAPs) (Haley & Aldrich, 2010a, 2010b), and the Site-Wide WQSAP (Haley & Aldrich, 2010c)
- Collecting scheduled third quarter 2016 groundwater quality samples with the exceptions identified in this report
- Collecting groundwater level measurements and using groundwater elevations from the third quarter 2016 to develop a groundwater elevation contour map for this report
- Evaluating and completing well maintenance needs

This report provides the results of the third quarter 2016 groundwater monitoring activities. The following additional information is included in this report:

- First-time analytical detections from the third quarter 2016
- Exceptions to the Regulated Unit WQSAP (Haley & Aldrich, 2010a, 2010b) and the Site-Wide WQSAP (Haley & Aldrich, 2010c) for the third quarter 2016

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SECTION 1

Introduction

This report summarizes the groundwater monitoring activities conducted during the third quarter 2016 at the National Aeronautics and Space Administration's (NASA's) former Liquid Oxygen (LOX) Plant site in Area I and Area II of the Santa Susana Field Laboratory (SSFL) in Ventura County, California (Figure 1-1). Previous groundwater reports have been completed for the entire SSFL facility; however, as of January 1, 2014, NASA separated its groundwater monitoring and groundwater level monitoring program from the other two stakeholders at SSFL (The Boeing Company [Boeing] and the U.S. Department of Energy [DOE]) and is submitting a separate report for the quarterly monitoring results. The report follows a similar format as previous submittals (as prepared by MWH) but contains only information for NASA-sponsored monitoring wells.

Activities completed during the third quarter 2016 monitoring event included groundwater level gauging and groundwater quality sampling under the Post-Closure Permit (PCP) Monitoring Program (DTSC, 2013), associated Regulated Unit Water Quality Sampling and Analysis Plans (WQSAPs) (Haley & Aldrich, 2010a, 2010b), and the Site-Wide WQSAP (Haley & Aldrich, 2010c). Contours of the static non-perched groundwater elevations, generated from groundwater levels measured at SSFL, were developed in collaboration with the other SSFL stakeholders (Boeing and DOE) to produce one sitewide groundwater elevation map, discussed further in Section 2. Boeing, DOE, and NASA have reviewed and agree with the interpretation of the sitewide groundwater contour map for the Chatsworth Formation Operable Unit.

The California Department of Toxic Substances Control (DTSC) submitted a letter in 2014 requesting that NASA, Boeing, and DOE collect groundwater level and groundwater quality data at new well locations for a period of 1 year to establish baseline conditions (DTSC, 2014). Following 1 year of quarterly data collection at these new stations, data will be evaluated to determine if the addition of these stations to the Site-Wide WQSAP (Haley & Aldrich, 2010c) is warranted. On January 19, 2016, DTSC sent a letter requesting that NASA, Boeing, and DOE submit a comprehensive quarterly monitoring and sampling schedule for seeps and springs during the 2016 groundwater monitoring period (DTSC, 2016). As a result of these letters and subsequent data evaluation, data were collected from an additional 22 stations during the third quarter 2016 beyond those included in the scope outlined in the PCP and Site-Wide WQSAP.

Monitoring activities conducted during the third quarter included the following:

- Measurement of groundwater levels at the program wells
- Collection and analysis of groundwater quality samples from select wells
- Inspection of seeps in the vicinity of well WS-09A to evaluate if operational downtime has resulted in an accumulation of water at the surface around these seeps that would require offsite disposal

The scope of this report includes the following:

- Summary of groundwater level and groundwater quality monitoring activities
- Summary of current groundwater level data
- Development of a groundwater elevation contour map using groundwater level data obtained during the third quarter 2016
- Summary of exceptions to the WQSAPs, if any
- Summary of the status of seeps in the vicinity of well WS-09A

- Summary of laboratory analytical results for groundwater quality samples collected during the third quarter 2016
- Discussion of significant findings regarding the monitoring program during the third quarter 2016

The groundwater monitoring performed during the third quarter 2016 and the content of this report are in compliance with the current PCP monitoring requirements and WQSAPs. The monitoring also complies with the Consent Order for Corrective Action issued on August 16, 2007 by DTSC.

Monitoring wells sampled during the third quarter, along with the corresponding monitoring programs, are listed in Table 1-1. The SSFL facility location is shown on Figure 1-1. The groundwater monitoring and groundwater level gauging stations scheduled for monitoring in third quarter 2016 are shown on Figure 1-2.

Groundwater Monitoring

This report describes the groundwater monitoring activities conducted from July 1, 2016 through September 30, 2016, in accordance with the PCP monitoring program (DTSC, 2013), associated Regulated Unit WQSAPs (Haley & Aldrich, 2010a, 2010b), and the Site-Wide WQSAP (Haley & Aldrich, 2010c), with the exceptions described herein, and are summarized in Table 2-1.

2.1 Well Maintenance

Monitoring wells were inspected for maintenance needs during the third quarter 2016. Well maintenance completed during the third quarter 2016 included the replacement of damaged locks to monitoring wells and groundwater level gauging locations (where applicable). Modifications were made to the measuring point locations and new dedicated pumps were installed at various wells during the area of impacted groundwater (AIG) characterization effort. Following the completion of these field activities, applicable wells were resurveyed; new monitoring point elevations are provided in Table 2-2. These new measuring point elevations were used to compute the groundwater elevations presented in this report.

2.2 Groundwater Level Gauging

Groundwater level measurements for the third quarter 2016 were collected from July 11 through July 14, 2016 and on August 12, 2016. Prior to and following the gauging of groundwater level locations, portions of the water level indicator measuring tape and probe that contained visible debris and/or contacted groundwater were decontaminated. Groundwater level measurements are summarized in Table 2-3. Contours of the first-encountered non-perched Chatsworth Formation groundwater elevations, as established from groundwater levels measured during the third quarter 2016 (during July), are illustrated on Figure 2-1.

A total of 164 stations were gauged during the third quarter 2016, including 142 stations that were scheduled as part of the PCP (DTSC, 2013) and Site-Wide WQSAP (Haley & Aldrich, 2010c) and 22 stations beyond those included in the scope outlined in the PCP and Site-Wide WQSAP.

Because access was not permitted by the Brandeis property owners, NASA was unable to access the Brandeis property, and five monitoring locations (SP-29A, SP-29B, SP-29C, RD-68A and RD-68B) located on the property were not gauged during the synoptic third quarter 2016 water level gauging event. A temporary access agreement between NASA and the Brandeis property owners was reached on July 28, 2016 (permitting access from August 1, 2016 to December 31, 2016), allowing access to these five monitoring locations after the synoptic gauging event but still during the third quarter 2016. As shown in Table 2-3, groundwater level measurements were collected from these five locations on August 12, 2016.

During the third quarter 2016, 67 of the 164 stations scheduled to be gauged were observed to be dry at the time of measurement. Of the stations that contained groundwater, 21 contained a saturated groundwater column that was measured to be equal to or less than 0.5 foot, likely representing groundwater suspended in the sump of the well; these measurements are not representative of a true groundwater elevation and were not used in the groundwater elevation contouring on Figure 2-1. The groundwater level measurements collected during the third quarter 2016 are listed in Table 2-3.

2.3 Groundwater Sampling and Analysis

Groundwater quality samples were collected from July 11 to 26, 2016 and on August 12, 2016. Wells included in the PCP Regulated Unit Monitoring Program (2013 Modified PCP [DTSC, 2013]) are scheduled to be sampled semiannually during the first and third quarters of the year. Additional groundwater monitoring

of seep FDP-882 and seep wells SP-29B, SP-33C, SP-881C, SP-881G, SP-882B, SP-882G, SP-890C, and SP-890G occurred in third quarter 2016 to satisfy the comprehensive quarterly monitoring schedule for the seeps and springs at the SSFL and to evaluate groundwater quality in the vicinity of the seeps.

Exceptions to the WQSAP that occurred in the field during groundwater quality sampling in the third quarter 2016 are shown in Table 2-1. Following NASA's response to a letter from the DTSC sent on January 19, 2016, requesting a comprehensive quarterly monitoring and sampling schedule for seeps and springs during the 2016 groundwater monitoring period (DTSC, 2016), immediate changes to the monitoring program began in the first quarter 2016 and continued in the third quarter 2016 including the following:

- Groundwater quality samples were collected from FDP-882 during the first and third quarters 2016 and submitted for volatile organic compounds (VOCs), 1,4-dioxane, and n-nitrosodimethylamine (NDMA) analyses.
- Groundwater quality samples have been and will be collected from seep well clusters SP-29 and SP-33 quarterly in 2016. Groundwater quality samples will be collected from the seep with the highest potentiometric head at each seep cluster. Analyses for samples collected at SP-29 will include VOCs, 1,2,3-trichloropropane, fluoride, and radiochemistry. Analyses for samples collected at SP-33 will include VOCs and 1,4-dioxane.
- Groundwater quality samples were collected from seep well clusters SP-881 (A, B, C, or D), SP-881G, SP-882 (A, B, C, or D), SP-882G, SP-890C, and SP-890G during the first and third quarters 2016. Groundwater quality samples collected from SP-881 (A, B, C, or D) and SP-882 (A, B, C, or D) were collected from the seep well having the shallowest saturated completion at each location (that is, the location most representative of groundwater that may discharge to a surface seep). Analyses for samples collected at these seep wells will include VOCs, 1,4-dioxane, and NDMA.

Groundwater quality samples were collected from 26 of the 46 planned stations in the third quarter 2016. Samples were not collected from the stations that were dry (nine locations), where the water column was less than 0.5 foot and/or was below the pump intake (five locations), or at wells included in the Corrective Action Interim Measures (CAIM) program that were not actively extracting groundwater (six locations); see Table 2-1. Quality control (QC) samples consisted of 4 field duplicates (FDs), 4 matrix spike (MS)/matrix spike duplicates (MSDs), 2 equipment blanks (EBs), 1 field blank (FB), and 17 trip blanks (TBs). Analytical services were provided by Calscience Environmental Laboratories, Inc. in Garden Grove, California. The NDMA (U.S. Environmental Protection Agency [EPA] Method 1625M) and formaldehyde (EPA Method 8315A) analyses were performed by Eurofins Lancaster Laboratories in Lancaster, Pennsylvania. Radiological analyses from samples collected from seep well cluster SP-29 during the third quarter 2016 were performed by Test America Laboratories, Inc. in St. Louis, Missouri. Groundwater field parameters were monitored during purging prior to sample collection. Groundwater sample and analysis suites collected during the third quarter 2016 are summarized in Table 2-4; analytical methods and monitoring program analyses are provided in Table 2-5. The final groundwater quality field parameters collected at each sampled well location during the third quarter 2016 are summarized in Table 2-6.

Groundwater samples were collected during the third quarter 2016 pursuant to the 2013 Modified PCP (DTSC, 2013) and Regulated Unit WQSAP (Haley & Aldrich, 2010b).

2.3.1 Post-Closure Permit Monitoring Program

The 2013 Modified PCP (DTSC, 2013) well locations are provided in Table 1-1. The PCP monitoring program includes the Evaluation Monitoring, Evaluation Monitoring (Affected Media), Point of Compliance (POC), Background, Detection Monitoring, and CAIM programs. Four regulated unit closed surface impoundments are located in Area II: Alfa/Bravo Skim Pond, Delta Skim Pond, Storable Propellant Area 1 Impoundment, and Storable Propellant Area 2 Impoundment. The PCP monitoring program includes 41 wells and groundwater samples were collected and analyzed as discussed below.

- **Detection Monitoring Program.** For each regulated unit, the wells are designated as detection, POC, and/or background wells. These wells are selected to monitor for indicators of a release from the regulated unit, the quality of groundwater passing a designated POC, and the quality of groundwater not affected by releases from the regulated unit, respectively (Haley & Aldrich, 2010b). Groundwater samples are analyzed for the following analytes:
 - Semiannual regulated-unit-specific contaminants of concern (COCs) at detection and POC monitoring wells
 - Annual regulated-unit-specific COCs at background monitoring wells
 - Annual background parameters at detection and background monitoring wells
 - Annual Appendix IX constituents at POC monitoring wells
- **Evaluation Monitoring Program.** Evaluation monitoring locations are selected to provide data from the uppermost aquifer that can be used to evaluate potential changes in groundwater quality directly related to releases from the regulated unit. Wells are characterized as evaluation monitoring wells or evaluation monitoring-affected media wells (Haley & Aldrich, 2010b). Groundwater samples collected are analyzed for the following analytes:
 - Semiannual regulated-unit-specific COCs at evaluation monitoring wells
 - Annual Appendix IX constituents at evaluation monitoring wells in affected media
- **CAIM Program.** Designated CAIM wells that are connected to the treatment system are scheduled to be sampled and analyzed for regulated unit COCs semiannually if sufficient groundwater is present (Haley & Aldrich, 2010b). When groundwater samples are collected from active CAIM wells (on a semiannual basis), they are analyzed for the regulated-unit COCs. No CAIM extraction wells connected to a treatment system were active during the third quarter 2016. Because no groundwater extraction occurred in the third quarter 2016, no wells were sampled for the CAIM Program.

2.3.2 Sitewide Monitoring Program

There are no wells from the Sitewide Monitoring Program scheduled for groundwater quality sampling during third quarter; however, 142 stations are included for quarterly water level monitoring (Haley & Aldrich, 2010c). Twenty-two monitoring stations (SP-881A through D; SP-881G; SP-882A through SP-882D; SP-882G; SP-890A through SP-890D; SP-890G; SP-29A through SP-29C; and SP-33A through SP-33C) were gauged during the third quarter 2016 water level monitoring event in addition to the wells included in the Sitewide Monitoring Program.

2.4 Seeps in the Vicinity of Well WS-09A

The groundwater extraction and treatment system was discontinued following an aquifer test performed at RD-10 on April 18, 2013 (Hargis and Associates, 2016). Until approval from the DTSC is obtained, well WS-09A will remain inactive. As a result, seeps in the vicinity of well WS-09A were inspected during the third quarter 2016 to evaluate whether operational downtime has resulted in accumulation of water at the surface near these seeps; Appendix A contains the status report from July 2016 through September 2016. No water was extracted from well WS-09A during the third quarter 2016.

Seeps FDP-881, FDP-882, and FDP-890 were part of a weekly inspection conducted by Boeing and NASA and were monitored during the third quarter 2016. Zero gallons were pumped from FDP-881, FDP-882, and FDP-890 (Hargis and Associates, 2016).

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Results

3.1 Groundwater Elevations

Groundwater level elevations are provided in Table 2-3. Groundwater elevations are affected by inflow (such as local precipitation) and outflow components (such as groundwater extraction) of the water budget. Contours of the static non-perched groundwater elevations, generated from groundwater levels measured during the third quarter 2016 (July 11 to 14) are illustrated on Figure 2-1. This interpretation was developed in conjunction with the other SSFL stakeholders. Groundwater levels presented on Figure 2-1 include data for wells not included in Table 2-3 (i.e. for Boeing and/or DOE wells in Areas I, III, and/or IV) to provide a context for the shape of the groundwater elevation contours in NASA Areas I and II. The groundwater elevation contours were developed using topographic information and historical groundwater level data for wells and piezometers not gauged during the third quarter 2016 and by recognizing that groundwater level discontinuities coincide with certain fault segments and other geologic structures.

Non-perched Chatsworth Formation groundwater elevations measured in onsite SSFL monitoring wells during the third quarter 2016 ranged from approximately 1,374 feet National Geodetic Vertical Datum of 1929 (NGVD29) at Port 3 of RD-56A (Flexible Liner Underground Technologies [FLUTE] well) to approximately 1,871 feet NGVD29 at well RD-42 (Table 2-3).

The groundwater elevation contour map presented on Figure 2-1 is provided to satisfy, in part, the requirements of 22 *California Code of Regulations* (CCR) Section 66264.97 for evaluating groundwater flow rates and directions. A groundwater elevation contour map can be used in simple hydrogeologic settings to depict variations in the elevation of the groundwater table surface, which in turn can be used to interpret apparent relative directions of groundwater flow. However, the groundwater elevation contours depicted on Figure 2-1 are not intended to be used to infer groundwater flow directions or rates of groundwater movement in light of the hydrogeologic complexities at SSFL (MWH, 2013).

3.2 Groundwater Quality

The groundwater analytical results presented in this subsection are compared to multiple screening levels for discussion purposes. These groundwater screening reference values are provided in Table 3-1 (22 CCR Sections 64431 and 64444; California State Water Resources Control Board, 2015; *Federal Register*, 2000; EPA, 2009; van den Berg, et al., 2006). Groundwater quality analytical results for groundwater samples are provided in Table 3-2 (detects only) and Table 3-3 (all validated analytical results). Groundwater quality analytical results for constituents that were detected for the first time at a given well at SSFL are summarized in Table 3-4. Laboratory data usability assessments (DUAs) and data summary reports are included in Appendix B. Groundwater quality parameters were documented prior to sample collection; the final readings at each well taken prior to sample collection are summarized in Table 2-6. Specific results of interest are discussed in the following subsections.

Aside from the first-time detections shown in Table 3-4 and the historical maximum exceedances discussed below, the remaining analytical results were found to be within historical ranges.

3.2.1 Analytical Results

A total of 46 stations were scheduled for sampling in the third quarter 2016; 14 of these stations were dry or contained an insufficient amount of groundwater to collect a sample and 6 wells were not sampled because of pumping inactivity. These exceptions to the wells scheduled for monitoring in the third quarter 2016 are summarized in Table 2-1.

3.2.1.1 Onsite Detections

SSFL annual groundwater monitoring reports include lateral extent maps that show the areas of impacted groundwater for 11 chemicals. These chemicals are selected for mapping because they are COCs in the PCP Regulated Unit Monitoring Program and/or the Site-Wide Monitoring Program, exceeded screening levels in three or more locations in recent data, and chemicals detected at concentrations exceeding screening values at three or more locations historically. Detected concentrations exceeding the respective screening levels of these 11 chemicals during the third quarter 2016 are summarized below.

Wells sampled during the third quarter 2016 were located onsite, with the exception of SP-29B, RD-68A, and RD-68B, which are discussed in Section 3.2.1.2. Trichloroethene (TCE) was detected in 11 of 22 wells. Detected concentrations exceeded the 5 micrograms per liter ($\mu\text{g/L}$) federal Maximum Contaminant Level (MCL) at six of these locations. TCE concentrations above the MCL ranged from 8.1 $\mu\text{g/L}$ (RD-41B) to 490 $\mu\text{g/L}$ (HAR-07). cis-1,2-Dichloroethene (DCE) was detected in 12 of 22 wells, with concentrations exceeding the 6 $\mu\text{g/L}$ California MCL at 11 of these wells. Elevated concentrations ranging from 15 $\mu\text{g/L}$ (HAR-08) to 2,900 $\mu\text{g/L}$ (HAR-07). Vinyl chloride was detected in 9 of 22 wells sampled in the third quarter 2016, with concentrations exceeding the California MCL of 0.5 $\mu\text{g/L}$ at 8 wells. Concentrations exceeding the California MCL ranged from 0.52 $\mu\text{g/L}$ (SP-890C) to 130 $\mu\text{g/L}$ (HAR-07). trans-1,2-DCE was detected in 11 of 22 onsite wells sampled. Detected concentrations exceeded the 10 $\mu\text{g/L}$ California MCL at 7 wells. Concentrations of trans-1,2-DCE above the MCL ranged from 12 $\mu\text{g/L}$ (HAR-20 and HAR-21) to 270 $\mu\text{g/L}$ (HAR-07). 1,1-DCE was detected in 4 of 22 onsite wells sampled. Concentrations in one well exceeded the MCL of 6 $\mu\text{g/L}$ (9.7 J $\mu\text{g/L}$ at HAR-07). Formaldehyde was detected in 8 of 13 onsite wells sampled. Concentrations in one well exceeded the notification level of 100 $\mu\text{g/L}$ (120 $\mu\text{g/L}$ at WS-04A).

Semivolatile Organic Compound (SVOC) NDMA was detected in 5 of 20 onsite wells sampled. Concentrations exceeded the notification level of 0.01 $\mu\text{g/L}$ at 4 of these wells. Elevated concentrations ranging from 0.012 (HAR-08) to 0.019 $\mu\text{g/L}$ (HAR-07). Nine of 23 onsite wells sampled had detected concentrations of 1,4-dioxane. Concentrations exceeded the notification level of 1 $\mu\text{g/L}$ at three of these wells. Detected concentrations exceeding the notification level ranged from 1.2 (HAR-21) to 2.7 $\mu\text{g/L}$ (HAR-11).

Diesel range organics (DROs) were detected at 6 wells with concentrations exceeding the taste/odor threshold of 100 $\mu\text{g/L}$ at two wells. Elevated concentrations ranged from 130 $\mu\text{g/L}$ (HAR-11) to 790 $\mu\text{g/L}$ (HAR-20). Gasoline range organics (GROs) were detected in two wells, HAR-21 (53 $\mu\text{g/L}$) and HAR-07 (200 $\mu\text{g/L}$) exceeding the taste/odor threshold of 5 $\mu\text{g/L}$.

General chemistry parameters fluoride and nitrate were not detected above their respective screening levels at onsite wells during the third quarter 2016.

New Maximum Historical Detections

Validated analytical results were compared to historical data following the third quarter groundwater sampling event to determine if new maximum detections were found. Five wells contained four analytes that were detected at concentrations exceeding both historical maximum values and their respective screening levels during third quarter 2016. The following discussion focuses on constituents for which new historical maximum concentrations exceeded the respective screening levels.

Alfa Area—During the third quarter, DRO (C8-C30) was detected above the taste/odor threshold of 100 $\mu\text{g/L}$ at a new maximum historical level of 790 $\mu\text{g/L}$ at monitoring well HAR-20. This detection was reported at a level more than twice the respective screening criteria and has been detected at this location prior to the third quarter 2016 with a previous maximum detection of 710 $\mu\text{g/L}$.

Coca Area—Strontium was detected above the SSFL comparison level of 0.8 mg/L at new maximum historical level of 1.01 milligrams per liter (mg/L) at monitoring well RD-41B. Strontium has been detected at this location prior to the third quarter 2016 with a previous maximum detection of 0.904 mg/L.

Southern Buffer Zone Area—NDMA was detected above the Notification Level of 0.01 µg/L at a new maximum historical level of 0.013 µg/L at monitoring well RD-05B. NDMA has been detected at this location prior to the third quarter 2016 with a previous maximum detection of 0.0049 µg/L.

trans-1,2-DCE was detected above the California MCL of 10 µg/L at new maximum historical level of 24 µg/L at SP-890C and SP-890G. This detection was reported at a level more than twice the respective screening criteria and has been detected at these locations prior to the third quarter 2016 with previous maximum detections of 20 µg/L and 22 µg/L, respectively.

First-time Detections

Area 1 (Former LOX Plant Area) – Butyl benzyl phthalate was detected below the sitewide groundwater risk-based screening level (SWGW RBSL) for the first time at WS-04A with an estimated concentration of 0.077 J µg/L. This detection was found in the field duplicate sample, and was not detected in the surrogate sample.

Alfa Area— Isopropanol was detected for the first time at monitoring well HAR-11 below the taste/odor threshold of 160,000 µg/L at a concentration of 170 µg/L.

Dimethyl phthalate was detected for the first time at monitoring well HAR-20 below the SWGW RBSL of 130,000 µg/L at an estimated concentration of 0.045 J µg/L.

Di-n-butyl phthalate and perchlorate were detected for the first time at monitoring well RD-49C below the SWGW RBSL of 1,300 µg/L and California MCL of 6 µg/L, respectively. Di-n-butyl phthalate was detected at an estimated concentration of 0.12 J µg/L and perchlorate was detected at a concentration of 3.4 µg/L.

Bravo Area— Isopropanol and butyl benzyl phthalate were detected for the first time at monitoring well HAR-19 below the taste/odor threshold of 160,000 µg/L and SWGW RBSL of 78 µg/L, respectively. Isopropanol was detected at an estimated concentration of 61 J µg/L and butyl benzyl phthalate was detected at an estimated concentration of 0.11 J µg/L.

GROs (C4-C12) were detected for the first time at monitoring well HAR-21 exceeding the taste/odor threshold of 5 µg/L at a concentration of 53 µg/L.

Southern Buffer Zone Area— Isopropanol was detected for the first time at seep wells SP-881C, SP-890C, and SP-890G below the taste/odor threshold of 160,000 µg/L at an estimated concentration of 88 J µg/L (SP-890C and SP-890G) and concentration of 160 µg/L at SP-881C.

Storable Propellant Area— Isopropanol was detected for the first time at monitoring well HAR-05 below the taste/odor threshold of 160,000 µg/L at an estimated concentration of 75 J µg/L.

3.2.1.2 Offsite Wells and Detections

Monitoring wells RD-68A and RD-68B and seep well SP-29B are the only wells located offsite that were sampled during the third quarter 2016. These wells are artesian, with hydrostatic heads above the ground surface. During the third quarter 2016 groundwater sampling event, there were no detections of TCE, vinyl chloride, trans-1,2-DCE, or cis-1,2-DCE. Fluoride was detected above the SSFL comparison level of 0.8 mg/L at RD-68B and SP-29B at concentrations of 0.97 mg/L and 4.8 mg/L, respectively.

New Maximum Historical Detections

Validated analytical results were compared to historical data following the third quarter groundwater sampling event to determine if new maximum detections were found. One well and one analyte was detected at a maximum historical value above its respective screening level during third quarter 2016. The following discussion focuses on constituents for which new historical maximum concentrations exceeded the respective screening levels.

Offsite Artesian Well—During the third quarter, fluoride was detected above the SSFL comparison level of 0.8 mg/L at a new maximum historical level of 4.8 mg/L at seep well SP-29B. This detection was reported at

a level more than twice the respective screening criteria and has been detected at this location prior to the third quarter 2016 with a previous maximum detection of 4.4 mg/L.

First-time Detections

Offsite Artesian Wells—Dimethyl phthalate was detected at RD-68B for the first time during third quarter 2016 at an estimated concentration of 0.39 J µg/L, which is below the SWGW RBSL of 130,000 µg/L.

Seep Well Radionuclide Analytical Summary

Samples collected from SP-29B were submitted for radionuclide analysis during third quarter 2016. Nine individual radionuclides were detected, for which there are screening criteria for only five of these analytes (gross alpha, gross beta, gross beta-decanted, uranium-233/234, and uranium-238). Of the detected radionuclides, all were detected below their respective screening criteria, where criteria were available.

Analytical results for the third quarter indicated that the remaining identified COCs were nondetect or below the screening criteria at these locations.

3.3 Field Quality Assurance

3.3.1 Groundwater Level Monitoring

During the third quarter 2016 sampling event, a total of 164 gauging locations consisting of groundwater monitoring wells, piezometers, seep well clusters, and seep pools were scheduled for groundwater level monitoring. Of these, all 164 stations (100 percent) were monitored during third quarter 2016.

Percent Completeness Summary

| Groundwater Level Monitoring | Third Quarter 2016 |
|-------------------------------|--------------------|
| Number of locations scheduled | 164 |
| Number of locations monitored | 164 |
| Percent completeness | 100% |

The percent completeness (% C) listed in this summary was calculated using the following equation:

$$\% C = \frac{\text{Number of Valid (Usable) Measurements} \times 100}{\text{Number of Measurements Planned}}$$

3.3.2 Groundwater Monitoring

During the third quarter 2016 event, 46 stations were scheduled to be sampled. Of these, 26 stations (56.5 percent) were sampled. Samples could not be collected at a number of these locations because the wells and/or piezometers were either dry or did not contain an adequate amount of groundwater for sampling purposes, or they were associated with inactive treatment systems and did not require sampling under the CAIM program. Therefore, a sampling completeness of 100 percent was achieved for the wells that could be sampled versus those that were scheduled or planned to be sampled during the third quarter 2016.

3.3.3 Quality Assurance/Quality Control Sample Collection

The quality assurance (QA)/QC sample collection targets are listed in the WQSAP (Haley & Aldrich, 2010c). During the third quarter 2016, the QA/QC sample collection targets were met except where wells contained an inadequate amount of groundwater for sampling.

The following chart summarizes the QA/QC samples collected and their completeness. The overall QA/QC project goal of 90 percent was exceeded:

Percent Completeness for QA/QC Sample Collection

| QC Sample Type | Site-Wide WQSAP ^a |
|----------------|------------------------------|
| EBs | 100% |
| FBS | 100% |
| FDs | 100% |
| MS/MSD | 100% |
| TBs | 100% |

^a Haley & Aldrich, Inc., 2010c

EB = equipment blank

FB = field blank

FD = field duplicate

MS = matrix spike

MSD = matrix spike duplicate

QC = quality control

TB = trip blank

WQSAP = Water Quality Sampling and Analysis Plan

3.3.4 Groundwater Quality Parameter Measurements

Groundwater quality field parameters (pH, oxidation-reduction potential, dissolved oxygen, conductivity, temperature, and turbidity) were collected according to the Site-Wide WQSAP (Haley & Aldrich, 2010c). Table 2-1 summarizes the exceptions for the third quarter 2016. Groundwater quality field parameters were documented during groundwater purging and prior to sample collection at each well location; Table 2-6 provides a summary of the final parameter readings collected at each well for the third quarter 2016.

3.3.5 Analytical Data

The DUA and laboratory analytical reports for the third quarter 2016 reporting period are provided in Appendix B. The laboratories used for this program are certified by the California Department of Public Health Environmental Laboratory Accreditation Program. The DUA in Appendix B includes a summary of laboratory performance and precision.

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SECTION 4

Scheduled Follow-up Work

Piezometer PZ-060 was scheduled to be sampled during third quarter 2016. When this location was approached, the total depth of the well was measured to be less than 0.5 ft below the depth to static water level water measurement and was unable to be sampled. This location will be scheduled for re-development prior to the first quarter 2017 groundwater sampling event to attempt to remove a possible silt build-up or other blockage near the bottom of this piezometer.

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SECTION 5

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Tables

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TABLE 1-1

Wells and Monitoring Programs

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Post-Closure Permit Regulated Unit Monitoring Program | | | | | | | | | Sitewide Monitoring Program | | | Seeps and Springs Monitoring | | |
|---------|---|------------------------|-----|------|----|----|----------|------|-------------|-----------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|
| | Permit for | Regulated Unit | POC | Bkgd | DM | EM | EM (aff) | CAIM | CAIM Status | Sampling Program | Area of Impacted Groundwater | Water Level Monitoring Program | Groundwater Sampling | Area of Impacted Groundwater | Water Level Monitoring Program |
| ES-21 | Area II | Other Extraction Wells | | | | | | X | not active | | 6, 7 | X | | | |
| ES-22 | Area II | Other Extraction Wells | | | | | | X | not active | | 6, 7 | X | | | |
| FDP-882 | | | | | | | | | | | | | X | 9 | X |
| FDP-890 | | | | | | | | | | X | 9 | X | | | |
| HAR-05 | Area II | SPA-1, SPA-2 | | | | X | | | | | 8 | X | | | |
| HAR-07 | Area II | Delta | | | | X | X | X | not active | | 9 | X | | | |
| HAR-08 | Area II | Delta | | | | X | X | | | | 9 | X | | | |
| HAR-09 | Area II | ABSP | X | | X | X | X | | | | 8 | X | | | |
| HAR-11 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| HAR-12 | Area II | SPA-1 | | | X | X | X | | | | 8 | X | | | |
| HAR-13 | Area II | SPA-1 | | X | | | | | | | 8 | X | | | |
| HAR-14 | Area II | SPA-1 | X | | X | X | X | | | | 8 | X | | | |
| HAR-15 | Area II | SPA-2 | | | | X | X | | | | 8 | X | | | |
| HAR-19 | Area II | ABSP | | | X | X | X | | | | 8 | X | | | |
| HAR-20 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| HAR-21 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| HAR-23 | Area II | SPA-1, SPA-2 | | | | X | | | | | 8 | X | | | |
| HAR-27 | Area II | Delta | X | | X | X | X | | | | 9 | X | | | |
| HAR-28 | Area II | Delta | | | X | X | X | | | | 9 | X | | | |
| HAR-29 | Area II | Delta | | | X | X | X | | | | 9 | X | | | |
| HAR-30 | Area II | SPA-2 | | | X | X | X | | | | 8 | X | | | |
| HAR-31 | Area II | SPA-2 | | X | | | | | | | 8 | X | | | |
| PZ-059 | Area II | ABSP | | X | | | | | | | 8 | X | | | |
| PZ-060 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| PZ-070 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| PZ-095 | | | | | | | | | | X | 5 | X | | | |
| RD-04 | Area II | Other Extraction Wells | | | | | | X | not active | | 8 | X | | | |
| RD-05A | Area II | Delta | | | | X | | | | X | 9 | X | | | |
| RD-05B | Area II | Delta | | | | X | | | | X | 9 | X | | | |
| RD-05C | Area II | Delta | | | | X | | | | X | 9 | X | | | |
| RD-09 | Area II | Other Extraction Wells | | | | | | X | not active | | 6, 7 | X | | | |
| RD-40 | | | | | | | | | | X | 9 | X | | | |
| RD-41A | Area II | Delta | | X | | | | | | | 9 | X | | | |
| RD-41B | | | | | | | | | | X | 9 | X | | | |
| RD-42 | | | | | | | | | | X | 9 | X | | | |
| RD-49A | Area II | ABSP | | X | | | | | | | 8 | X | | | |
| RD-49B | Area II | ABSP | | X | | | | | | | 8 | X | | | |
| RD-49C | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| RD-56A | | | | | | | | | | X | 6, 7 | X | | | |
| RD-56B | | | | | | | | | | X | 6, 7 | X | | | |

TABLE 1-1

Wells and Monitoring Programs

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Post-Closure Permit Regulated Unit Monitoring Program | | | | | | | | | Sitewide Monitoring Program | | | Seeps and Springs Monitoring | | |
|---------------------|---|------------------------|-----|------|----|----|----------|------|-------------|-----------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|
| | Permit for | Regulated Unit | POC | Bkgd | DM | EM | EM (aff) | CAIM | CAIM Status | Sampling Program | Area of Impacted Groundwater | Water Level Monitoring Program | Groundwater Sampling | Area of Impacted Groundwater | Water Level Monitoring Program |
| RD-68A | Area II | ABSP | | | | X | | | | X | 6, 7 | X | | | |
| RD-68B | Area II | ABSP | | | | X | | | | X | 6, 7 | X | | | |
| RD-69 | | | | | | | | | | X | 5 | X | | | |
| RD-70 | | | | | | | | | | X | 6, 7 | X | | | |
| RD-81 | | | | | | | | | | X | 5 | X | | | |
| RD-83 | | | | | | | | | | X | 5, 6 | X | | | |
| RD-104 ^a | Area II | ABSP | X | | X | X | X | | | | 8 | X | | | |
| RS-08 | Area II | ABSP | | | | X | X | | | | 8 | X | | | |
| RS-10 | Area II | Delta | | X | | | | | | | 9 | X | | | |
| RS-34 ^b | Area II | SPA-2 | X | | X | X | X | | | | 8 | X | | | |
| SP-29A | | | | | | | | | | | | | X | | X |
| SP-29B | | | | | | | | | | | | | X | | X |
| SP-29C | | | | | | | | | | | | | X | | X |
| SP-33A | | | | | | | | | | | | | X | 6, 7 | X |
| SP-33B | | | | | | | | | | | | | X | 6, 7 | X |
| SP-33C | | | | | | | | | | | | | X | 6, 7 | X |
| SP-881C | | | | | | | | | | | | | X | 9 | X |
| SP-881G | | | | | | | | | | | | | X | 9 | X |
| SP-882B | | | | | | | | | | | | | X | 9 | X |
| SP-882G | | | | | | | | | | | | | X | 9 | X |
| SP-890C | | | | | | | | | | | | | X | 9 | X |
| SP-890G | | | | | | | | | | | | | X | 9 | X |
| WS-04A | Area II | ABSP | | | | X | | | | X | 5 | X | | | |
| WS-09 | Area II | Other Extraction Wells | | | | | | X | not active | | 8 | X | | | |
| WS-09A | Area II | Other Extraction Wells | | | | | | X | not active | X | 9 | X | | | |

^a This well identification number (ID) has been changed, the previous well identifier was PC-02.

^b This well ID has been changed, the previous well identifier was PC-03.

aff = affected media

Bkgd = background

CAIM = corrective action interim measure

DM = detection monitoring

EM = evaluation monitoring

POC = point of compliance

TABLE 2-1

Exceptions to the Groundwater Quality Sampling and Analysis Plans

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Exception Description | Well Identifier | Notes |
|---|---|--|
| Scheduled Stations that were not sampled | FDP-882, HAR-12, HAR-15, HAR-28, HAR-29, HAR-30, PZ-070, RD-104, RS-08, RS-34 | These sampling locations were dry or contained only end cap water suspended in the sump of the well. |
| | PZ-060 | Insufficient amount of water column observed in this well prior to sampling. Total depth was measured to be less than 0.5 ft below the depth to static water level measurement possibly due to a silt build-up at the bottom of the well and was unable to be sampled. This location will be scheduled for re-development to attempt to remove the blockage at the bottom of the well. |
| | HAR-27 | Insufficient amount of water observed above the pump intake prior to sampling. |
| | HAR-09, HAR-14 | Water levels were observed below the pump intake prior to sampling. |
| Stabilization criteria not met | SP-882G | Drawdown exceeded 0.3 ft during low-flow purging at this location. The purge rate was set at the lowest targeted rate of 100 mL per minute guideline. |
| | HAR-20 | Drawdown exceeded 0.3 ft during the initial low-flow purging at this location. Purge rates were within the targeted 100 to 500 mL per minute guidelines. The depth to water level stabilized after the system volume was removed, and did not change while purging the well. |
| Wells not scheduled to be sampled due to inactivity | ES-21, ES-22, RD-04, RD-09, WS-09 and WS-09A | These wells are part of the PCP and are scheduled to be sampled during the third quarter of 2016 sampling event if they are actively pumping. These wells were not active during the third quarter of 2016. |

ft = foot (feet)

mL = milliliter(s)

PCP = Post Closure Permit

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TABLE 2-2

New Surveyed Monitoring Point Elevations

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Previous Monitoring Point Elevation (feet NGVD29) | New Surveyed Monitoring Point Elevations (feet NGVD29) | Monitoring Point Elevation Change (feet) | Comment |
|----------|---|--|--|--|
| C-7-1 | 1831.03 | 1831.54 | 0.51 | Open corehole C-7 located on the helipad in B204/ELV AIG was converted to a FLUTe multiport well, this is the new elevation for Port 1. |
| C-7-2 | 1831.06 | 1831.57 | 0.51 | Open corehole C-7 located on the helipad in B204/ELV AIG was converted to a FLUTe multiport well, this is the new elevation for Port 2. |
| C-7-3 | 1831.12 | 1831.63 | 0.51 | Open corehole C-7 located on the helipad in B204/ELV AIG was converted to a FLUTe multiport well, this is the new elevation for Port 3. |
| HAR-08 | 1730.98 | 1731.22 | 0.24 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| HAR-19 | 1833.52 | 1833.28 | -0.24 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| PZ-021 | 1755.69 | 1758.97 | 3.28 | Resurvey of monitoring point elevation following riser repairs. |
| PZ-125 | 1780.25 | 1783.39 | 3.14 | Resurvey of monitoring point elevation following riser repairs. |
| RD-40 | 1972.22 | 1972.05 | -0.17 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| RD-41A | 1774.61 | 1773.71 | -0.90 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| RD-56A-1 | 1757.66 | 1758.18 | 0.52 | Open borehole monitoring well RD-56A located north of the Building 204 Area was converted to a FLUTe multiport well, this is the new elevation for Port 1. |
| RD-56A-2 | 1757.69 | 1758.21 | 0.52 | Open borehole monitoring well RD-56A located north of the Building 204 Area was converted to a FLUTe multiport well, this is the new elevation for Port 2. |
| RD-56A-3 | 1757.68 | 1758.20 | 0.52 | Open borehole monitoring well RD-56A located north of the Building 204 Area was converted to a FLUTe multiport well, this is the new elevation for Port 3. |
| RD-56B | 1761.47 | 1761.31 | -0.16 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| RD-69 | 1831.23 | 1831.03 | -0.20 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| RD-80 | 1740.18 | 1739.88 | -0.30 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |
| WS-04A | 1750.94 | 1750.99 | 0.05 | New dedicated bladder pump was installed; final moitoring point was resurveyed. |

These monitoring point elevations were surveyed based on the North American Datum of 1927 (horizontal datum) and the National Geodetic Vertical Datum of 1929 (NGVD29).

AIG = area of impacted groundwater

B204/ELV = Building 204/Expendable Launch Vehicle

FLUTe = Flexible Liner Underground Technology

ID = identification number

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TABLE 2-3

Groundwater Level Data

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Groundwater-bearing Zone | Monitoring Point Elevation (feet NGVD29) | Depth to Groundwater (feet BTOC) | Static Groundwater Level Elevation (feet NGVD29) | Date of Measurement |
|---------|--------------------------|--|----------------------------------|--|---------------------|
| C-7-1 | Chatsworth | 1831.54 | 174.59 | 1656.95 | 7/11/2016 |
| C-7-2 | Chatsworth | 1831.57 | 179.37 | 1652.20 | 7/11/2016 |
| C-7-3 | Chatsworth | 1831.63 | 179.18 | 1652.45 | 7/11/2016 |
| ES-18 | Shallow | 1770.25 | Dry | - | 7/13/2016 |
| ES-19 | Shallow | 1769.44 | Dry | - | 7/13/2016 |
| ES-20 | Shallow | 1770.58 | Dry | - | 7/13/2016 |
| ES-21 | Shallow | 1769.62 | 36.88 | 1732.74 | 7/13/2016 |
| ES-22 | Shallow | 1770.93 | Dry | - | 7/13/2016 |
| FDP-882 | Natural Spring | - | Dry | - | 7/12/2016 |
| FDP-890 | Natural Spring | - | Dry | - | 7/12/2016 |
| HAR-05 | Chatsworth | 1812.72 | 55.45 | 1757.27 | 7/12/2016 |
| HAR-06 | Chatsworth | 1815.19 | 53.49 | 1761.70 | 7/12/2016 |
| HAR-07 | Chatsworth | 1728.72 | 81.52 | 1647.20 | 7/11/2016 |
| HAR-08 | Chatsworth | 1731.22 | 65.66 | 1665.56 | 7/11/2016 |
| HAR-09 | Shallow | 1821.42 | 29.42 | 1792.00 | 7/11/2016 |
| HAR-11 | Shallow | 1827.78 | 27.25 | 1800.53 | 7/11/2016 |
| HAR-12 | Shallow | 1797.23 | Dry | - | 7/12/2016 |
| HAR-13 | Shallow | 1801.09 | Dry | - | 7/12/2016 |
| HAR-14 | Shallow | 1796.91 | 38.41 | 1758.50 | 7/12/2016 |
| HAR-15 | Shallow | 1809.57 | Dry | - | 7/12/2016 |
| HAR-19 | Chatsworth | 1833.28 | 193.32 | 1639.96 | 7/11/2016 |
| HAR-20 | Chatsworth | 1830.76 | 190.33 | 1640.43 | 7/11/2016 |
| HAR-21 | Chatsworth | 1821.42 | 29.92 | 1791.50 | 7/11/2016 |
| HAR-22 | Chatsworth | 1816.62 | 59.55 | 1757.07 | 7/13/2016 |
| HAR-23 | Chatsworth | 1806.13 | 44.98 | 1761.15 | 7/12/2016 |
| HAR-27 | Shallow | 1719.28 | 39.07 | 1680.21 | 7/11/2016 |
| HAR-28 | Shallow | 1720.06 | Dry | - | 7/11/2016 |
| HAR-29 | Shallow | 1724.04 | Dry | - | 7/11/2016 |
| HAR-30 | Shallow | 1807.05 | Dry | - | 7/12/2016 |
| HAR-31 | Shallow | 1812.32 | Dry | - | 7/12/2016 |
| PZ-001A | Shallow | 1768.50 | Dry | - | 7/13/2016 |
| PZ-001B | Shallow | 1768.50 | Dry | - | 7/13/2016 |
| PZ-001C | Shallow | 1768.50 | Dry | - | 7/13/2016 |
| PZ-001D | Shallow | 1768.50 | Dry | - | 7/13/2016 |
| PZ-001E | Shallow | 1768.50 | 50.74 | 1717.76 | 7/13/2016 |
| PZ-001F | Shallow | 1768.50 | 50.56 | 1717.94 | 7/13/2016 |
| PZ-007A | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007B | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007C | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007D | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007E | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007F | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-007G | Shallow | 1771.84 | Dry | - | 7/13/2016 |
| PZ-009A | Shallow | 1761.44 | Dry | - | 7/13/2016 |

TABLE 2-3

Groundwater Level Data

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Groundwater-bearing Zone | Monitoring Point Elevation (feet NGVD29) | Depth to Groundwater (feet BTOC) | Static Groundwater Level Elevation (feet NGVD29) | Date of Measurement |
|---------|--------------------------|--|----------------------------------|--|---------------------|
| PZ-009B | Shallow | 1761.44 | Dry | - | 7/13/2016 |
| PZ-009C | Shallow | 1761.44 | Dry | - | 7/13/2016 |
| PZ-009D | Shallow | 1761.44 | Dry | - | 7/13/2016 |
| PZ-009E | Shallow | 1761.44 | Dry | - | 7/13/2016 |
| PZ-009F | Shallow | 1761.44 | Dry | - | 7/13/2016 |
| PZ-010A | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010B | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010C | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010D | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010E | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010F | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-010G | Shallow | 1767.80 | Dry | - | 7/13/2016 |
| PZ-019 | Shallow | 1776.77 | 31.77 | ECW | 7/13/2016 |
| PZ-020 | Shallow | 1776.44 | 32.40 | ECW | 7/13/2016 |
| PZ-021 | Shallow | 1758.97 | Dry | - | 7/13/2016 |
| PZ-022 | Shallow | 1774.44 | Dry | - | 7/13/2016 |
| PZ-056 | Shallow | 1805.86 | 30.19 | ECW | 7/13/2016 |
| PZ-059 | Shallow | 1836.67 | 24.92 | ECW | 7/11/2016 |
| PZ-060 | Shallow | 1868.90 | 48.38 | 1820.52 | 7/11/2016 |
| PZ-062 | Shallow | 1716.57 | Dry | - | 7/14/2016 |
| PZ-070 | Shallow | 1834.61 | 26.75 | ECW | 7/11/2016 |
| PZ-073 | Shallow | 1760.54 | Dry | - | 7/11/2016 |
| PZ-095 | Shallow | 1760.02 | 27.60 | ECW | 7/13/2016 |
| PZ-114 | Shallow | 1818.19 | 50.09 | ECW | 7/13/2016 |
| PZ-115 | Shallow | 1817.81 | Dry | - | 7/13/2016 |
| PZ-125 | Shallow | 1783.39 | Dry | - | 7/13/2016 |
| PZ-128 | Shallow | 1757.26 | Dry | - | 7/13/2016 |
| PZ-129 | Shallow | 1741.94 | 29.99 | ECW | 7/13/2016 |
| PZ-130 | Shallow | 1746.66 | Dry | - | 7/13/2016 |
| PZ-131 | Shallow | 1759.95 | 29.66 | ECW | 7/13/2016 |
| PZ-132 | Shallow | 1758.38 | Dry | - | 7/13/2016 |
| PZ-133 | Shallow | 1798.48 | Dry | - | 7/13/2016 |
| PZ-134 | Shallow | 1821.59 | 79.32 | ECW | 7/13/2016 |
| PZ-135 | Shallow | 1823.84 | 90.05 | ECW | 7/13/2016 |
| PZ-136 | Shallow | 1812.90 | 77.54 | ECW | 7/13/2016 |
| PZ-137 | Shallow | 1810.13 | 79.85 | ECW | 7/13/2016 |
| PZ-139 | Shallow | 1831.91 | 52.43 | 1779.48 | 7/14/2016 |
| PZ-140 | Shallow | 1832.82 | 23.08 | 1809.74 | 7/14/2016 |
| PZ-141 | Shallow | 1856.58 | 9.03 | 1847.55 | 7/14/2016 |
| PZ-142 | Shallow | 1745.13 | 40.71 | ECW | 7/13/2016 |
| PZ-143 | Shallow | 1849.84 | Dry | - | 7/14/2016 |
| PZ-144 | Shallow | 1859.13 | 19.94 | 1839.19 | 7/14/2016 |
| PZ-145 | Shallow | 1766.87 | 32.58 | ECW | 7/13/2016 |
| PZ-146 | Shallow | 1789.82 | 24.51 | ECW | 7/13/2016 |

TABLE 2-3

Groundwater Level Data

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Groundwater-bearing Zone | Monitoring Point Elevation (feet NGVD29) | Depth to Groundwater (feet BTOC) | Static Groundwater Level Elevation (feet NGVD29) | Date of Measurement |
|----------|--------------------------|--|----------------------------------|--|---------------------|
| PZ-147 | Shallow | 1791.24 | 39.16 | ECW | 7/13/2016 |
| PZ-148 | Shallow | 1794.71 | Dry | - | 7/13/2016 |
| PZ-149 | Shallow | 1715.19 | Dry | - | 7/11/2016 |
| PZ-151 | Shallow | 1862.60 | 79.58 | ECW | 7/13/2016 |
| PZ-152 | Shallow | 1880.80 | 36.27 | ECW | 7/14/2016 |
| PZ-153 | Shallow | 1908.10 | 65.32 | ECW | 7/11/2016 |
| PZ-154 | Shallow | 1902.30 | Dry | - | 7/11/2016 |
| PZ-155 | Shallow | 1831.90 | 61.82 | ECW | 7/11/2016 |
| PZ-156 | Shallow | 1849.40 | Dry | - | 7/11/2016 |
| PZ-157 | Shallow | 1809.98 | Dry | - | 7/13/2016 |
| PZ-158 | Shallow | 1797.40 | Dry | - | 7/12/2016 |
| PZ-159 | Shallow | 1814.20 | Dry | - | 7/11/2016 |
| RD-04 | Chatsworth | 1883.93 | 261.29 | 1622.64 | 7/11/2016 |
| RD-05A | Chatsworth | 1704.78 | 82.16 | 1622.62 | 7/12/2016 |
| RD-05B | Chatsworth | 1706.19 | 66.67 | 1639.52 | 7/12/2016 |
| RD-05C | Chatsworth | 1705.27 | 49.82 | 1655.45 | 7/12/2016 |
| RD-09 | Chatsworth | 1768.49 | 50.42 | 1718.07 | 7/13/2016 |
| RD-26 | Chatsworth | 1880.78 | 136.14 | 1744.64 | 7/14/2016 |
| RD-40 | Chatsworth | 1972.05 | 281.09 | 1690.96 | 7/11/2016 |
| RD-41A | Chatsworth | 1773.71 | 106.88 | 1666.83 | 7/11/2016 |
| RD-41B | Chatsworth | 1774.73 | 118.04 | 1656.69 | 7/11/2016 |
| RD-41C | Chatsworth | 1773.73 | 124.93 | 1648.80 | 7/11/2016 |
| RD-42 | Chatsworth | 1946.08 | 75.48 | 1870.60 | 7/11/2016 |
| RD-49A | Chatsworth | 1867.28 | 27.39 | 1839.89 | 7/11/2016 |
| RD-49B | Chatsworth | 1868.11 | 227.54 | 1640.57 | 7/11/2016 |
| RD-49C | Chatsworth | 1869.63 | 247.65 | 1621.98 | 7/11/2016 |
| RD-56A-1 | Chatsworth | 1758.18 | Dry | - | 7/11/2016 |
| RD-56A-2 | Chatsworth | 1758.21 | 368.46 | 1389.75 | 7/11/2016 |
| RD-56A-3 | Chatsworth | 1758.20 | 383.78 | 1374.42 | 7/11/2016 |
| RD-56B | Chatsworth | 1761.31 | 162.08 | 1599.23 | 7/11/2016 |
| RD-68A | Chatsworth Artesian | 1307.97 | -5.47 | 1313.44 | 8/12/2016 |
| RD-68B | Chatsworth Artesian | 1310.96 | -3.42 | 1314.38 | 8/12/2016 |
| RD-69 | Chatsworth | 1831.03 | 69.31 | 1761.72 | 7/13/2016 |
| RD-70 | Chatsworth | 1732.44 | 132.54 | 1599.90 | 7/14/2016 |
| RD-80 | Chatsworth | 1739.88 | 121.49 | 1618.39 | 7/13/2016 |
| RD-81-1 | Chatsworth | 1705.88 | 88.16 | 1617.72 | 7/11/2016 |
| RD-81-2 | Chatsworth | 1705.87 | 88.12 | 1617.75 | 7/11/2016 |
| RD-81-3 | Chatsworth | 1705.87 | 88.11 | 1617.76 | 7/11/2016 |
| RD-81-4 | Chatsworth | 1705.91 | 88.20 | 1617.71 | 7/11/2016 |
| RD-82 | Chatsworth | 1676.71 | 58.76 | 1617.95 | 7/13/2016 |
| RD-83 | Chatsworth | 1660.85 | 48.67 | 1612.18 | 7/13/2016 |
| RD-104 | Chatsworth | 1826.83 | Dry | - | 7/11/2016 |
| RS-08 | Shallow | 1821.46 | Dry | - | 7/11/2016 |
| RS-10 | Shallow | 1762.08 | Dry | - | 7/11/2016 |

TABLE 2-3

Groundwater Level Data

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Groundwater-bearing Zone | Monitoring Point Elevation (feet NGVD29) | Depth to Groundwater (feet BTOC) | Static Groundwater Level Elevation (feet NGVD29) | Date of Measurement |
|---------|--------------------------|--|----------------------------------|--|---------------------|
| RS-21 | Shallow | 1767.36 | Dry | - | 7/13/2016 |
| RS-22 | Shallow | 1771.23 | Dry | - | 7/13/2016 |
| RS-29 | Shallow | 1833.09 | Dry | - | 7/14/2016 |
| RS-34 | Shallow | 1808.87 | Dry | - | 7/12/2016 |
| SP-29A | Shallow | 1264.68 | -4.89 | 1269.57 | 8/12/2016 |
| SP-29B | Shallow | 1267.44 | -5.31 | 1272.75 | 8/12/2016 |
| SP-29C | Shallow | 1265.34 | -6.19 | 1271.53 | 8/12/2016 |
| SP-33A | Shallow | 1580.84 | -1.52 | 1582.36 | 7/13/2016 |
| SP-33B | Shallow | 1580.72 | -1.36 | 1582.08 | 7/13/2016 |
| SP-33C | Shallow | 1578.54 | -4.02 | 1582.56 | 7/13/2016 |
| SP-881A | Shallow | 1618.67 | Dry | - | 7/12/2016 |
| SP-881B | Shallow | 1618.66 | Dry | - | 7/12/2016 |
| SP-881C | Shallow | 1618.77 | 8.33 | 1610.44 | 7/12/2016 |
| SP-881D | Shallow | 1618.18 | 7.65 | 1610.53 | 7/12/2016 |
| SP-881G | Shallow | 1617.67 | 7.30 | 1610.37 | 7/12/2016 |
| SP-882A | Shallow | 1611.94 | Dry | - | 7/12/2016 |
| SP-882B | Shallow | 1612.28 | 6.48 | 1605.80 | 7/12/2016 |
| SP-882C | Shallow | 1611.95 | 6.14 | 1605.81 | 7/12/2016 |
| SP-882D | Shallow | 1612.01 | 6.04 | 1605.97 | 7/12/2016 |
| SP-882G | Shallow | 1612.21 | 3.99 | 1608.22 | 7/12/2016 |
| SP-890A | Shallow | 1627.51 | Dry | - | 7/12/2016 |
| SP-890B | Shallow | 1627.91 | 6.36 | 1621.55 | 7/12/2016 |
| SP-890C | Shallow | 1627.31 | 5.88 | 1621.43 | 7/12/2016 |
| SP-890D | Shallow | 1627.39 | 5.92 | 1621.47 | 7/12/2016 |
| SP-890G | Shallow | 1628.12 | 5.55 | 1622.57 | 7/12/2016 |
| WS-04A | Chatsworth | 1750.99 | 132.82 | 1618.17 | 7/13/2016 |
| WS-09 | Chatsworth | 1883.95 | 260.67 | 1623.28 | 7/11/2016 |
| WS-09A | Chatsworth | 1647.61 | 24.73 | 1622.88 | 7/12/2016 |
| WS-09B | Chatsworth | 1796.99 | 140.21 | 1656.78 | 7/13/2016 |
| WS-12 | Chatsworth | 1706.26 | 88.08 | 1618.18 | 7/13/2016 |
| WS-13 | Chatsworth | 1658.90 | 42.73 | 1616.17 | 7/13/2016 |
| WS-SP | Chatsworth | 1766.76 | 52.19 | 1714.57 | 7/13/2016 |

Depth to groundwater measurements in *italic blue font* are likely not representative of groundwater levels. These measurements presumably represent groundwater suspended in the sump of the well (ECW) and are less than or equal to 0.5 foot from the bottom of the well.

NGVD29 = National Geodetic Vertical Datum of 1929

BTOC = below top of casing

ID = identification number

TABLE 2-4

Scheduled Well Locations and Corresponding Sample Analyses

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Post-Closure Permit Regulated Unit Monitoring Programs (<i>Semiannually</i>) | | | | | New Feature/Spring Monitoring |
|----------------------|--|----------------------|----------------------------|-----------------------------|----------------------|-------------------------------|
| | Point of Compliance | Detection Monitoring | Evaluation Monitoring | Evaluation Monitoring (aff) | CAIM | |
| ES-21 | | | | | COCs (all) If Active | |
| ES-22 | | | | | COCs (all) If Active | |
| FDP-882 ^a | | | | | | VOCs 1,4-Dioxane NDMA |
| HAR-05 | | | COCs (SPA) | | | |
| HAR-07 | | | COCs (Delta) COCs (all) | COCs (Delta) COCs (all) | COCs (all) If Active | |
| HAR-08 | | | COCs (Delta) | COCs (Delta) | | |
| HAR-09 | COCs (ABSP) | COCs (ABSP) | COCs (ABSP) | COCs (ABSP) | | |
| HAR-11 | | | COCs (ABSP) | COCs (ABSP) | | |
| HAR-12 | | COCs (SPA) | COCs (SPA) | COCs (SPA) | | |
| HAR-14 | COCs (SPA) | COCs (SPA) | COCs (SPA) | COCs (SPA) | | |
| HAR-15 | | | COCs (SPA) | COCs (SPA) | | |
| HAR-19 | | COCs (ABSP) | COCs (ABSP) | COCs (ABSP) | | |
| HAR-20 | | | COCs (ABSP) | COCs (ABSP) | | |
| HAR-21 | | | COCs (ABSP) | COCs (ABSP) | | |
| HAR-23 | | | COCs (SPA) | | | |
| HAR-27 | COCs (Delta) | COCs (Delta) | COCs (Delta) | COCs (Delta) | | |
| HAR-28 | | COCs (Delta) | COCs (Delta) | COCs (Delta) | | |
| HAR-29 | | COCs (Delta) | COCs (Delta) | COCs (Delta) | | |
| HAR-30 | | COCs (SPA) | COCs (SPA) | COCs (SPA) | | |
| PZ-060 | | | COCs (ABSP) | COCs (ABSP) | | |
| PZ-070 | | | COCs (ABSP) | COCs (ABSP) | | |
| RD-04 | | | | | COCs (all) If Active | |
| RD-05A | | | COCs (Delta) | | | |
| RD-05B | | | COCs (Delta) | | | |
| RD-05C | | | COCs (Delta) | | | |
| RD-09 | | | | | COCs (all) If Active | |
| RD-40 ^b | | | | | | 1,4-Dioxane |
| RD-41A ^c | | | | | | VOCs 1,4-Dioxane Metals |
| RD-41B ^c | | | | | | VOCs 1,4-Dioxane Metals |
| RD-49C | | | COCs (ABSP) | COCs (ABSP) | | |
| RD-68A | | | COCs (ABSP) | | | |

TABLE 2-4

Scheduled Well Locations and Corresponding Sample Analyses

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Post-Closure Permit Regulated Unit Monitoring Programs (<i>Semiannually</i>) | | | | | New Feature/Spring Monitoring |
|---------------------------|--|----------------------|-----------------------|-----------------------------|----------------------|---|
| | Point of Compliance | Detection Monitoring | Evaluation Monitoring | Evaluation Monitoring (aff) | CAIM | |
| RD-68B | | | COCs (ABSP) | | | |
| RD-104 | COCs (ABSP) | COCs (ABSP) | COCs (ABSP) | COCs (ABSP) | | |
| RS-08 | | | COCs (ABSP) | COCs (ABSP) | | |
| RS-34 | COCs (SPA) | COCs (SPA) | COCs (SPA) | COCs (SPA) | | |
| SP-29 (A,B, or C) | | | | | | VOCs 1,2,3-TCP Fluoride Radiochemistry |
| SP-33 (A,B, or C) | | | | | | VOCs 1,4-Dioxane |
| SP-881 (A, B, C, or D) | | | | | | VOCs 1,4-Dioxane NDMA |
| SP-881G | | | | | | VOCs 1,4-Dioxane NDMA |
| SP-882 (A, B, C, or D) | | | | | | VOCs 1,4-Dioxane NDMA |
| SP-882G | | | | | | VOCs 1,4-Dioxane NDMA |
| SP-890C | | | | | | VOCs 1,4-Dioxane NDMA |
| SP-890G | | | | | | VOCs 1,4-Dioxane NDMA |
| WS-04A | | | COCs (ABSP) | | | |
| WS-09 | | | | | COCs (all) If Active | |
| WS-09A | | | | | COCs (all) If Active | |

^a Groundwater sampling occurs semiannually at this location.

^b In addition to first quarter sampling, groundwater samples are also collected from this location during third quarter and analyzed for 1,4-dioxane.

^c In addition to first quarter sampling, groundwater samples are also collected from this location during third quarter and analyzed for volatile organic compounds (VOCs), 1,4-dioxane, and dissolved metals.

CAIM = corrective action interim monitoring

ABSP = Alfa/Bravo Skim Pond

aff = affected media

COC = contaminant of concern

ID = identification number

NDMA = n-nitrosodimethylamine

TCP = trichloropropane

VOC = volatile organic compound

SPA = Storable Propellant Area

TABLE 2-5

Monitoring Program Analyses

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Regulated Unit Monitoring Program ^{a,b,c} Analyses | | | |
|---|--|--------------------------|-------|
| 2010 Post-Closure Permit - Contaminants of Concern | | | |
| Analysis Suite Abbreviation | Analyte | Analytical Method | |
| COCs (ABSP) | 1,4-Dioxane, low level | 8260SIM | |
| | Ammonia | 4500-NH3F ^d | |
| | DRO | 8015B | |
| | Fluoride, Nitrate as NO ₃ | 300.0 | |
| | Formaldehyde | 8315A | |
| | Kerosene fuel (RP-1, JP-1, JP-4) | 8015B | |
| | Nitrobenzene, 1,3-dinitrobenzene | SW8270C/SW8330A | |
| | NDMA, low-level | SW8270C/SW8270C-SIM | |
| | Oil | 8015B | |
| | Perchlorate, low-level | SW6850 | |
| | Phthalates ^d (beginning second quarter 2011) | 8270C | |
| | Unsymmetrical dimethylhydrazine (1,1-dimethylhydrazine, UDMH) | SW8315M | |
| | Volatile organic compounds | 8260B | |
| COCs (Delta) | 1,4-Dioxane, low level | 8260SIM | |
| | Ammonia | 4500-NH3F ^e | |
| | Diesel range organics (DRO) | 8015B | |
| | Fluoride, Nitrate as NO ₃ | 300.0 | |
| | Formaldehyde | 8315A | |
| | Kerosene fuel (RP-1, JP-1, JP-4) | 8015B | |
| | Naphtene (GRO [C8-C11]) | 8015B | |
| | Nitrobenzene, 1,3-dinitrobenzene | SW8270C/SW8330A | |
| | NDMA, low-level | SW8270C/SW8270C-SIM | |
| | Perchlorate, low-level | SW6850 | |
| | pH | 9040C | |
| | Unsymmetrical dimethylhydrazine (1,1-dimethylhydrazine, UDMH) | SW8315M | |
| | Volatile organic compounds | 8260B | |
| COCs (SPA) | 1,4-Dioxane, low level | 8260SIM | |
| | Ammonia | 4500-NH3F ^d | |
| | Naphtene (GRO [C8-C11]) | 8015B | |
| | Fluoride, Nitrate as NO ₃ | 300.0 | |
| | Formaldehyde | 8315A | |
| | Hydrazines: Hydrazine, Momomethyl hydrazine, and Unsymmetrical dimethylhydrazine | SW8315M | |
| | Isopropyl alcohol | 8260B | |
| | Kerosene fuel (RP-1, JP-1, JP-4) | 8015B | |
| | Naphtene (C11) | 8015B | |
| | Nitrobenzene, 1,3-dinitrobenzene | SW8270C/SW8330A | |
| | NDMA, low-level | SW8270C/SW8270C-SIM | |
| | Perchlorate, low-level | SW6850 | |
| | pH | 9040C | |
| Volatile organic compounds | 8260B | | |
| VOCs Analyte List for Post-Closure Permit COCs | 1,1,1-Trichloroethane | Ethylbenzene | 8260B |
| | 1,1,2-Trichloro-1,2,2-trifluoroethane | Methyl ethyl ketone | 8260B |
| | 1,1,2-Trichloroethane | Methylene chloride | 8260B |
| | 1,1-Dichloroethane | Tetrachloroethene | 8260B |
| | 1,1-Dichloroethene | Toluene | 8260B |
| | 1,2-Dichloroethane | trans-1,2-Dichloroethene | 8260B |
| | Acetone | Trichloroethene | 8260B |
| | Benzene | Trichlorofluoromethane | 8260B |
| | Carbon Tetrachloride | Vinyl chloride | 8260B |
| | Chloroform | Xylenes | 8260B |
| | cis-1,2-Dichloroethene | | 8260B |

TABLE 2-5

Monitoring Program Analyses

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Regulated Unit Monitoring Program^{a,b,c} Analyses | |
|---|--|
| 2010 Post-Closure Permit - Contaminants of Concern | |
| Analyses Abbreviations | Description |
| COC | Contaminant of Concern |
| COC (ABSP) | Contaminant of Concern for Regulated Unit Alfa/Bravo Skim Pond |
| COCs (Delta) | Contaminant of Concern for Regulated Unit Delta |
| COCs (SPA) | Contaminant of Concern for Regulated Units Storage Propellant Area (SPA) 1 and SPA-2 |
| DRO | Diesel Range Organics (EPA 8015B) |
| GRO | Gasoline Range Organics (EPA 8015B) |
| Hydrazines | Hydrazine, Momomethyl hydrazine, and Unsymmetrical dimethylhydrazine |
| NDMA | n-Nitrosodimethylamine (EPA 1625M) |
| Nitrate | Nitrate as NO ₃ |
| VOC | Volatile Organic Compound (EPA 8260B) |

^a California Department of Toxic Substances Control, 2010. Hazardous Waste Facility Post-Closure Permit, Regional Permit Numbers PC 94/95-3-02 and PC-94/95-3-03. Permits for Areas I and III, and Area II, revised January 5, 2010.

^b Haley & Aldrich, 2010. *Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-3-02, Santa Susana Field Laboratory, Ventura County, California*. April.

^c Haley & Aldrich, 2010. *Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, California*. April.

^d Added to COC list based on new, verified detections; was not on original COC list in Post-Closure Permit.

^e U.S. Environmental Protection Agency (EPA) Analytical method 4500-NH3F is equivalent to method 350.2 specified in the permit for ammonia

TABLE 2-6

Groundwater Quality Data and Field Parameters

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Well ID | Date | Time | Volume Purged (gallons) | Temperature (°C) | pH | Conductivity (µS/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | Final Groundwater Level (feet btc) |
|---------|---------|-------|-------------------------|------------------|------|----------------------|-----------------|-------------------------|------------------------------------|------------------------------------|
| HAR-05 | 7/15/16 | 10:00 | 3.0 | 19.15 | 6.94 | 548 | 0 | 0 | 55 | 55.52 |
| HAR-07 | 7/12/16 | 9:30 | 2.2 | 20.29 | 6.00 | 652 | 0 | 1.22 | -3 | 83.05 |
| HAR-08 | 7/19/16 | 9:30 | 0.8 | 20.86 | 6.92 | 858 | 0 | 0.31 | 141 | 65.81 |
| HAR-11 | 7/19/16 | 12:00 | 2.5 | 26.78 | 6.70 | 1,650 | 0 | 0.73 | 19 | 27.50 |
| HAR-11 | 7/28/16 | 11:45 | 0.4 | 27.79 | 6.70 | 1,630 | 0 | 0.44 | 23 | 11.45 |
| HAR-19 | 7/26/16 | 11:00 | 1.6 | 17.87 | 6.16 | 705 | 21.2 | 0.34 | 169 | 193.52 |
| HAR-20 | 7/12/16 | 9:15 | 10.8 | 18.48 | 7.07 | 1,730 | 2.6 | 2.54 | -31 | 190.82 |
| HAR-21 | 7/18/16 | 12:30 | 1.2 | 18.03 | 7.38 | 1,560 | 0 | 0 | -148 | 30.24 |
| HAR-23 | 7/18/16 | 11:00 | 2.4 | 18.12 | 6.05 | 591 | 1.0 | 0 | 293 | 45.38 |
| RD-05A | 7/13/16 | 10:15 | 1.7 | 21.05 | 6.15 | 799 | 0 | 0.80 | 265 | 82.35 |
| RD-05B | 7/13/16 | 13:00 | 3.2 | 18.90 | 8.06 | 342 | 0 | 0.24 | -69 | 66.83 |
| RD-05C | 7/14/16 | 9:30 | 3.4 | 17.75 | 6.87 | 768 | 0 | 0.23 | -158 | 50.08 |
| RD-40 | 7/13/16 | 13:15 | 0.7 | 26.72 | 5.93 | 777 | 872 | 3.82 | 223 | 281.30 |
| RD-41A | 7/25/16 | 8:45 | 1.4 | 19.33 | 7.44 | 856 | 3.5 | 1.33 | 228 | 106.52 |
| RD-41B | 7/12/16 | 13:30 | 1.7 | 20.29 | 7.28 | 716 | 60.2 | 0 | -117 | 124.72 |
| RD-41B | 7/22/16 | 14:30 | 16.9 | 22.41 | 4.92 | 610 | 0.4 | 0.71 | 97 | 118.93 |
| RD-49C | 7/19/16 | 12:00 | 23.5 | 18.19 | 6.02 | 571 | 35.5 | 0 | -93 | 53.04 |
| RD-68A | 8/12/16 | 10:30 | 2.4 | 20.42 | 6.97 | 774 | 0 | 2.10 | -4 | Artesian |
| RD-68B | 8/12/16 | 11:30 | 1.3 | 20.44 | 7.03 | 693 | 0 | 1.79 | -7 | Artesian |
| SP-29B | 8/12/16 | 9:30 | 1.6 | 17.22 | 6.82 | 797 | 0 | 1.40 | 78 | Artesian |
| SP-33C | 7/13/16 | 9:00 | 0.4 | 17.46 | 5.90 | 858 | 0 | 0.38 | 7 | Artesian |
| SP-881C | 7/20/16 | 8:45 | 0.6 | 17.35 | 6.70 | 1,500 | 35 | 0 | 207 | 8.95 |
| SP-881G | 7/20/16 | 12:30 | 0.5 | 12.85 | 6.99 | 1,730 | 2.8 | 0.48 | -14 | 7.69 |
| SP-882B | 7/15/16 | 12:30 | 0.5 | 26.81 | 7.04 | 839 | 0 | 2.71 | -5 | 4.06 |
| SP-882G | 7/14/16 | 12:00 | 0.3 | 27.36 | 6.79 | 1,120 | 0 | 2.53 | 36 | 5.26 |
| SP-890C | 7/20/16 | 11:30 | 0.4 | 20.52 | 7.01 | 758 | 0 | 0.36 | -12 | 6.06 |
| SP-890G | 7/20/16 | 12:30 | 0.3 | 20.31 | 6.98 | 776 | 0 | 0 | 3 | 5.55 |
| WS-04A | 7/14/16 | 9:45 | 4.1 | 17.01 | 6.33 | 1,540 | 0 | 0 | -86 | 133.08 |

°C = degree(s) Celsius

µS/cm = microSiemen(s) per centimeter

BTOC = below top of casing

ID = identification number

mg/L = milligram(s) per liter

mV = millivolt(s)

NTU = nephelometric turbidity unit(s)

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TABLE 3-1

Groundwater Screening Reference Values

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Analyte Group | Chemical Analyte | Screening Value | Units | Screening Type |
|----------------------|---------------------------------------|-----------------|-------|--------------------|
| Halogenated Ethenes | 1,2-Dichloroethenes | 130 | µg/L | SWGWS RBSL |
| Halogenated Ethenes | Tetrachloroethene | 5 | µg/L | Primary MCL |
| Halogenated Ethenes | Trichloroethene | 5 | µg/L | Primary MCL |
| Halogenated Ethenes | cis-1,2-Dichloroethene | 6 | µg/L | California MCL |
| Halogenated Ethenes | trans-1,2-Dichloroethene | 10 | µg/L | California MCL |
| Halogenated Ethenes | 1,1-Dichloroethene | 6 | µg/L | California MCL |
| Halogenated Ethenes | Vinyl chloride | 0.5 | µg/L | California MCL |
| Halogenated Ethanes | 1,1,2,2-Tetrachloroethane | 1 | µg/L | California MCL |
| Halogenated Ethanes | 1,1,2-Trichloroethane | 5 | µg/L | Primary MCL |
| Halogenated Ethanes | 1,1,1-Trichloroethane | 200 | µg/L | Primary MCL |
| Halogenated Ethanes | 1,2-Dichloroethane | 0.5 | µg/L | California MCL |
| Halogenated Ethanes | 1,1-Dichloroethane | 5 | µg/L | California MCL |
| Halogenated Ethanes | Chloroethane | 16 | µg/L | Taste/Odor |
| Halogenated Ethanes | 1,2-Dibromoethane | 0.05 | µg/L | Primary MCL |
| Halogenated Ethanes | 1,1,2-Trichloro-1,2,2-trifluoroethane | 1200 | µg/L | California MCL |
| Halogenated Ethanes | 1,2-Dichloro-1,1,2-trifluoroethane | 190000 | µg/L | SWGWS RBSL |
| Halogenated Ethanes | 2,2-Dichloro-1,1,1-trifluoroethane | 190000 | µg/L | SWGWS RBSL |
| Halogenated Methanes | Carbon Tetrachloride | 0.5 | µg/L | California MCL |
| Halogenated Methanes | Chloroform | 80 | µg/L | Primary MCL |
| Halogenated Methanes | Methylene chloride | 5 | µg/L | Primary MCL |
| Halogenated Methanes | Chloromethane | 5.7 | µg/L | SWGWS RBSL |
| Halogenated Methanes | Trichlorofluoromethane | 150 | µg/L | California MCL |
| Halogenated Methanes | Dichlorodifluoromethane | 1000 | µg/L | Notification Level |
| Halogenated Methanes | Bromochloromethane | 34000 | µg/L | Taste/Odor |
| Halogenated Methanes | Bromodichloromethane | 80 | µg/L | Primary MCL |
| Halogenated Methanes | Bromoform | 80 | µg/L | Primary MCL |
| Halogenated Methanes | Bromomethane | 8.8 | µg/L | SWGWS RBSL |
| Halogenated Methanes | Dibromochloromethane | 80 | µg/L | Primary MCL |
| Non-Halogenated VOCs | 2-Heptanone | 280 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Benzyl chloride | 12 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Cumene | 770 | µg/L | Notification Level |
| Non-Halogenated VOCs | Ethanol | 760000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Ethyl acetate | 2600 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Ethyl ether | 750 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Methanol | 740000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | m-Xylene & p-Xylene | 1750 | µg/L | California MCL |
| Non-Halogenated VOCs | n-Hexane | 6.4 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Pentanal | 17 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | sec-Butyl alcohol | 19000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | tert-Butyl alcohol | 12 | µg/L | Notification Level |
| Non-Halogenated VOCs | 1,3,5-Trimethylbenzene | 330 | µg/L | Notification Level |
| Non-Halogenated VOCs | 1,2,4-Trimethylbenzene | 330 | µg/L | Notification Level |
| Non-Halogenated VOCs | 2-Hexanone | 250 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Acetone | 20000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Acetonitrile | 300000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Acrolein | 110 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Acrylonitrile | 910 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Benzene | 1 | µg/L | California MCL |
| Non-Halogenated VOCs | Formaldehyde | 100 | µg/L | Notification Level |
| Non-Halogenated VOCs | Carbon Disulfide | 160 | µg/L | Notification Level |
| Non-Halogenated VOCs | Ethane | 7500 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Ethylbenzene | 300 | µg/L | California MCL |
| Non-Halogenated VOCs | Ethylene | 39 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Isopropanol | 160000 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | m-Xylene | 1750 | µg/L | California MCL |
| Non-Halogenated VOCs | Methacrylonitrile | 2100 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Methane | 3100 | µg/L | SWGWS RBSL |
| Non-Halogenated VOCs | Methyl ethyl ketone | 3800 | µg/L | SWGWS RBSL |
| Non-Halogenated VOCs | Methyl isobutyl ketone (MIBK) | 120 | µg/L | Notification Level |
| Non-Halogenated VOCs | Methyl methacrylate | 25 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Methyl tert-butyl ether | 5 | µg/L | SMCL |
| Non-Halogenated VOCs | n-Butylbenzene | 260 | µg/L | Notification Level |
| Non-Halogenated VOCs | n-Propylbenzene | 260 | µg/L | Notification Level |
| Non-Halogenated VOCs | Naphthalene | 17 | µg/L | Notification Level |
| Non-Halogenated VOCs | o + p Xylene | 1750 | µg/L | California MCL |
| Non-Halogenated VOCs | o-Xylene | 1750 | µg/L | California MCL |

TABLE 3-1

Groundwater Screening Reference Values

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Analyte Group | Chemical Analyte | Screening Value | Units | Screening Type |
|------------------------------|---|-----------------|-------------|-------------------------|
| Non-Halogenated VOCs | sec-Butylbenzene | 260 | µg/L | Notification Level |
| Non-Halogenated VOCs | Styrene | 100 | µg/L | Primary MCL |
| Non-Halogenated VOCs | tert-Butylbenzene | 260 | µg/L | Notification Level |
| Non-Halogenated VOCs | Toluene | 150 | µg/L | California MCL |
| Non-Halogenated VOCs | Vinyl acetate | 88 | µg/L | Taste/Odor |
| Non-Halogenated VOCs | Xylenes, Total | 1750 | µg/L | California MCL |
| Halogenated Benzenes | 1,2,3-Trichlorobenzene | 2.1 | µg/L | SWGW RBSL |
| Halogenated Benzenes | 1,2,4-Trichlorobenzene | 5 | µg/L | California MCL |
| Halogenated Benzenes | 1,2-Dichlorobenzene | 600 | µg/L | Primary MCL |
| Halogenated Benzenes | 1,3-Dichlorobenzene | 600 | µg/L | Archived Advisory Level |
| Halogenated Benzenes | 1,4-Dichlorobenzene | 5 | µg/L | California MCL |
| Halogenated Benzenes | Chlorobenzene | 70 | µg/L | California MCL |
| Halogenated Propene/Propanes | 1,2,3-Trichloropropane | 0.005 | µg/L | Notification Level |
| Halogenated Propene/Propanes | 1,2-Dibromo-3-chloropropane | 0.2 | µg/L | Primary MCL |
| Halogenated Propene/Propanes | 1,2-Dichloropropane | 5 | µg/L | Primary MCL |
| Halogenated Propene/Propanes | 1,3-Dichloropropane | 130 | µg/L | SWGW RBSL |
| Halogenated Propene/Propanes | 1,3-Dichloropropene | 0.5 | µg/L | California MCL |
| Halogenated Propene/Propanes | Allyl chloride | 8.9 | µg/L | Taste/Odor |
| Halogenated Propene/Propanes | cis-1,3-Dichloropropene | 0.5 | µg/L | California MCL |
| Halogenated Propene/Propanes | trans-1,3-Dichloropropene | 0.81 | µg/L | SWGW RBSL |
| Other Halogenated VOCs | o-Chlorotoluene | 140 | µg/L | Notification Level |
| Other Halogenated VOCs | p-Chlorotoluene | 140 | µg/L | Notification Level |
| 1,4-Dioxane | 1,4-Dioxane | 1 | µg/L | Notification Level |
| Radionuclides | Uranium | 20 | pCi/L | California MCL |
| Radionuclides | Combined Radium - 226+228 | 5 | pCi/L | California MCL |
| Radionuclides | Gross Alpha particle activity (excluding radon & uranium) | 15 | pCi/L | California MCL |
| Radionuclides | Gross Beta particle activity | 50 | pCi/L | California MCL |
| Radionuclides | Gross Beta particle activity | 4 | millirem/yr | California MCL |
| Radionuclides | Strontium-90 | 8 | pCi/L | California MCL |
| Radionuclides | Tritium | 20,000 | pCi/L | California MCL |
| SVOC | Diphenyl ether | 630 | µg/L | SWGW RBSL |
| SVOC | p-Cresol | 63 | µg/L | SWGW RBSL |
| SVOC | p-Dinitrobenzene | 1.3 | µg/L | SWGW RBSL |
| SVOC | Diazinon | 1.2 | µg/L | Notification Level |
| SVOC | Diethyl phthalate | 10000 | µg/L | SWGW RBSL |
| SVOC | Ethylene glycol | 14000 | µg/L | Notification Level |
| SVOC | Hydrazine | 160000 | µg/L | Taste/Odor |
| SVOC | m-Cresol | 37 | µg/L | Taste/Odor |
| SVOC | o-Cresol | 630 | µg/L | SWGW RBSL |
| SVOC | 1,2,3-Trichloropropene | 0.005 | µg/L | Notification Level |
| SVOC | 1,3-Dinitrobenzene | 1.3 | µg/L | SWGW RBSL |
| SVOC | 2,4,6-Trichlorophenol | 2.1 | µg/L | SWGW RBSL |
| SVOC | 2,4,6-Trinitrotoluene | 1 | µg/L | Notification Level |
| SVOC | 2,4-Dimethylphenol | 100 | µg/L | Archived Advisory Level |
| SVOC | 2,6-Dinitrotoluene | 0.22 | µg/L | SWGW RBSL |
| SVOC | 2-Chlorophenol | 63 | µg/L | SWGW RBSL |
| SVOC | 3,3'-Dichlorobenzidine | 0.12 | µg/L | SWGW RBSL |
| SVOC | 4,6-Dinitro-o-cresol | 1.3 | µg/L | SWGW RBSL |
| SVOC | Aniline | 65000 | µg/L | Taste/Odor |
| SVOC | Benzidine | 0.0003 | µg/L | SWGW RBSL |
| SVOC | Benzoic acid | 50000 | µg/L | SWGW RBSL |
| SVOC | bis(2-Chloroethoxy)methane | 38 | µg/L | SWGW RBSL |
| SVOC | bis(2-Chloroethyl) ether | 360 | µg/L | Taste/Odor |
| SVOC | bis(2-Ethylhexyl) phthalate | 4 | µg/L | California MCL |
| SVOC | Butyl benzyl phthalate | 78 | µg/L | SWGW RBSL |
| SVOC | Di-n-butyl phthalate | 1300 | µg/L | SWGW RBSL |
| SVOC | Di-n-octyl phthalate | 500 | µg/L | SWGW RBSL |
| SVOC | Dimethyl phthalate | 130000 | µg/L | SWGW RBSL |
| SVOC | Hexachlorobenzene | 1 | µg/L | Primary MCL |
| SVOC | Hexachlorocyclopentadiene | 50 | µg/L | Primary MCL |
| SVOC | Hexachloroethane | 10 | µg/L | Taste/Odor |
| SVOC | Isophorone | 5400 | µg/L | Taste/Odor |
| SVOC | Kepon | 0.0093 | µg/L | SWGW RBSL |
| SVOC | n-Nitrosodi-n-propylamine | 0.01 | µg/L | Notification Level |
| SVOC | NDMA | 0.01 | µg/L | Notification Level |
| SVOC | n-Nitrosodiphenylamine | 16 | µg/L | SWGW RBSL |

TABLE 3-1

Groundwater Screening Reference Values

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Analyte Group | Chemical Analyte | Screening Value | Units | Screening Type |
|---------------|--|-----------------|-------|-------------------------|
| SVOC | Nitrobenzene | 110 | µg/L | Taste/Odor |
| SVOC | o-Toluidine | 11000 | µg/L | Taste/Odor |
| SVOC | Pentachloronitrobenzene | 20 | µg/L | Archived Advisory Level |
| SVOC | Pentachlorophenol | 1 | µg/L | Primary MCL |
| SVOC | Phenol | 4200 | µg/L | Archived Advisory Level |
| SVOC | Pyridine | 950 | µg/L | Taste/Odor |
| PAH | Benzo(a)pyrene TEQ ^a | 0.0071 | µg/L | TEQ |
| PAH | 2-Methylnaphthalene | 50 | µg/L | SWGWS RBSL |
| PAH | Anthracene | 3800 | µg/L | SWGWS RBSL |
| PAH | Benzo(a)pyrene | 0.2 | µg/L | Primary MCL |
| PAH | Phenanthrene | 3800 | µg/L | SWGWS RBSL |
| PAH | Pyrene | 380 | µg/L | SWGWS RBSL |
| NDMA | NDMA | 0.01 | µg/L | Notification Level |
| Perchlorate | Perchlorate | 6 | µg/L | California MCL |
| TPH | Fuel Hydrocarbons, C4-C12, as heavy Hydrocarbons | 500 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C6-C14, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C6-C15, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C6-C16, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C6-C16, C21-C24, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C6-C7 | 500 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C7-C10, as gasoline | 5 | µg/L | Taste/Odor |
| TPH | Fuel Hydrocarbons, C7-C14, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C7-C16, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C8-C10, as gasoline | 5 | µg/L | Taste/Odor |
| TPH | Fuel Hydrocarbons, C8-C12, as heavy Hydrocarbons | 1800 | µg/L | SWGWS RBSL |
| TPH | Fuel Hydrocarbons, C8-C14, as heavy Hydrocarbons | 1800 | µg/L | SWGWS RBSL |
| TPH | Gasoline Range Organics (C4-C12) | 5 | µg/L | Taste/Odor |
| TPH | Gasoline Range Organics (C6-C14) | 5 | µg/L | Taste/Odor |
| TPH | Gasoline Range Organics (C7-C12) | 5 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C12-C14) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C13-C22) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C14-C20) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C15-C20) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C20-C30) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C21-C24) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C21-C30) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C8-C11) | 100 | µg/L | Taste/Odor |
| TPH | Diesel Range Organics (C8-C30) | 100 | µg/L | Taste/Odor |
| TPH | Fuel Hydrocarbons, C6-C17, as JP-4 | 1800 | µg/L | SWGWS RBSL |
| TPH | Gasoline Range Organics (C8-C11) | 1800 | µg/L | SWGWS RBSL |
| TPH | Jet Fuel 4 (C6-C13) | 1800 | µg/L | SWGWS RBSL |
| TPH | Kerosene (C10-C12) | 1800 | µg/L | SWGWS RBSL |
| TPH | Kerosene (C10-C14) | 1800 | µg/L | SWGWS RBSL |
| TPH | Kerosene Range Organics (C11-C14) | 1800 | µg/L | SWGWS RBSL |
| TPH | TPH (as Kerosene) | 1800 | µg/L | SWGWS RBSL |
| TPH | Gasoline Range Organics | 5 | µg/L | Taste/Odor |
| TPH | Gasoline Range Organics (C6-C12) | 5 | µg/L | Taste/Odor |
| PCB | Aroclor 1016 | 0.5 | µg/L | Primary MCL |
| PCB | PCBs | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1254 | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1260 | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1221 | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1232 | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1242 | 0.5 | µg/L | Primary MCL |
| PCB | Aroclor 1248 | 0.5 | µg/L | Primary MCL |
| Herbicides | 2,4-Dichlorophenoxyacetic Acid (2,4-D) | 130 | µg/L | SWGWS RBSL |
| Herbicides | 2,4,5-T | 130 | µg/L | SWGWS RBSL |
| Herbicides | Dinoseb | 7 | µg/L | Primary MCL |
| Herbicides | Propachlor | 90 | µg/L | Notification Level |
| Pesticides | Endosulfan I | 75 | µg/L | SWGWS RBSL |
| Pesticides | Endosulfan II | 75 | µg/L | SWGWS RBSL |
| Pesticides | gamma-BHC | 0.2 | µg/L | Primary MCL |
| Pesticides | Methyl parathion | 2 | µg/L | Archived Advisory Level |
| Pesticides | p,p'-Methoxychlor | 30 | µg/L | California MCL |
| Pesticides | Parathion | 40 | µg/L | Archived Advisory Level |

TABLE 3-1

Groundwater Screening Reference Values

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Analyte Group | Chemical Analyte | Screening Value | Units | Screening Type |
|----------------|--------------------------------|-----------------|-------|-------------------------|
| Pesticides | Endosulfan sulfate | 75 | µg/L | SWGWS RBSL |
| Pesticides | 4,4'-DDE | 0.44 | µg/L | SWGWS RBSL |
| Pesticides | Aldrin | 0.002 | µg/L | Archived Advisory Level |
| Pesticides | alpha-BHC | 0.015 | µg/L | Archived Advisory Level |
| Pesticides | beta-BHC | 0.025 | µg/L | Archived Advisory Level |
| Pesticides | Chlordane | 0.1 | µg/L | California MCL |
| Pesticides | Dieldrin | 0.002 | µg/L | Archived Advisory Level |
| Pesticides | Dimethoate | 1 | µg/L | Archived Advisory Level |
| Pesticides | 4,4'-DDD | 0.62 | µg/L | SWGWS RBSL |
| Pesticides | Toxaphene | 3 | µg/L | Primary MCL |
| Pesticides | Endrin | 2 | µg/L | Primary MCL |
| Pesticides | Heptachlor | 0.01 | µg/L | California MCL |
| Pesticides | Heptachlor epoxide | 0.01 | µg/L | California MCL |
| Dioxins/Furans | 2,3,7,8-TCDD TEQ ^b | 0.00000037 | µg/L | TEQ |
| Dioxins/Furans | 2,3,7,8-TCDD | 0.00003 | µg/L | Primary MCL |
| Metals | Aluminum, Dissolved | 13000 | µg/L | SWGWS RBSL |
| Metals | Boron, Dissolved | 340 | µg/L | SSFL Comparison |
| Metals | Tin, Dissolved | 2.4 | µg/L | SSFL Comparison |
| Metals | Antimony, Dissolved | 2.5 | µg/L | SSFL Comparison |
| Metals | Arsenic, Dissolved | 7.7 | µg/L | SSFL Comparison |
| Metals | Barium, Dissolved | 150 | µg/L | SSFL Comparison |
| Metals | Beryllium, Dissolved | 0.14 | µg/L | SSFL Comparison |
| Metals | Cadmium, Dissolved | 0.2 | µg/L | SSFL Comparison |
| Metals | Chromium, Dissolved | 14 | µg/L | SSFL Comparison |
| Metals | Cobalt, Dissolved | 1.9 | µg/L | SSFL Comparison |
| Metals | Copper, Dissolved | 4.7 | µg/L | SSFL Comparison |
| Metals | Hexavalent Chromium, Dissolved | 38 | µg/L | SWGWS RBSL |
| Metals | Iron, Dissolved | 4100 | µg/L | SSFL Comparison |
| Metals | Lead, Dissolved | 11 | µg/L | SSFL Comparison |
| Metals | Magnesium, Dissolved | 77000 | µg/L | SSFL Comparison |
| Metals | Manganese, Dissolved | 150 | µg/L | SSFL Comparison |
| Metals | Mercury, Dissolved | 0.063 | µg/L | SSFL Comparison |
| Metals | Molybdenum, Dissolved | 2.2 | µg/L | SSFL Comparison |
| Metals | Nickel, Dissolved | 17 | µg/L | SSFL Comparison |
| Metals | Potassium, Dissolved | 9600 | µg/L | SSFL Comparison |
| Metals | Selenium, Dissolved | 1.6 | µg/L | SSFL Comparison |
| Metals | Silver, Dissolved | 0.17 | µg/L | SSFL Comparison |
| Metals | Sodium, Dissolved | 190000 | µg/L | SSFL Comparison |
| Metals | Strontium, Dissolved | 800 | µg/L | SSFL Comparison |
| Metals | Thallium, Dissolved | 0.13 | µg/L | SSFL Comparison |
| Metals | Vanadium, Dissolved | 2.6 | µg/L | SSFL Comparison |
| Metals | Zinc, Dissolved | 6300 | µg/L | SSFL Comparison |
| Metals | Aluminum | 200 | µg/L | SMCL |
| Metals | Antimony | 2.5 | µg/L | SSFL Comparison |
| Metals | Arsenic | 7.7 | µg/L | SSFL Comparison |
| Metals | Barium | 150 | µg/L | SSFL Comparison |
| Metals | Beryllium | 0.14 | µg/L | SSFL Comparison |
| Metals | Boron | 340 | µg/L | SSFL Comparison |
| Metals | Cadmium | 0.2 | µg/L | SSFL Comparison |
| Metals | Chromium | 14 | µg/L | SSFL Comparison |
| Metals | Cobalt | 1.9 | µg/L | SSFL Comparison |
| Metals | Copper | 4.7 | µg/L | SSFL Comparison |
| Metals | Hexavalent Chromium | 14 | µg/L | SSFL Comparison |
| Metals | Iron | 4100 | µg/L | SSFL Comparison |
| Metals | Lead | 11 | µg/L | SSFL Comparison |
| Metals | Magnesium | 77000 | µg/L | SSFL Comparison |
| Metals | Manganese | 150 | µg/L | SSFL Comparison |
| Metals | Mercury | 0.063 | µg/L | SSFL Comparison |
| Metals | Molybdenum | 2.2 | µg/L | SSFL Comparison |
| Metals | Nickel | 17 | µg/L | SSFL Comparison |
| Metals | Potassium | 9600 | µg/L | SSFL Comparison |
| Metals | Selenium | 1.6 | µg/L | SSFL Comparison |
| Metals | Silver | 0.17 | µg/L | SSFL Comparison |
| Metals | Sodium | 190000 | µg/L | SSFL Comparison |
| Metals | Strontium | 800 | µg/L | SSFL Comparison |
| Metals | Thallium | 0.13 | µg/L | SSFL Comparison |

TABLE 3-1

Groundwater Screening Reference Values

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Analyte Group | Chemical Analyte | Screening Value | Units | Screening Type |
|-------------------|-------------------------|-----------------|----------|--------------------|
| Metals | Tin | 2.4 | µg/L | SSFL Comparison |
| Metals | Vanadium | 2.6 | µg/L | SSFL Comparison |
| Metals | Zinc | 6300 | µg/L | SSFL Comparison |
| Inorganics | Chlorine | 4000 | µg/L | Primary MCL |
| Inorganics | Nitrate-NO ₃ | 45000 | µg/L | California MCL |
| Inorganics | Chloride | 250000 | µg/L | SMCL |
| Inorganics | Chlorate | 0.8 | µg/L | Notification Level |
| Inorganics | Cyanides | 150 | µg/L | California MCL |
| Inorganics | Fluoride | 800 | µg/L | SSFL Comparison |
| Inorganics | HMX | 350 | µg/L | Notification Level |
| Inorganics | Nitrate-N | 10000 | µg/L | Primary MCL |
| Inorganics | Nitrite-N | 1000 | µg/L | Primary MCL |
| Inorganics | RDX | 0.3 | µg/L | Notification Level |
| Inorganics | Sulfate | 376000 | µg/L | SSFL Comparison |
| Inorganics | Total Dissolved Solids | 500000 | µg/L | Recommended SMCL |
| Inorganics | Total Dissolved Solids | 1000000 | µg/L | Upper SMCL |
| Inorganics | Total Dissolved Solids | 1500000 | µg/L | Short-term SMCL |
| General Chemistry | Formic Acid | 1700000 | µg/L | Taste/Odor |
| General Chemistry | Turbidity | 5 | NTU | SMCL |
| General Chemistry | Specific conductivity | 900 | µmhos/cm | Recommended SMCL |
| General Chemistry | Specific conductivity | 1600 | µmhos/cm | Upper SMCL |
| General Chemistry | Specific conductivity | 2200 | µmhos/cm | Short-term SMCL |

^a Benzo(a)pyrene toxic equivalency quotient (TEQ) includes the seven generally recognized carcinogenic polycyclic aromatic hydrocarbons (PAHs): benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

^b 2,3,7,8-Tetrachlorodibenzodioxin (TCDD) TEQ includes all dioxin and furan congeners that are chlorinated in the 2nd, 3rd, 7th, and 8th positions.

Analyte:

BHC = benzene hexachloride
 DDD = dichlorodiphenyldichloroethane
 DDE = dichlorodiphenyldichloroethene
 NDMA = n-nitrosodimethylamine
 PCB = polychlorinated biphenyl
 SVOC = semivolatle organic compound
 T = trichlorophenoxyacetic acid
 TPH = total petroleum hydrocarbons
 VOC = volatile organic compound

Screening Type:

MCL = maximum contaminant level
 SMCL = secondary maximum contaminant level
 Taste/Odor = taste/odor threshold
 SSFL Comparison = site-specific values for metals developed by the California Department of Toxic Substances
 SWGW RBSL = sitewide groundwater risk-based screening level
 TEQ = toxicity equivalency quotient

Units:

µg/L = microgram(s) per liter
 millirem/yr = millirem per year
 pCi/L = picoCurie(s) per liter
 NTU = nephelometric turbidity unit(s)
 µmhos/cm = micromho(s) per centimeter

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TABLE 3-2

Validated Analytical - Detections Only

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units | | | |
|-----------|---------------------------------|--------------------------|---------------------------------|---------|---------------|---------------------------------|---------------------------------|--------------|-------------|-------------------------|--------|------|
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 2.7 = | µg/L | | | |
| | | | | | | SW8260B | Acetone | 31 J | µg/L | | | |
| | | | | | | | cis-1,2-Dichloroethene | 5.6 = | µg/L | | | |
| | | | | | | | Isopropanol | 170 = | µg/L | | | |
| | | | | | | SW8315A | Formaldehyde | 23 J | µg/L | | | |
| | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.11 J | µg/L | | | |
| | | | | | | | Diethyl phthalate | 0.21 J | µg/L | | | |
| | | | | | | | Dimethyl phthalate | 0.12 J | µg/L | | | |
| | | | | | HC | SW8015B | Diesel Range Organics (C12-C14) | 28 J | µg/L | | | |
| | | | | | | | Diesel Range Organics (C15-C20) | 300 = | µg/L | | | |
| | Diesel Range Organics (C21-C30) | 130 = | µg/L | | | | | | | | | |
| | Diesel Range Organics (C8-C30) | 460 = | µg/L | | | | | | | | | |
| | GENCHEM | E300 | Fluoride | 0.45 = | mg/L | | | | | | | |
| | | 4500-NH3F | Ammonia as Nitrogen (N) | 0.035 J | mg/L | | | | | | | |
| | HAR-11 | HAR11GW01S008 | 7/28/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.38 = | mg/L | | | |
| | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 2.1 = | µg/L | | | |
| | | | | | | SW8260B | cis-1,2-Dichloroethene | 44 = | µg/L | | | |
| | | | | | | | trans-1,2-Dichloroethene | 12 = | µg/L | | | |
| | | | | | | | Trichloroethene | 12 = | µg/L | | | |
| | | | | | | SW8315A | Formaldehyde | 24 J | µg/L | | | |
| | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.22 J | µg/L | | | |
| | | | | | | | Dimethyl phthalate | 0.045 J | µg/L | | | |
| | | | | | | | Di-n-butyl phthalate | 0.19 J | µg/L | | | |
| HC | | | | | SW8015B | Diesel Range Organics (C12-C14) | 21 J | µg/L | | | | |
| | | | | | | Diesel Range Organics (C15-C20) | 490 = | µg/L | | | | |
| | | | | | | Diesel Range Organics (C21-C30) | 280 = | µg/L | | | | |
| | | | | | | Diesel Range Organics (C8-C30) | 790 = | µg/L | | | | |
| GENCHEM | | | | | 4500-NH3F | Ammonia as Nitrogen (N) | 0.06 = | mg/L | | | | |
| | | | | | E300 | Fluoride | 0.36 = | mg/L | | | | |
| RD-49C | | | | | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.91 J | µg/L |
| | | | | | | | | | SW8260B | cis-1,2-Dichloroethene | 34 = | µg/L |
| | | trans-1,2-Dichloroethene | 2.4 J | µg/L | | | | | | | | |
| | | Trichloroethene | 0.39 J | µg/L | | | | | | | | |
| | | SW8315A | Formaldehyde | 49 J | | | | µg/L | | | | |
| | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.15 J | | | | µg/L | | | | |
| | | | Butyl benzyl phthalate | 0.12 J | | | | µg/L | | | | |
| | | | Di-n-butyl phthalate | 0.12 J | | | | µg/L | | | | |
| | HC | SW8015B | Diesel Range Organics (C21-C30) | 69 = | | | | µg/L | | | | |
| | | | Diesel Range Organics (C8-C11) | 9 J | | | | µg/L | | | | |
| | | | Diesel Range Organics (C8-C30) | 78 = | | | | µg/L | | | | |
| | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.024 J | | | | mg/L | | | | |
| | | E300 | Fluoride | 0.18 = | | | | mg/L | | | | |
| ENRG_PROP | E314 | Perchlorate | 3.4 = | µg/L | | | | | | | | |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.61 J | µg/L | | | |
| | | | | | | SW8315A | Formaldehyde | 120 = | µg/L | | | |
| | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.093 J | µg/L | | | |
| | | | | | | | Butyl benzyl phthalate | 0.072 J | µg/L | | | |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.057 = | mg/L | | | |
| | E300 | Fluoride | 0.14 = | mg/L | | | | | | | | |
| | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.59 J | µg/L | | | |
| | | | | | | SW8315A | Formaldehyde | 100 = | µg/L | | | |
| | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.11 J | µg/L | | | |
| | | | | | | | Butyl benzyl phthalate | 0.077 J | µg/L | | | |
| GENCHEM | | | | | 4500-NH3F | Ammonia as Nitrogen (N) | 0.046 J | mg/L | | | | |
| E300 | Fluoride | 0.13 = | mg/L | | | | | | | | | |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 2.3 = | µg/L | | | |
| | | | | | | | cis-1,2-Dichloroethene | 49 = | µg/L | | | |
| | | | | | | | Dichlorodifluoromethane | 0.6 J | µg/L | | | |
| | | | | | | | Isopropanol | 61 J | µg/L | | | |
| | | | | | | | trans-1,2-Dichloroethene | 31 = | µg/L | | | |
| | | | | | | | Trichloroethene | 49 = | µg/L | | | |
| | | | | | | | Vinyl chloride | 2.5 = | µg/L | | | |
| | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.091 J | µg/L | | | |
| | | | | | | | Butyl benzyl phthalate | 0.11 J | µg/L | | | |
| | | | | | | | Di-n-butyl phthalate | 0.12 J | µg/L | | | |
| | | | | | GENCHEM | E300 | Fluoride | 0.425 J | mg/L | | | |
| | | | | | | | Nitrogen, Nitrate (as N) | 0.337 J | mg/L | | | |
| | | | | | | | SW9040 | pH | 7.41 = | pH units | | |

TABLE 3-2

Validated Analytical - Detections Only

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units | | |
|------|----------|--------------------------|-------------------------|----------------------|------------------------|-------------|-------------------------|---------------------------------|---------|--------|---------|
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 1.2 = | µg/L | | |
| | | | | | | | SW8260B | cis-1,2-Dichloroethene | 150 J | µg/L | |
| | | | | | | | | trans-1,2-Dichloroethene | 12 = | µg/L | |
| | | | | | | | | Trichloroethene | 0.46 J | µg/L | |
| | | | | | | | Vinyl chloride | 48 = | µg/L | | |
| | | | | | | SW8315A | Formaldehyde | 61 = | µg/L | | |
| | | | | | | SVOC | E1625C | n-Nitrosodimethylamine | 0.017 = | µg/L | |
| | | | | | | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.12 J | µg/L | |
| | | | | | Butyl benzyl phthalate | | | 0.061 J | µg/L | | |
| | | | | | | HC | SW8015B | Diesel Range Organics (C15-C20) | 50 = | µg/L | |
| | | | | | | | | Diesel Range Organics (C8-C30) | 50 = | µg/L | |
| | | | | | | | | GRO (C4-C12) | 53 = | µg/L | |
| | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.059 = | mg/L | | | | | | |
| | | | E300 | Fluoride | 0.33 = | mg/L | | | | | |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Trichloroethene | 1.2 J | µg/L | | |
| | | | | | | INO | SW6020 | Calcium, dissolved | 147 = | mg/L | |
| | | | | | | | Iron, dissolved | 0.0704 = | mg/L | | |
| | | | | | | | Magnesium, dissolved | 25 = | mg/L | | |
| | | | | | | | Manganese, dissolved | 0.00576 = | mg/L | | |
| | | | | | | | Potassium, dissolved | 4.01 = | mg/L | | |
| | | | | | | | Sodium, dissolved | 69.2 = | mg/L | | |
| | | | | | | | Strontium, dissolved | 0.595 = | mg/L | | |
| | | | | | | | Zinc, dissolved | 0.76 = | mg/L | | |
| | | | | | | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B |
| | | Benzene | 0.18 J | µg/L | | | | | | | |
| | | cis-1,2-Dichloroethene | 1300 = | µg/L | | | | | | | |
| | | Toluene | 0.33 J | µg/L | | | | | | | |
| | | trans-1,2-Dichloroethene | 58 = | µg/L | | | | | | | |
| | | Trichloroethene | 8.1 = | µg/L | | | | | | | |
| | | | Vinyl chloride | 23 = | µg/L | | | | | | |
| | | | INO | SW6020 | Calcium, dissolved | | | | | 91.7 = | mg/L |
| | | | | Iron, dissolved | 1.73 = | | | | | mg/L | |
| | | | | Magnesium, dissolved | 19.2 = | | | | | mg/L | |
| | | | | Manganese, dissolved | 0.0417 = | mg/L | | | | | |
| | | | Potassium, dissolved | 3.32 = | mg/L | | | | | | |
| | | | Sodium, dissolved | 52.5 = | mg/L | | | | | | |
| | | | Strontium, dissolved | 1.01 = | mg/L | | | | | | |
| | | | Zinc, dissolved | 0.174 = | mg/L | | | | | | |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 9.7 J | µg/L | | |
| | | | | | | | | cis-1,2-Dichloroethene | 2900 = | µg/L | |
| | | | | | | | | trans-1,2-Dichloroethene | 270 = | µg/L | |
| | | | | | | | | Trichloroethene | 490 = | µg/L | |
| | | | | | | | | Vinyl chloride | 130 = | µg/L | |
| | | | | | | | SW8315A | Formaldehyde | 34 J | µg/L | |
| | | | | | | SVOC | E1625C | n-Nitrosodimethylamine | 0.019 = | µg/L | |
| | | | | | | HC | SW8015B | Diesel Range Organics (C8-C11) | 17 J | µg/L | |
| | | | | | | | | Diesel Range Organics (C8-C30) | 17 J | µg/L | |
| | | | | | | | GRO (C4-C12) | 200 = | µg/L | | |
| | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.083 = | mg/L | | | | | | |
| | | | E300 | Fluoride | 0.31 = | mg/L | | | | | |
| | | SW9040C | pH | 6.92 = | pH units | | | | | | |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Isopropanol | 230 = | µg/L | | |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.088 = | mg/L | | |
| | | | | | | E300 | Fluoride | 0.7 = | mg/L | | |
| | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Acetone | 13 J | µg/L | | |
| | | | | | | | Isopropanol | 410 = | µg/L | | |
| | | | | | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.39 J | µg/L | | |
| | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.09 = | mg/L | | | | | | |
| | | E300 | Fluoride | 0.97 = | mg/L | | | | | | |

TABLE 3-2

Validated Analytical - Detections Only

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units | | | | | |
|------------------------|--------------------------|-----------------|------------------------|-----------|---------------------|--------------------------|---------------------------------|--------------|----------|-------------|--------------------------|-------------------------|---------|------|
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E900 | Alpha, Gross | 5.9 = | pCi/L | | | | | |
| | | | | | | E900 | Beta, Gross | 5.79 = | pCi/L | | | | | |
| | | | | | | | Gross Beta, decanted | 7.91 = | pCi/L | | | | | |
| | | | | | | E901.1 | Bismuth-214 | 523 = | pCi/L | | | | | |
| | | | | | | | Bismuth-214, dissolved | 418 = | pCi/L | | | | | |
| | | | | | | | Lead-214 | 558 = | pCi/L | | | | | |
| | | | | | | Radioisotopes | Lead-214, dissolved | 457 = | pCi/L | | | | | |
| | Uranium-233/-234 | 1.22 = | pCi/L | | | | | | | | | | | |
| | Uranium-238 | 0.559 = | pCi/L | | | | | | | | | | | |
| | GENCHEM | E300 | Fluoride | 4.8 = | mg/L | | | | | | | | | |
| | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Isopropanol | 69 J | µg/L | | | | | |
| | | | | | RAD | E900 | Beta, Gross | 7.19 = | pCi/L | | | | | |
| | | | | | | | Gross Beta, decanted | 5.62 = | pCi/L | | | | | |
| | | | | | E901.1 | Bismuth-214 | 466 = | pCi/L | | | | | | |
| Bismuth-214, dissolved | | | | | | 393 = | pCi/L | | | | | | | |
| Lead-214 | | | | | | 509 = | pCi/L | | | | | | | |
| Radioisotopes | | | | | Lead-214, dissolved | 413 = | pCi/L | | | | | | | |
| | | | | | Uranium-233/-234 | 0.992 = | pCi/L | | | | | | | |
| Radioisotopes | | | | | Uranium-238 | 0.352 = | pCi/L | | | | | | | |
| GENCHEM | | | | | E300 | Fluoride | 4.8 = | mg/L | | | | | | |
| PLF | | | | | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.9 J | µg/L | |
| | | | | | | | | | | SW8260B | cis-1,2-Dichloroethene | 15 = | µg/L | |
| | | | | | | | | | | | trans-1,2-Dichloroethene | 1.4 J | µg/L | |
| | | Trichloroethene | 0.91 J | µg/L | | | | | | | | | | |
| | | Vinyl chloride | 5.3 = | µg/L | | | | | | | | | | |
| | SVOC | E1625C | n-Nitrosodimethylamine | 0.012 = | | | | | µg/L | | | | | |
| | GENCHEM | E300 | Fluoride | 0.13 = | | | | | mg/L | | | | | |
| | | SW9040C | pH | 6.54 = | | | | | pH units | | | | | |
| | SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | | | | | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.043 J | mg/L |
| | | | | | | | | | | | E300 | Fluoride | 0.24 = | mg/L |
| SW9040C | | | | | pH | 6.73 = | pH units | | | | | | | |
| RD-05B | | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8315A | Formaldehyde | 32 J | µg/L | | | | | |
| | | | | | SVOC | E1625C | n-Nitrosodimethylamine | 0.013 = | µg/L | | | | | |
| | | | | | HC | SW8015B | Diesel Range Organics (C15-C20) | 14 J | µg/L | | | | | |
| | | | | | | | Diesel Range Organics (C8-C30) | 14 J | µg/L | | | | | |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.051 = | mg/L | | | | | |
| E300 | | Fluoride | 0.11 = | mg/L | | | | | | | | | | |
| SW9040C | | pH | 9.07 = | pH units | | | | | | | | | | |
| RD-05C | | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8315A | Formaldehyde | 30 J | µg/L | | | | | |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.14 = | mg/L | | | | | |
| | | | | | | E300 | Fluoride | 0.12 = | mg/L | | | | | |
| | | | | | | SW9040C | pH | 7.27 = | pH units | | | | | |
| SP-881C | | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.56 J | µg/L | | | | | |
| | | | | | | SW8260B | cis-1,2-Dichloroethene | 17 = | µg/L | | | | | |
| | | | | | | | Isopropanol | 160 = | µg/L | | | | | |
| | | | | | | | Toluene | 0.33 J | µg/L | | | | | |
| | | | | | | | trans-1,2-Dichloroethene | 2 J | µg/L | | | | | |
| | | | | | | Vinyl chloride | 0.36 J | µg/L | | | | | | |
| SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.62 J | µg/L | | | | | | |
| SW8260B | cis-1,2-Dichloroethene | 23 = | µg/L | | | | | | | | | | | |
| | Isopropanol | 190 = | µg/L | | | | | | | | | | | |
| | trans-1,2-Dichloroethene | 5 J | µg/L | | | | | | | | | | | |
| SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Toluene | 0.37 J | µg/L | | | | | | |
| SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 1.4 J | µg/L | | | | | | |
| | | | | | | cis-1,2-Dichloroethene | 400 = | µg/L | | | | | | |
| | | | | | | Isopropanol | 88 J | µg/L | | | | | | |
| | | | | | | trans-1,2-Dichloroethene | 24 = | µg/L | | | | | | |
| | | | | | | Trichloroethene | 150 = | µg/L | | | | | | |
| | | | | | | | Vinyl chloride | 0.52 = | µg/L | | | | | |
| SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 2.9 J | µg/L | | | | | | |
| | | | | | | cis-1,2-Dichloroethene | 650 = | µg/L | | | | | | |
| | | | | | | Isopropanol | 86 J | µg/L | | | | | | |
| | | | | | | trans-1,2-Dichloroethene | 24 = | µg/L | | | | | | |
| | | | | | | Trichloroethene | 340 = | µg/L | | | | | | |
| | | | | | | | Vinyl chloride | 3.6 = | µg/L | | | | | |

TABLE 3-2

Validated Analytical - Detections Only

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|---------------|---------------|-------------|------|---------|-------------|--------------------------|-----------------|----------|
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Isopropanol | <i>75 J</i> | µg/L |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | <i>0.025 J</i> | mg/L |
| | | | | | | E300 | Fluoride | <i>0.22 =</i> | mg/L |
| | | | | | | SW9040C | pH | <i>7.04 =</i> | pH units |
| | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | <i>0.54 J</i> | µg/L |
| | | | | | SVOC | SW8260B | Trichloroethene | <i>1.1 J</i> | µg/L |
| | | | | | | E1625C | n-Nitrosodimethylamine | <i>0.0078 J</i> | µg/L |
| | | | | | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | <i>0.03 J</i> | mg/L |
| | | | | | | E300 | Fluoride | <i>0.33 =</i> | mg/L |
| | | | | | | SW9040C | Nitrogen, Nitrate (as N) | <i>0.4 =</i> | mg/L |
| pH | <i>6.98 =</i> | pH units | | | | | | | |

The results in *italic gray* font were reported below their respective screening level values.

The results in **bold** font was reported at or above the respective screening level value.

µg/L = microgram(s) per liter

FD = field duplicate sample

ID = identification number

mg/L = milligram(s) per liter

N = normal sample

pCi/L = picocurie(s) per liter

Class Abbreviations:

ENER_PROP = energetics and propellants

GENCHEM = general chemistry

HC = hydrocarbons

INO = inorganics

PHTH = phthalates

RAD = radionuclide

SVOC = semivolatile organic compound

VOC = volatile organic compound

Field Duplicate Associations:

SP29BGW01S003 = SP29BGW01D003

WS04AGW01S006 = WS04AGW01D006

Site Abbreviations:

A1 = Area 1

ALF = Alfa Area

BRV = Bravo Area

CA = Coca Area

DTA = Delta Area

OS = offsite

PLF = Propellant Load Facility

SBZ = Southern Buffer Zone

SPA = Storage Propellant Area

Validation Flags:

J

= Analyte is present but the reported quantitation is estimated.

Reported quantitation represents the most accurate concentration for the given analyte.

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropene | 0.64 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.002 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloropropene | 0.42 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichloropropene | 0.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 2.7 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Acetone | 31 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 5.6 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8315A | Formaldehyde | 23 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Isopropanol | 170 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.8 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.11 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.052 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.21 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.12 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.078 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.047 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 28 J | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 300 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 130 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 50 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 460 = | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | GRO (C4-C12) | 50 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | ORO (C31-C40) | 50 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | GENCHEM | E300 | Fluoride | 0.45 = | mg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.056 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.062 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.035 J | mg/L |
| ALF | HAR-11 | HAR11GW01S008 | 7/28/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.38 = | mg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0024 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.002 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 2.1 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 44 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8315A | Formaldehyde | 24 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 12 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Trichloroethene | 12 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | VOC | SW8260B | Vinyl chloride | 1.6 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.22 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.051 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.051 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.045 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.19 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.046 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 21 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 490 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 280 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 50 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 790 = | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | GR0 (C4-C12) | 50 UJ | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | ORO (C31-C40) | 34 J | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.06 = | mg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | GENCHEM | E300 | Fluoride | 0.36 = | mg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.056 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.062 U | µg/L |
| ALF | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropene | 0.64 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.002 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.91 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 34 = | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8315A | Formaldehyde | 49 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 2.4 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Trichloroethene | 0.39 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.8 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.15 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.12 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.051 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.044 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.12 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.046 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 50 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 50 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 69 = | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 9 J | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 78 = | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | GRO (C4-C12) | 50 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | ORO (C31-C40) | 50 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.024 J | mg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | GENCHEM | E300 | Fluoride | 0.18 = | mg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.058 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.064 U | µg/L |
| ALF | RD-49C | RD49CGW01S006 | 7/19/2016 | N | ENRG_PROP | E314 | Perchlorate | 3.4 = | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|----------------------------------|--------------|-------|
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.61 J | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8315A | Formaldehyde | 120 = | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.003 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.093 J | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.072 J | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.05 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.043 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.076 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.045 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.057 = | mg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | GENCHEM | E300 | Fluoride | 0.14 = | mg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.053 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.059 U | µg/L |
| A1 | WS-04A | WS04AGW01S006 | 7/14/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.59 J | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Acetone | 6 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8315A | Formaldehyde | 100 = | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Toluene | 0.24 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.11 J | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.077 J | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Diethyl phthalate | 0.051 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.044 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.077 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.046 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.046 J | mg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | GENCHEM | E300 | Fluoride | 0.13 = | mg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.057 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | ENRG_PROP | SW8330A | Nitrobenzene | 0.063 U | µg/L |
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.002 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 1.8 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2-Chloro-1,3-butadiene | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 2-Hexanone | 5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 2.1 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Acetone | 5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Acetonitrile | 10 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Acrolein | 5 UJ | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Acrylonitrile | 5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Allyl Chloride (3-Chloropropene) | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Benzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Bromobenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Bromochloromethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Bromoform | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Bromomethane | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Carbon Disulfide | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Chlorobenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Chloroethane | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Chloromethane | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 2.3 = | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 49 = | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Dibromomethane | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.6 J | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Ethyl Methacrylate | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Ethylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8315A | Formaldehyde | 20 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Iodomethane (Methyl Iodide) | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Isobutanol | 20 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Isopropanol | 61 J | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.4 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Methyl Methacrylate | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Methylacrylonitrile | 5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Methylene chloride | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | n-butylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | o-Xylene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Pentachloroethane | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Propane Nitrile (Propionitrile) | 10 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Styrene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Toluene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 31 = | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | trans-1,4-Dichloro-2-butene | 1 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Trichloroethene | 49 = | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 0.3 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.2 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Vinyl Acetate | 0.5 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Vinyl chloride | 2.5 = | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | SVOC | SW8270C | n-Nitrosodimethylamine | 12 UJ | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.091 J | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Bis(2-ethylhexyl)phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Butyl benzyl phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.11 J | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.052 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Diethyl phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.045 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Dimethyl phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.12 J | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Di-n-butyl phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.047 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | PHTH | SW8270C | Di-n-octyl phthalate | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 520 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 520 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 520 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 520 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 520 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | HC | SW8015B | GRO (C4-C12) | 50 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.06 U | mg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | GENCHEM | E300 | Fluoride | 0.425 J | mg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | GENCHEM | E300 | Nitrite-N | 0.05 U | mg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.337 J | mg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | GENCHEM | SW9040 | pH | 7.41 = | pH units |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | ENRG_PROP | SW8270C | 1,3-Dinitrobenzene | 12 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.055 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | ENRG_PROP | SW8270C | Nitrobenzene | 12 UJ | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.061 U | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|----------------------------------|--------------|-------|
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.002 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 1.2 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 150 J | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8315A | Formaldehyde | 61 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 12 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichloroethene | 0.46 J | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | VOC | SW8260B | Vinyl chloride | 48 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.017 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.12 J | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.061 J | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.05 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.043 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.076 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.045 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 50 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 50 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 50 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 50 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 50 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | GRO (C4-C12) | 53 = | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | ORO (C31-C40) | 50 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.059 = | mg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | GENCHEM | E300 | Fluoride | 0.33 = | mg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.062 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.069 U | µg/L |
| BRV | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| CA | RD-40 | RD40GW01S007 | 7/13/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Trichloroethene | 1.2 J | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Calcium, dissolved | 147 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Iron, dissolved | 0.0704 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Magnesium, dissolved | 25 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Manganese, dissolved | 0.00576 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Potassium, dissolved | 4.01 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Sodium, dissolved | 69.2 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Strontium, dissolved | 0.595 = | mg/L |
| CA | RD-41A | RD41AGW01S006 | 7/25/2016 | N | INO | SW6020 | Zinc, dissolved | 0.76 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 3.8 J | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 1.8 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Benzene | 0.18 J | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 1300 = | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Toluene | 0.33 J | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 58 = | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Trichloroethene | 8.1 = | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | VOC | SW8260B | Vinyl chloride | 23 = | µg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Calcium, dissolved | 91.7 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Iron, dissolved | 1.73 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Magnesium, dissolved | 19.2 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Manganese, dissolved | 0.0417 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Potassium, dissolved | 3.32 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Sodium, dissolved | 52.5 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Strontium, dissolved | 1.01 = | mg/L |
| CA | RD-41B | RD41BGW01S008 | 7/22/2016 | N | INO | SW6020 | Zinc, dissolved | 0.174 = | mg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 4.1 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 4.5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 3.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 2.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 9.7 J | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 4.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 5.1 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropene | 6.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 3.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 12 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 3.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 4.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 2.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 4.2 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 2.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 4.3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 18 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 3.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 22 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 21 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 2.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 2-Hexanone | 21 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 1.3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 44 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Acetone | 60 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Benzene | 1.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Bromobenzene | 3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Bromochloromethane | 4.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Bromodichloromethane | 2.1 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Bromoform | 5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Bromomethane | 39 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Carbon tetrachloride | 2.3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Chlorobenzene | 1.7 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Chloroethane | 23 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Chloromethane | 18 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 18 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 2900 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 2.5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Dibromochloromethane | 2.5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Dibromomethane | 4.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 4.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Ethylbenzene | 1.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8315A | Formaldehyde | 34 J | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 3.2 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Isopropanol | 370 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Isopropylbenzene | 5.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | m,p-Xylenes | 3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Methylene chloride | 6.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 3.1 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | n-butylbenzene | 2.3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | n-Propylbenzene | 1.7 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | o-Xylene | 2.3 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Pentachloroethane | 15 UJ | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 1.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | sec-Butylbenzene | 2.5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Styrene | 1.7 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | tert-Butylbenzene | 2.8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Tetrachloroethene | 3.9 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Toluene | 2.4 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 270 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 2.5 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Trichloroethene | 490 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 17 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 4.6 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | VOC | SW8260B | Vinyl chloride | 130 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.019 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 17 J | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 17 J | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | GRO (C4-C12) | 200 = | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.083 = | mg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | GENCHEM | E300 | Fluoride | 0.31 = | mg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | GENCHEM | SW9040C | pH | 6.92 = | pH units |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.051 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.056 U | µg/L |
| DTA | HAR-07 | HAR07GWS008 | 7/12/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 UJ | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| NBZ | SP-33C | SP33CGW01S005 | 7/13/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|-------|
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8315A | Formaldehyde | 20 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Isopropanol | 230 = | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.003 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.1 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.063 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.052 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.045 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.24 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.047 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.088 = | mg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | GENCHEM | E300 | Fluoride | 0.7 = | mg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.049 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.054 U | µg/L |
| OS | RD-68A | RD68AGW01S006 | 8/12/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|----------------------------------|--------------|-------|
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Acetone | 13 J | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8315A | Formaldehyde | 20 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Isopropanol | 410 = | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Bis(2-ethylhexyl)phthalate | 0.055 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Butyl benzyl phthalate | 0.052 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Diethyl phthalate | 0.052 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | 0.39 J | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | 0.085 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Di-n-octyl phthalate | 0.047 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.09 = | mg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | GENCHEM | E300 | Fluoride | 0.97 = | mg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.056 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.062 U | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B-SIM | 1,2,3-Trichloropropane | 0.0025 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Actinium-228 | 23 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Actinium-228, dissolved | 21.3 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E900 | Alpha, Gross | 5.9 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Americium-241 | -10.6 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Americium-241, dissolved | -3.29 U | pCi/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|---------|---------------|---------------------------------------|--------------|-------|
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Antimony-125 | 15.5 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Antimony-125, dissolved | 20.1 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Barium-133 | -9.23 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Barium-133, dissolved | -8.7 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E900 | Beta, Gross | 5.79 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Bismuth-212 | 75.6 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Bismuth-212, dissolved | 47.2 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Bismuth-214 | 523 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Bismuth-214, dissolved | 418 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cesium-134 | 9.02 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cesium-134, dissolved | -7.18 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cesium-137 | -8.65 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cesium-137, dissolved | 1.38 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cobalt-57 | -45 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cobalt-57, dissolved | 3.04 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cobalt-60 | 4.41 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Cobalt-60, dissolved | 7.21 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-152 | 12.1 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-152, dissolved | -4.79 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-154 | 29.7 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-154, dissolved | 55.3 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-155 | -21.9 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Europium-155, dissolved | -14.4 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E900 | Gross Alpha, decanted | 5.15 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E900 | Gross Beta, decanted | 7.91 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-210 | 233 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-210, dissolved | 122 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-212 | -3.99 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-212, dissolved | 2.65 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-214 | 558 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Lead-214, dissolved | 457 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Manganese-54 | -0.0242 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Manganese-54, dissolved | -6.54 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Potassium-40 | 8.78 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Potassium-40, dissolved | -2.4 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Sodium-22 | -12.3 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Sodium-22, dissolved | -2.66 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E905.0 | Strontium 89/90 | 0.287 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Thallium-208 | -0.0769 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Thallium-208, dissolved | -0.317 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Thorium-234 | -56.8 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E901.1 | Thorium-234, dissolved | -42.1 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | E906.0 | Tritium | -40.5 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | Radioisotopes | Uranium-233/-234 | 1.22 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | Radioisotopes | Uranium-235/236 | -0.00906 U | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | RAD | Radioisotopes | Uranium-238 | 0.559 = | pCi/L |
| OS | SP-29B | SP29BGW01S003 | 8/12/2016 | N | GENCHEM | E300 | Fluoride | 4.8 = | mg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B-SIM | 1,2,3-Trichloropropane | 0.0025 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-------|---------|--------------------------------|--------------|-------|
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Acetone | 6 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Isopropanol | 69 J | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Actinium-228 | 8.47 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Actinium-228, dissolved | 11.8 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E900 | Alpha, Gross | 5.23 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Americium-241 | -2.12 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Americium-241, dissolved | 7.77 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Antimony-125 | -4.3 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Antimony-125, dissolved | 12.9 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Barium-133 | -7 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Barium-133, dissolved | -0.17 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E900 | Beta, Gross | 7.19 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Bismuth-212 | 22.5 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Bismuth-212, dissolved | 193 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Bismuth-214 | 466 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Bismuth-214, dissolved | 393 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cesium-134 | 8.71 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cesium-134, dissolved | 2.23 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cesium-137 | -5.24 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cesium-137, dissolved | -2.31 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cobalt-57 | -4.25 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cobalt-57, dissolved | -4.63 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cobalt-60 | 0.244 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Cobalt-60, dissolved | 2.56 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-152 | 13.3 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-152, dissolved | 2.29 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-154 | 5.3 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-154, dissolved | 26.1 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-155 | -0.35 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Europium-155, dissolved | 11.3 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E900 | Gross Alpha, decanted | 4.88 U | pCi/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|---------|---------------|---------------------------------------|--------------|-------|
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E900 | Gross Beta, decanted | 5.62 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-210 | -218 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-210, dissolved | -262 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-212 | -0.762 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-212, dissolved | 7.79 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-214 | 509 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Lead-214, dissolved | 413 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Manganese-54 | -2.97 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Manganese-54, dissolved | -10.4 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Potassium-40 | 41.7 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Potassium-40, dissolved | -4.98 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Sodium-22 | 6.37 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Sodium-22, dissolved | 2.82 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E905.0 | Strontium 89/90 | -0.191 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Thallium-208 | 3.23 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Thallium-208, dissolved | -7.61 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Thorium-234 | -165 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E901.1 | Thorium-234, dissolved | -224 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | E906.0 | Tritium | -35.6 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | Radioisotopes | Uranium-233/-234 | 0.992 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | Radioisotopes | Uranium-235/236 | 0.0285 U | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | RAD | Radioisotopes | Uranium-238 | 0.352 = | pCi/L |
| OS | SP-29B | SP29BGW01D003 | 8/12/2016 | FD | GENCHEM | E300 | Fluoride | 4.8 = | mg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.9 J | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 15 = | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8315A | Formaldehyde | 50 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 1.4 J | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichloroethene | 0.91 J | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | VOC | SW8260B | Vinyl chloride | 5.3 = | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.012 = | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | GRO (C4-C12) | 48 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.0086 U | mg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | GENCHEM | E300 | Fluoride | 0.13 = | mg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | GENCHEM | SW9040C | pH | 6.54 = | pH units |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.057 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.063 U | µg/L |
| PLF | HAR-08 | HAR08GW01S007 | 7/19/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8315A | Formaldehyde | 20 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 UJ | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0031 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | SVOC | SW8315A | Unsytmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | GRO (C4-C12) | 48 UJ | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.043 J | mg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | GENCHEM | E300 | Fluoride | 0.24 = | mg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | GENCHEM | SW9040C | pH | 6.73 = | pH units |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.055 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.061 U | µg/L |
| SBZ | RD-05A | RD05AGW01S006 | 7/13/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropene | 0.64 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-----------|---------------------------------------|--------------|----------|
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8315A | Formaldehyde | 32 J | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.013 = | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 UJ | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 14 J | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 14 J | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | GRO (C4-C12) | 48 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.051 = | mg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | GENCHEM | E300 | Fluoride | 0.11 = | mg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | GENCHEM | SW9040C | pH | 9.07 = | pH units |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.055 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.061 U | µg/L |
| SBZ | RD-05B | RD05BGW01S007 | 7/13/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|---------|-------------|----------------------------------|--------------|-------|
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8315A | Formaldehyde | 30 J | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | GRO (C4-C12) | 48 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | ORO (C31-C40) | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | HC | SW8015B | TPH C-7 | 8 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.14 = | mg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | GENCHEM | E300 | Fluoride | 0.12 = | mg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | GENCHEM | SW9040C | pH | 7.27 = | pH units |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.052 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.057 U | µg/L |
| SBZ | RD-05C | RD05CGW01S006 | 7/14/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.56 J | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 17 = | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | 160 = | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Toluene | 0.33 J | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 2 J | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Vinyl chloride | 0.36 J | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.62 J | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 23 = | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | 190 = | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-Butylbenzene | 0.23 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 5 J | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | SP-881G | SP881GGW01S005 | 7/20/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropene | 0.64 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichloropropene | 0.42 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | SP-882B | SP882BGW01S004 | 7/15/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.24 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.48 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Toluene | 0.37 J | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SBZ | SP-882G | SP882GGW01S005 | 7/14/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.003 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 1.4 J | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 3.5 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 400 = | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | 88 J | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 24 = | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloroethene | 150 = | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Vinyl chloride | 0.52 = | µg/L |
| SBZ | SP-890C | SP890CGW01S005 | 7/20/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0031 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 2.9 J | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-------|-------------|---------------------------------------|--------------|-------|
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 3.5 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Bromomethane | 3.9 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 650 = | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | 86 J | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 24 = | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloroethene | 340 = | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Vinyl chloride | 3.6 = | µg/L |
| SBZ | SP-890G | SP890GGW01S005 | 7/20/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|---------|-------------|----------------------------------|--------------|-------|
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.0019 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.35 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8315A | Formaldehyde | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Isopropanol | 75 J | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Trichloroethene | 0.37 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | SVOC | SW8315A | Hydrazine | 0.2 UJ | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | SVOC | SW8315A | Monomethyl Hydrazine | 0.8 UJ | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0029 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.8 UJ | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | GRO (C4-C12) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | ORO (C31-C40) | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.025 J | mg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-------------|---------------------------------------|--------------|----------|
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | GENCHEM | E300 | Fluoride | 0.22 = | mg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.053 U | mg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | GENCHEM | SW9040C | pH | 7.04 = | pH units |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.055 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.061 U | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,1,2-Tetrachloroethane | 0.4 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,1-Trichloroethane | 0.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2,2-Tetrachloroethane | 0.41 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.45 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1,2-Trichloroethane | 0.38 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloroethane | 0.28 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloroethene | 0.43 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,1-Dichloropropene | 0.46 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,3-Trichlorobenzene | 0.51 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,3-Trichloropropane | 0.64 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,4-Trichlorobenzene | 0.5 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2,4-Trimethylbenzene | 0.36 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dibromo-3-chloropropane | 1.2 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | E504.1 | 1,2-Dibromo-3-chloropropane | 0.0023 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dibromoethane (EDB) | 0.36 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | E504.1 | 1,2-Dibromoethane (EDB) | 0.0019 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichlorobenzene | 0.46 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichloroethane | 0.24 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,2-Dichloropropane | 0.42 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3,5-Trimethylbenzene | 0.28 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3-Dichlorobenzene | 0.4 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,3-Dichloropropane | 0.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 1,4-Dichlorobenzene | 0.43 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B-SIM | 1,4-Dioxane (P-Dioxane) | 0.54 J | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2,2-Dichloropropane | 0.36 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Butanone (MEK) | 2.2 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Chloro-1,1,1-trifluoroethane | 2.1 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Chlorotoluene | 0.24 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 2-Hexanone | 2.1 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 4-Chlorotoluene | 0.13 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | 4-Methyl-2-pentanone (MIBK) | 4.4 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Acetone | 6 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Benzene | 0.14 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromobenzene | 0.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromochloromethane | 0.48 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromodichloromethane | 0.21 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromoform | 0.5 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Bromomethane | 3.9 UJ | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Carbon tetrachloride | 0.23 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chlorobenzene | 0.17 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chloroethane | 2.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chloromethane | 1.8 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Chlorotrifluoroethylene | 1.8 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | cis-1,2-Dichloroethene | 0.48 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | cis-1,3-Dichloropropene | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dibromochloromethane | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dibromomethane | 0.46 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Dichlorodifluoromethane | 0.46 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Ethylbenzene | 0.14 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8315A | Formaldehyde | 20 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Hexachlorobutadiene | 0.32 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Isopropanol | 37 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Isopropylbenzene | 0.58 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | m,p-Xylenes | 0.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Methylene chloride | 0.64 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Methyl-tert-butyl Ether (MTBE) | 0.31 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | n-butylbenzene | 0.23 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | n-Propylbenzene | 0.17 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | o-Xylene | 0.23 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Pentachloroethane | 1.5 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | p-Isopropyltoluene | 0.16 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | sec-Butylbenzene | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Styrene | 0.17 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | tert-Butylbenzene | 0.28 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Tetrachloroethene | 0.39 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Toluene | 0.24 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | trans-1,2-Dichloroethene | 0.37 U | µg/L |

TABLE 3-3

Validated Analytical - All Results

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|---------------|-------------|------|-----------|-----------|----------------------------------|--------------|----------|
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | trans-1,3-Dichloropropene | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichloroethene | 1.1 J | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichlorofluoromethane | 1.7 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Trichloromethane (Chloroform) | 0.46 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | VOC | SW8260B | Vinyl chloride | 0.3 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | SVOC | SW8315A | Hydrazine | 0.06 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | SVOC | SW8315A | Monomethyl Hydrazine | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | SVOC | E1625C | n-Nitrosodimethylamine | 0.0078 J | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | SVOC | SW8315A | Unsymmetrical Dimethyl Hydrazine | 0.25 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C12-C14) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C15-C20) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C21-C30) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C11) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | Diesel Range Organics (C8-C30) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | GRO (C4-C12) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | ORO (C31-C40) | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | HC | SW8015B | TPH C-7 | 50 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | GENCHEM | 4500-NH3F | Ammonia as Nitrogen (N) | 0.03 J | mg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | GENCHEM | E300 | Fluoride | 0.33 = | mg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | GENCHEM | E300 | Nitrogen, Nitrate (as N) | 0.4 = | mg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | GENCHEM | SW9040C | pH | 6.98 = | pH units |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | ENRG_PROP | SW8330A | 1,3-Dinitrobenzene | 0.056 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | ENRG_PROP | SW8330A | Nitrobenzene | 0.062 U | µg/L |
| SPA | HAR-23 | HAR23GW01S006 | 7/18/2016 | N | ENRG_PROP | E314 | Perchlorate | 0.41 U | µg/L |

µg/L = microgram(s) per liter
 FD = field duplicate sample
 ID = identification number
 mg/L = milligram(s) per liter
 N = normal sample
 pCi/L = picoCurie(s) per liter

Class Abbreviations:

ENER_PROP = energetics and propellants
 GENCHEM = general chemistry
 HC = hydrocarbons
 INO = inorganics
 PHTH = phthalates
 RAD = radionuclide
 SVOC = semivolatile organic compound
 VOC = volatile organic compound

Field Duplicate Associations:

SP29BGW01S003 = SP29BGW01D003
 WS04AGW01S006 = WS04AGW01D006

Site Abbreviations:

A1 = Area 1
 ALF = Alfa Area
 BRV = Bravo Area
 CA = Coca Area
 DTA = Delta Area
 NBZ = Northern Buffer Zone
 OS = offsite
 PLF = Propellant Load Facility
 SBZ = Southern Buffer Zone
 SPA = Storage Propellant Area

Validation Flags

J
 U Analyte is present but the reported quantitation is estimated.
 UJ Analyte was not detected at the specified detection limit.
 = Estimated detection limit. The result is estimated and may be a false negative due to related QC problems.
 Reported quantitation represents the most accurate concentration for the given analyte.

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TABLE 3-4

Validated Analytical - First-Time Detections

NASA Area I LOX and Area II Groundwater Monitoring Report, Third Quarter 2016, SSFL, Ventura County, California

| Site | Location | Sample ID | Sample Date | Type | Class | Method | Analyte | Final Result | Units |
|------|----------|----------------|-------------|------|-----------|-------------|------------------------|----------------|-------|
| A1 | WS-04A | WS04AGW01D006 | 7/14/2016 | FD | PHTH | SW8270C-SIM | Butyl benzyl phthalate | <i>0.077 J</i> | µg/L |
| ALF | HAR-11 | HAR11GW01S007 | 7/19/2016 | N | VOC | SW8260B | Isopropanol | 170 = | µg/L |
| | HAR-20 | HAR20GW01S006 | 7/12/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | <i>0.045 J</i> | µg/L |
| | RD-49C | RD49CGW01S006 | 7/19/2016 | N | PHTH | SW8270C-SIM | Di-n-butyl phthalate | <i>0.12 J</i> | µg/L |
| | | | | | ENRG_PROP | E314 | Perchlorate | 3.4 = | µg/L |
| BRV | HAR-19 | HAR19GW01S016 | 7/26/2016 | N | VOC | SW8260B | Isopropanol | <i>61 J</i> | µg/L |
| | | | | | PHTH | SW8270C-SIM | Butyl benzyl phthalate | <i>0.11 J</i> | µg/L |
| | HAR-21 | HAR21GW01S006 | 7/18/2016 | N | HC | SW8015B | GRO (C4-C12) | 53 = | µg/L |
| OS | RD-68B | RD68BGW01S006 | 8/12/2016 | N | PHTH | SW8270C-SIM | Dimethyl phthalate | <i>0.39 J</i> | µg/L |
| SBZ | SP-881C | SP881CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | <i>160 =</i> | µg/L |
| | SP-890C | SP890CGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | <i>88 J</i> | µg/L |
| | SP-890G | SP890GGW01S005 | 7/20/2016 | N | VOC | SW8260B | Isopropanol | <i>86 J</i> | µg/L |
| SPA | HAR-05 | HAR05GW01S006 | 7/15/2016 | N | VOC | SW8260B | Isopropanol | <i>75 J</i> | µg/L |

The results in *italic gray* font were reported below their respective screening level values.

The result in **bold** font was reported at or above the respective screening level value.

µg/L = microgram(s) per liter

FD = field duplicate sample

ID = identification number

N = normal sample

Class Abbreviations:

ENER_PROP = energetics and propellants

HC = hydrocarbons

PHTH = phthalates

VOC = volatile organic compound

Site Abbreviations:

A1 = Area 1 OS = offsite

ALF = Alfa Area SBZ = Southern Buffer Zone

BRV = Bravo Area SPA = Storage Propellant Area

Field Duplicate Association:

WS04AGW01S006 = WS04AGW01D006

Validation Flags:

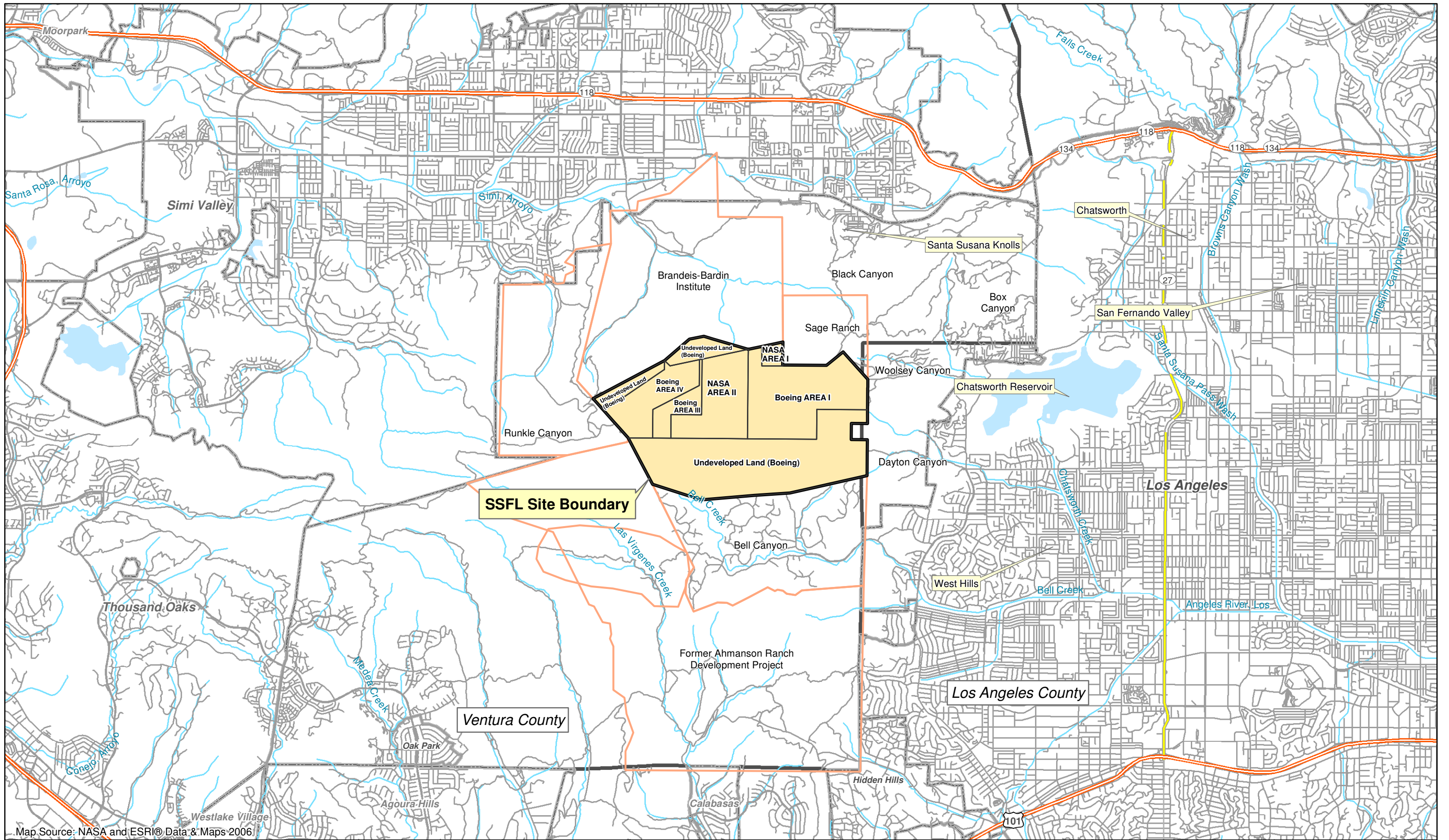
J Analyte is present but the reported quantitation is estimated.

= Reported quantitation represents the most accurate concentration for the given analyte.

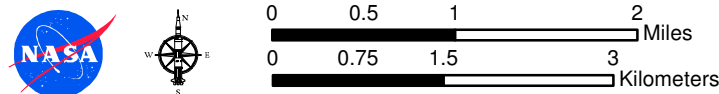
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Figures

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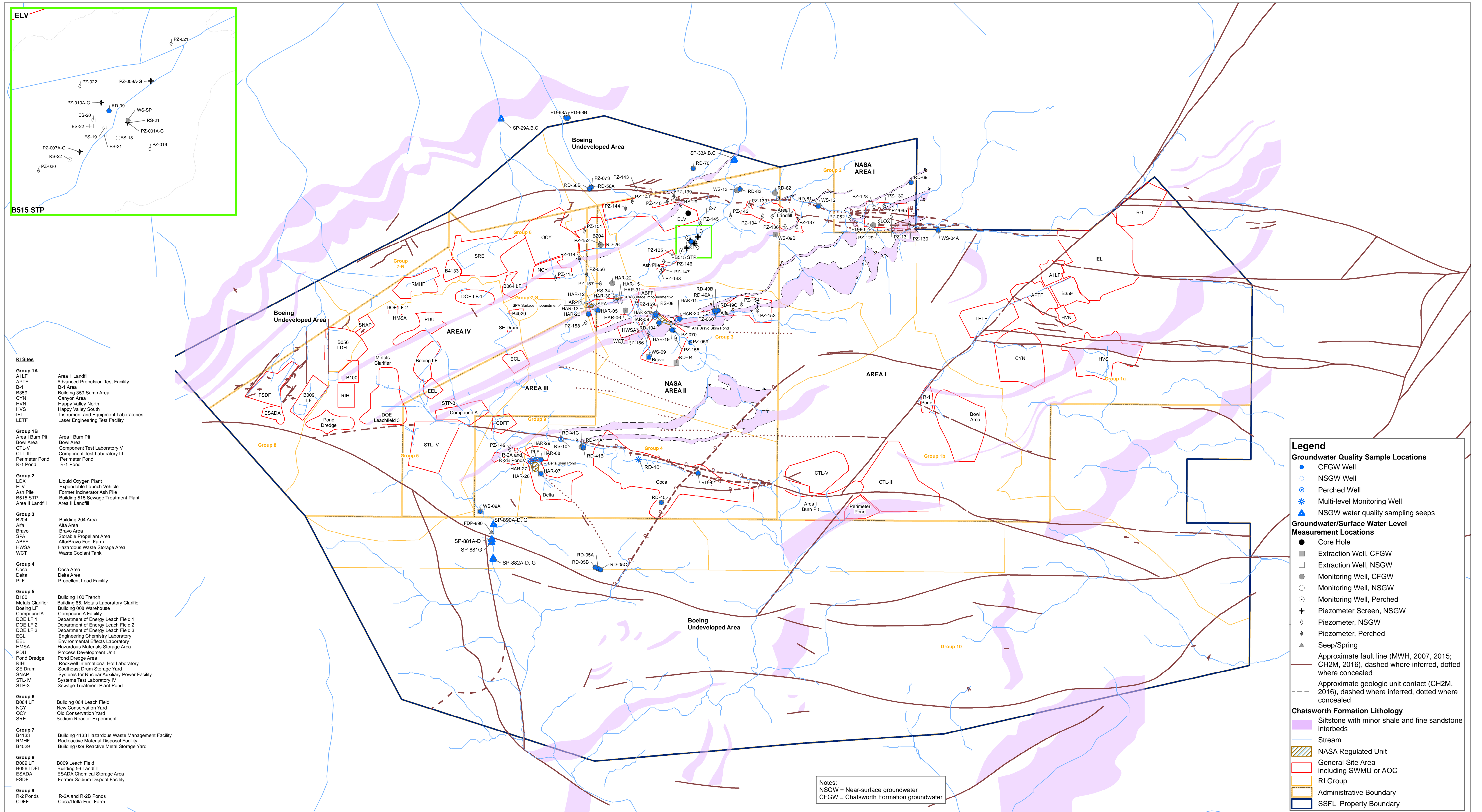
Map Source: NASA and ESRI® Data & Maps 2006



27-May-2014
 Drawn By:
 A. Cooley

Figure 1-1
 Facility Location Map
 Santa Susana Field Laboratory
 Ventura County, CA

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ELV

B515 STP

- RI Sites**
- Group 1A**
 - A1LF Area 1 Landfill
 - APTF Advanced Propulsion Test Facility
 - B-1 Area Building 359 Sump Area
 - CYN Canyon Area
 - HVN Happy Valley North
 - HVS Happy Valley South
 - IEL Instrument and Equipment Laboratories
 - LETF Laser Engineering Test Facility
 - Group 1B**
 - Area I Burn Pit
 - Bowl Area
 - CTL-V Component Test Laboratory V
 - CTL-III Component Test Laboratory III
 - Perimeter Pond
 - R-1 Pond
 - Group 2**
 - LOX Liquid Oxygen Plant
 - ELV Expendable Launch Vehicle
 - Ash Pile Former Incinerator Ash Pile
 - B515 STP Building 515 Sewage Treatment Plant
 - Area II Landfill
 - Group 3**
 - B204 Building 204 Area
 - Alfa Alfa Area
 - Bravo Bravo Area
 - SPA Storable Propellant Area
 - ABFF Alfa/Bravo Fuel Farm
 - HWSA Hazardous Waste Storage Area
 - WCCT Waste Coolant Tank
 - Group 4**
 - Coca Coca Area
 - Delta Delta Area
 - PLF Propellant Load Facility
 - Group 5**
 - B100 Building 100 Trench
 - Metals Clarifier Building 65, Metals Laboratory Clarifier
 - Boeing LF Building 008 Warehouse
 - Compound A Compound A Facility
 - DOE LF 1 Department of Energy Leach Field 1
 - DOE LF 2 Department of Energy Leach Field 2
 - DOE LF 3 Department of Energy Leach Field 3
 - ECL Engineering Chemistry Laboratory
 - EEL Environmental Effects Laboratory
 - HMSA Hazardous Materials Storage Area
 - PDU Process Development Unit
 - Pond Dredge Area Pond Dredge Area
 - RIHL Rockwell International Hot Laboratory
 - SE Drum Southeast Drum Storage Yard
 - SNAP Systems for Nuclear Auxiliary Power Facility
 - STL-IV Systems Test Laboratory IV
 - STP-3 Sewage Treatment Plant Pond
 - Group 6**
 - B064 LF Building 064 Leach Field
 - NCY New Conservation Yard
 - OCY Old Conservation Yard
 - SRE Sodium Reactor Experiment
 - Group 7**
 - B4133 Building 4133 Hazardous Waste Management Facility
 - RMHF Radioactive Material Disposal Facility
 - B4029 Building 029 Reactive Metal Storage Yard
 - Group 8**
 - B009 LF B009 Leach Field
 - B056 LDLF Building 56 Landfill
 - ESADA ESADA Chemical Storage Area
 - FSDP Former Sodium Disposal Facility
 - Group 9**
 - R-2A and R-2B Ponds
 - CDFP Coca/Delta Fuel Farm

- Legend**
- Groundwater Quality Sample Locations**
- CFGW Well
 - NSGW Well
 - Perched Well
 - ⊛ Multi-level Monitoring Well
 - ▲ NSGW water quality sampling seeps
- Groundwater/Surface Water Level Measurement Locations**
- Core Hole
 - Extraction Well, CFGW
 - Extraction Well, NSGW
 - Monitoring Well, CFGW
 - Monitoring Well, NSGW
 - Monitoring Well, Perched
 - ⊛ Piezometer, NSGW
 - ⊛ Piezometer, Perched
 - ▲ Seep/Spring
- Groundwater/Surface Water Level Measurement Locations**
- Approximate fault line (MWH, 2007, 2015; CH2M, 2016), dashed where inferred, dotted where concealed
 - - - Approximate geologic unit contact (CH2M, 2016), dashed where inferred, dotted where concealed
- Chatsworth Formation Lithology**
- Siltstone with minor shale and fine sandstone interbeds
 - Stream
 - NASA Regulated Unit
 - General Site Area including SWMU or AOC
 - RI Group
 - Administrative Boundary
 - SSFL Property Boundary

Notes:
 NSGW = Near-surface groundwater
 CFGW = Chatsworth Formation groundwater

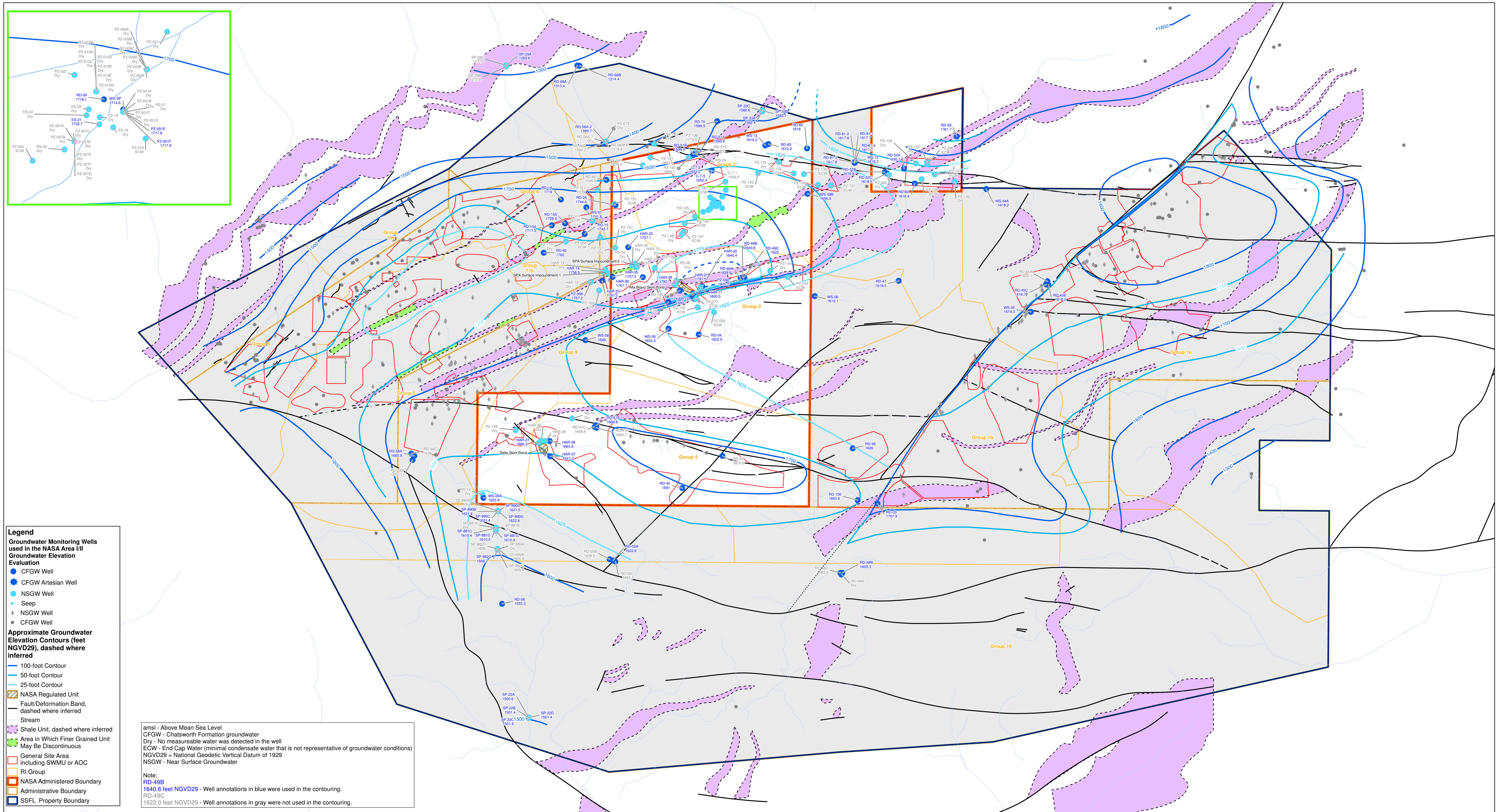
Figure 1-2
SSFL NASA Area I LOX and Area II Monitoring Wells, Piezometers, and Seeps
Santa Susana Field Laboratory
Ventura County, CA

0 500 1,000 2,000 Feet

0 150 300 600 Meters

10-Nov-2016
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 A. Cooley

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09-Nov-2016
 Drawn By:
 A. Cooley

Figure 2-1
 Groundwater Elevation Contour Map, July/August 2016
 Santa Susana Field Laboratory
 Ventura County, CA

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Appendix A
Seeps near WS-09A,
July through September 2016

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HARGIS + ASSOCIATES, INC.

HYDROGEOLOGY • ENGINEERING

La Jolla Gateway
9171 Towne Centre Drive, Suite 375
San Diego, CA 92122
Phone: 858.455.6500
Fax: 858.455.6533

October 14, 2016

VIA EMAIL

Mr. Jeff Wokurka, PG, CEG
THE BOEING COMPANY
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304

Re: Status Report July through September 2016,
Seeps in Vicinity of WS-9A, Santa Susana Field Laboratory, Ventura County, California

Dear Mr. Wokurka,

This letter reports the status of The Boeing Company's (Boeing's) and the National Aeronautics and Space Administration's (NASA's) recent activity at the subject seeps from July 1 through September 30, 2016.

Boeing and NASA continued to perform weekly inspections of the seeps alternating monthly from July 1 through September 30, 2016. During this period, a combined total of 0 (zero) gallons was pumped from all seeps; 0 (zero) gallons from FDP-881, 0 (zero) gallons from FDP-882, and 0 (zero) gallons from FDP-890.

Per direction of the California Department of Toxic Substances Control, the Interim Groundwater Extraction and Treatment System (Interim GET System) has been off since April 2013. Re-start of the Interim GET System is scheduled for 2017, following completion of construction activities related to the Interim GET System and obtainment of a discharge permit. The seeps will continue to be monitored and pumped to confirm that operational downtime of extraction well WS-9A does not result in accumulation of water in the seeps.

A total of 0 (zero) gallons of water was extracted from extraction well WS-9A during the period of July through September, 2016, with a total 10,637,797 gallons having been extracted from extraction well WS-9A since October 26, 2009.

Sincerely,

HARGIS + ASSOCIATES, INC.

Christopher Liles, PE
Senior Engineer

CML/jak

cc: Mr. Michael Bower, PE, The Boeing Company
Mr. Steve Reiners, MWH Global
Mr. Jon Freed, CH2M Hill

1050 H01_StatusRptLtr03_July_September_2016

Other Offices:
Folsom, CA
Mesa, AZ
Tucson, AZ

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Appendix B
Data Usability Assessment

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**2016 Third Quarter Sitewide
Groundwater Monitoring
Data Usability Assessment Report
Santa Susana Field Laboratory,
Ventura County, California**

Prepared for
National Aeronautics and Space Administration

November 2016

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Attachments

- A Data Summary Reports (including Chains-of-Custody and Case Narratives)
- B Data Validation Reports

Tables

- B-1 Analytical Parameters by Laboratory
- B-2 Holding Time Qualification Summary
- B-3 Analytical Blank Qualification Summary
- B-4 Trip Blank Qualification Summary
- B-5 Matrix Spike/Matrix Spike Duplicate Qualification Summary
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- B-7 Laboratory Control Sample Qualification Summary
- B-8 Site Completeness Summary

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Acronyms and Abbreviations

| | |
|---------|--|
| %D | percent difference |
| 2-CLEVE | 2-chloroethylvinyl ether |
| CEL | Eurofins Calscience Laboratory, Inc. |
| EMXT | EMAX Laboratories |
| EPA | U.S. Environmental Protection Agency |
| FD | field duplicate |
| LANC | Lancaster Laboratory |
| LCS | laboratory control sample |
| LCSD | laboratory control sample duplicate |
| MDL | method detection limit |
| MRL | method reporting limit |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| NASA | National Aeronautics and Space Administration |
| NDMA | n-nitrosodimethylamine |
| PARCCS | precision, accuracy, representativeness, completeness, comparability and sensitivity |
| QAPP | quality assurance project plan |
| RPD | relative percent difference |
| SDG | sample delivery group |
| SSFL | Santa Susana Field Laboratory |
| SVOC | semivolatile organic compound |
| TAML | TestAmerica Laboratories |
| TB | trip blank |
| TCE | trichloroethene |
| TPH | total petroleum hydrocarbons |
| VOC | volatile organic compound |

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SECTION 1

Introduction

The objective of this data usability assessment report is to assess the data quality of analytical results for groundwater samples collected during the Third Quarter 2016 Sitewide Groundwater Monitoring activities at the National Aeronautics and Space Administration (NASA) Santa Susana Field Laboratory (SSFL) in Ventura County, California. Samples were collected and analyzed to provide additional groundwater monitoring data. The data may also be used to support future activities such as feasibility studies, risk assessments, fate-and-transport modeling, and remedial actions.

Individual method requirements and guidelines from the *Groundwater Monitoring Quality Assurance Project Plan, Revision 1* (GM-QAPP) (Haley & Aldrich, 2010), which is included in Appendix B of the *Site-Wide Water Quality Sampling and Analysis Plan*, were used in this assessment. The GM-QAPP includes the quality assurance/quality control procedures to confirm the quality of field and laboratory data and to evaluate that project work meets the data quality objectives for the intended use of the data for NASA SSFL groundwater monitoring program. This report is intended as a general data quality evaluation designed to summarize data issues and to provide an overall data usability assessment.

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SECTION 2

Analytical Data

This data usability assessment report covers 27 environmental groundwater samples, 2 groundwater field duplicate (FD) samples, and 11 trip blanks (TBs). These samples were reported under 30 sample delivery groups (SDGs) by the laboratories. Samples were collected between July 12 and August 12, 2016. Sixteen methods were used to analyze the environmental samples and are listed in Table B-1. The analyses were performed by Eurofins Calscience Laboratory in Garden Grove, California (CEL); EMAX Laboratories in Torrance, California (EMXT); Lancaster Laboratories in Lancaster, Pennsylvania (LANC); and TestAmerica Laboratories in St Louis, Missouri (TAML). Samples were collected and delivered by laboratory courier or overnight carrier to the laboratories. Selected samples were analyzed for one or more of the methods presented in Table B-1.

TABLE B-1

Analytical Parameters by Laboratory

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Parameter | Method | Laboratory |
|------------------------------------|------------------------|------------|
| Ammonia | 4500-NH3F | CEL; EMXT |
| NDMA | E1625C | CEL |
| Anions | E300.0 | CEL; EMXT |
| Perchlorate | E314 | CEL |
| Gross Alpha/Beta | E900 | TAML |
| Gamma-emitting isotopes | E901.1 | TAML |
| Strontium-90 | E905.0 | TAML |
| Tritium | E906.0 | TAML |
| Isotopic Uranium | HASL 300 radioisotopes | TAML |
| TPH | SW8015B | CEL; EMXT |
| VOCs | SW8260B | CEL; EMXT |
| 1,4-Dioxane/1,2,3-Trichloropropane | SW8260B-SIM | CEL |
| Phthalates | SW8270C-SIM | CEL |
| Formaldehyde/Hydrazines | SW8315A | LANC |
| Explosives/Energetics | SW8330A | CEL |
| pH | SW9040C | CEL |

CEL = Eurofins Calscience Laboratory
 EMXT = EMAX Labs, Inc.
 LANC = Lancaster Laboratories
 NDMA = n-nitrosodimethylamine
 TAML = TestAmerica Laboratories
 TPH = total petroleum hydrocarbons
 VOC = volatile organic compound

The chains of custody and case narratives associated with each of the laboratory SDGs are included in the laboratory data summary reports provided in Attachment A to this report. The data validation summary reports associated with each of these SDGs are provided in Attachment B (both attachments are provided electronically).

One hundred percent of the data was evaluated on an SDG-by-SDG basis by CH2M HILL chemists for data quality using Level V validation, as specified in the GM-QAPP (Haley & Aldrich, 2010). The data evaluation included a review of: (1) chain-of-custody documentation; (2) holding-time compliance; (3) required quality control samples at the specified frequencies; (4) flagging for analytical blanks; (5) laboratory control sample (LCS)/laboratory control sample duplicates (LCSD); (6) surrogate spike recoveries for organic analyses; (7) matrix spike (MS)/matrix spike duplicate (MSD) recoveries; and (8) other method-specific criteria as defined by the GM-QAPP.

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of TBs and FDs.

Data flags were assigned according to the GM-QAPP. These flags, as well as the reason for each flag, are uploaded into the NASA electronic database and are included in the data validation summary reports (provided in Attachment B). Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts. The data flags are those listed in the GM-QAPP (Haley & Aldrich, 2010) and are defined below:

- J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (estimated).
- R = Data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.
- U = Analyte was analyzed for but not detected above the reported sample quantitation limit, or this analyte was considered not detected due to laboratory or field blank contamination.
- UJ = Analyte was analyzed for but not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- N = Analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Findings

The overall summaries of the data validation findings are outlined in the following sections. Specific analyte results and samples that were qualified are discussed in the data validation summary reports (Attachment B).

3.1 Calibration

Level V validation, as defined in the GM-QAPP (Haley & Aldrich, 2010), does not include review of initial or continuing calibration information. The laboratories did not report any criteria exceedances in the case narrative.

3.2 Holding Times

Analytical holding times were evaluated against the criteria listed in Table B-III of the GM-QAPP (Haley & Aldrich, 2010). For methods requiring both sample preparation and analysis, the preparation/extraction holding time will be calculated from the time of sampling to the initiation of preparation/extraction. The analysis holding time will be calculated from the time of completion of preparation/extraction to the time of completion of the analysis, including any required dilutions, confirmation analysis, and reanalysis. For methods requiring analysis only, the holding time is calculated from the time of sampling to completion of the analysis, including any required dilutions, confirmation analysis, and reanalysis.

Holding times were generally met, with the exceptions listed in Table B-2.

TABLE B-2

Holding Time Qualification Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Total Number of Samples | Total Number of Sample Results | Number of Results Flagged as Estimated Detect or Nondetect as a Result of Holding Time Exceptions | | Number of Results Flagged as Rejected as a Result of Holding Time Exceptions | Percentage of Qualified Results |
|------------------------------------|-------------------------|--------------------------------|---|---------|--|---------------------------------|
| | | | J Flag | UJ Flag | R Flag | |
| SW8315A Formaldehyde/Hydrazines | 16 | 40 | 0 | 12 | 0 | 30% |

Data qualification flags were applied to the individual results as indicated above. Twelve nondetected results were qualified as estimated and flagged "UJ." Eight samples for hydrazines were derivatized 1 to 4 days past holding time due to downtime for instrument maintenance issues. Sample results that have been qualified as estimated due to holding time exceptions are usable for project decisions; however, data users should consider the impact to any result that is qualified as estimated because it may contain a bias and should be accounted for during the decision-making process.

3.3 Analytical Blanks

Analytical blanks are used to monitor each preparation and/or analytical batch for interference and/or contamination from glassware, reagents, and other potential contaminant sources within the laboratory. There are two types of analytical blanks: method blanks and calibration blanks. A method blank is an analyte-free matrix (laboratory reagent water for aqueous samples) to which all reagents are added in the same amount or proportions as are added to samples. It is processed through the entire sample

preparation and analytical procedures along with the samples in the batch. At least one method blank is prepared for each analytical batch of 20 samples or fewer. A calibration blank consists of laboratory reagent water that is analyzed periodically throughout the analytical run for the methods for which they are required (for example, U.S. Environmental Protection Agency [EPA] Method SW6020 for metals analysis). At least one calibration blank is analyzed for every 10 samples analyzed within the analytical run.

Calibration blanks and method blanks were analyzed at the required frequency and were generally free of contamination that would affect the sample results, with the exceptions listed in Table B-3.

TABLE B-3

Analytical Blank Qualification Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Total Number of Samples | Total Number of Sample Results | Number of Results Flagged as Nondetect as a Result of Analytical Blank Contamination | | Percentage of Qualified Results |
|------------------------|-------------------------|--------------------------------|--|--|---------------------------------|
| | | | U Flag | | |
| SW8270C-SIM Phthalates | 9 | 54 | 5 | | 9% |

Data qualification flags were applied to the individual results as indicated above. Five associated detected sample concentrations were less than 5 times the blank concentrations (10 times for common lab contaminants) and were qualified as nondetect and flagged "U." Overall, the blank qualifications were considered to be acceptable; therefore, the data are usable.

3.4 Field Blanks

Field blanks (ambient source blanks) and equipment rinsate blanks are collected to monitor interference and/or contamination from potential sources associated with field collection activities. One ambient source blank is collected each time the source of field decontamination water is changed and site samples are being collected for laboratory analysis. The blank consists of either deionized or distilled water procured by the field sampling team and is submitted to the laboratory for analysis in containers equivalent to the sample containers use for field samples. One equipment rinsate blank is collected each day per type of sampling equipment being used onsite for which site samples are being collected for laboratory analysis. The equipment rinsate blank consists of the same source water used for the ambient source blank and is passed over the sampling equipment following all decontamination procedures.

Ambient source blanks and equipment rinsate blanks were not collected during this sampling event because samples were collected using either dedicated or disposable sampling equipment.

3.5 Trip Blanks

TBs are used to monitor for cross contamination of VOC samples during sample shipping and handling. One TB was placed in each sample cooler containing field samples for VOC analyses. TBs are supplied by the fixed laboratory doing the analysis. The TBs were submitted and analyzed for VOC analyses only.

The TBs were collected and analyzed at the required frequency and were generally free of contamination that would affect the sample results, with the exceptions listed in Table B-4.

TABLE B-4

Trip Blank Qualification Summary

NASA 2016 Third Quarter Site-Wide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Total Number of Samples | Total Number of Sample Results | Number of Results Flagged as Nondetect as a Result of Field Blank Contamination U Flag | Percentage of Qualified Results |
|-------------|-------------------------|--------------------------------|---|---------------------------------|
| SW8015B TPH | 16 | 122 | 1 | <1% |

TPH = total petroleum hydrocarbons

Data qualification flags were applied to the individual results as indicated above. One associated detected sample concentration was less than 5 times the blank concentration (10 times for common lab contaminants) and was qualified as not detected and flagged “U.” Overall, the blank qualification was considered to be acceptable; therefore, the data are usable.

3.6 Field Duplicates and Split Samples

An FD, or collocated sample, is an independent sample collected as close as possible to the original sample from the same source under identical conditions. FDs are to be collected in the field for 5 or more percent of the samples collected for analysis during each sampling event, by matrix and method, and are used to document sampling and analytical precision and representativeness. FDs were collected less than the required frequency during the Third Quarter 2016 Sitewide Groundwater Monitoring event, but the 5 percent FD frequency was met for each method when compared to the third quarter 2016 sampling activities that were performed at NASA SSFL as a whole. Precision is expressed in terms of the relative percent difference (RPD) between the native and FD sample results. The RPD criterion for FDs for waters is 35 percent. Qualification is performed on the native sample and associated FD results in accordance with the GM-QAPP (Haley & Aldrich, 2010). FDs were collected and analyzed, and all precision criteria were acceptable.

Split samples are independent samples, collected as close as possible to the original sample, from the same source under identical conditions. These samples are sent to a different offsite laboratory in order to check the performance of the primary offsite laboratory. Split samples are to be collected at least once a year. Precision is expressed in terms of the RPD between the native (original) and split sample result. As an initial evaluation, an RPD criterion of 50 percent for soils and soil vapor samples was used in assessing data usability for results greater than the reporting limit. The comparability of the data was evaluated and outliers compared to look for trends in the accuracy and precision of reporting the data so that a bias or error is not laboratory dependent. Split samples were not collected for this sampling event. A split sample was collected during the first quarter 2016 sampling activities.

3.7 Matrix Spike Samples

A sample matrix fortified with known quantities of specific compounds is called a “matrix spike.” It is subjected to the same preparation and analytical procedures as the native sample. The results of MS/MSD analyses provide information about the possible influence of the matrix on either the accuracy or precision of the measurements. Samples used for MS/MSD analysis were either collected in the field for 5 percent of the samples collected for analysis during each sampling event, by matrix and method, or were reported by the laboratory as part of their analytical batch requirements. Qualification of sample results due to MS/MSD recovery or precision exceedances were done on a sample batch basis for inorganic methods and on the parent sample only for organic methods in accordance with the GM-QAPP (Haley & Aldrich, 2010). Accuracy and precision criteria are listed in Table B-IV of the GM-QAPP.

Accuracy and precision limits were generally met, with the exceptions listed in Table B-5.

TABLE B-5

Matrix Spike/Matrix Spike Duplicate Qualification Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Number of Native/MS/MSD Pairs | Number of Associated Native Sample Results | Number of Results Flagged as Estimated Detect or Nondetect as a Result of MS/MSD Recovery and/or Precision Exceptions | | Number of Results Flagged as Rejected as a Result of MS/MSD Recovery Exceptions | Percentage of Qualified Results |
|--------------|-------------------------------|--|---|---------|---|---------------------------------|
| | | | J Flag | UJ Flag | | |
| | | | R Flag | | | |
| SW8260B VOCs | 8 | 564 | 2 | 0 | 8 | 1% |

MS = matrix spike

MSD = matrix spike duplicate

VOC = volatile organic compound

Data qualification flags were applied to the individual results as indicated above. Two detected results were qualified as estimated and flagged “J,” and one nondetected result was qualified as estimated and flagged “UJ.” Sample results that have been qualified as estimated due to accuracy or precision criteria are usable for project decisions; however, data users should consider the impact to any result that is qualified as estimated because it may contain a bias and should be accounted for during the decision-making process.

Eight nondetected results were rejected from project use and were flagged “R” (8 flagged results out of 2,557 total results; approximately 0.3 percent) for Method SW8260B. 2-Chloroethyl vinyl ether (2-CLEVE) was recovered less than 10 percent in eight MS samples, indicating a significant matrix effect was evident in recovering that analyte from the sample matrix. The data results will not be used during the decision-making process.

3.8 Post-digestion Spikes

A post-digestion spike is a portion of the sample digestate that is fortified with known quantities of compounds of interest. The post-digestion spike is used to measure either positive or negative interferences that may distort the accuracy of the reported values in the native sample. Accuracy of the analytes should be within 75 to 125 percent of the known concentration added. Post-digestion spikes are only evaluated for metals analyses.

3.9 Serial Dilutions

A 1-to-5 serial dilution is performed on a portion of the sample digestate and analyzed. The serial dilution is used to measure either positive or negative interferences that may distort the precision of the reported values in the native sample. Precision is expressed in terms of the percent difference (%D) between the original sample and the serial dilution results. The %D criterion should be less than 10 percent if the concentration of the analyte in the original sample is greater than 50 times the method detection limit (MDL). Serial dilutions are only evaluated for metals analyses.

3.10 Surrogates

Surrogates are organic analytes that behave similarly as the analytes of interest, or have been chemically altered (that is, chemically deuterated), but are not expected to occur naturally in the samples. They are spiked into the standards, field samples, and laboratory quality control samples prior to sample preparation. The results of surrogate spikes provide additional information about the possible influence of

the matrix on the accuracy of the measurements for organic analyses only. Accuracy and precision criteria are listed in Table B-IV of the GM-QAPP (Haley & Aldrich, 2010).

Accuracy limits were generally met, with the exceptions listed in Table B-6.

TABLE B-6

Surrogate Spike Qualification Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Number of Samples | Number of Results | Number of Results Flagged as Estimated Detect or Nondetect as a Result of Surrogate Recovery Exceptions | | Number of Results Flagged as Rejected as a result of Surrogate Recovery Exceptions | Percentage of Qualified Results |
|-------------|-------------------|-------------------|---|---------|--|---------------------------------|
| | | | J Flag | UJ Flag | R Flag | |
| SW8015B TPH | 16 | 122 | 0 | 2 | 0 | 2% |

TPH = total petroleum hydrocarbons

Data qualification flags were applied to the individual results as indicated above. Two nondetected results were qualified as estimated and flagged "UJ." Sample results that have been qualified as estimated due to accuracy or precision criteria are usable for project decisions; however, data users should consider the impact to any result that is qualified as estimated because it may contain a bias and should be accounted for during the decision-making process.

3.11 Laboratory Control Samples

LCSs are used to monitor method performance for a given analyte in each matrix. An LCS is an analyte-free matrix (laboratory reagent water for aqueous samples or Ottawa sand for soil samples) spiked with known amounts of analytes that come from a source different than that used for calibration standards. Target analytes specified in the GW-QAPP (Haley & Aldrich, 2010) will be spiked into the LCS. It is processed through the entire sample preparation and analytical procedures along with the samples in the batch. At least one LCS is prepared for each analytical batch of 20 samples or less. Accuracy and precision criteria are listed in Table B-IV of the GM-QAPP.

LCSs and LCSDs were analyzed at the required frequency. Accuracy and precision limits were generally met, with the exceptions listed in Table B-7.

TABLE B-7

Laboratory Control Sample Qualification Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Number of Samples | Number of Results | Number of Results Flagged as Estimated Detect or Nondetect as a Result of LCS Recovery and/or Precision Exceptions | | Number of Results Flagged as Rejected as a Result of LCS Recovery Exceptions | Percentage of Qualified Results |
|--------------|-------------------|-------------------|--|---------|--|---------------------------------|
| | | | J Flag | UJ Flag | R Flag | |
| SW8260B VOCs | 27 | 1,871 | 0 | 31 | 0 | 2% |

LCS = laboratory control sample
VOC = volatile organic compound

Data qualification flags were applied to the individual results as indicated above. Thirty-one nondetected results were qualified as estimated and flagged "UJ." Sample results that have been qualified as estimated due to accuracy or precision criteria are usable for project decisions; however, data users should consider the impact to any result that is qualified as estimated because it may contain a bias and should be accounted for during the decision-making process.

3.12 Laboratory Duplicates

A laboratory duplicate is a separate sample aliquot that is subjected to the same preparation and analytical procedures as the native sample. Laboratory duplicates were analyzed to measure the precision of sample results reported as required by the analytical method. Precision is expressed in terms of the RPD between the native and laboratory duplicate sample results. The RPD criterion for laboratory duplicates is 20 percent.

Laboratory duplicates were analyzed at the required frequency and precision criteria were acceptable.

3.13 Tentatively Identified Compounds

Tentatively identified compounds were not evaluated for any samples reported at this site.

3.14 Other

All VOC samples were collected in hydrochloric-acid-preserved containers, which rapidly decomposes 2-CLEVE. Therefore, the presence or absence of this compound in the samples could not be verified, and 27 sample results for 2-CLEVE were rejected. However, 2-CLEVE is not considered an environmental driver for this project (that is, trichloroethene [TCE] and its daughter products are the primary environmental drivers for VOCs), so this does not significantly impact the overall data quality.

3.15 Chain of Custody

No discrepancies were noted. Chains of custody are provided in the laboratory data summary reports included in Attachment A.

3.16 Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meet the data quality objectives. The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The precision, accuracy, representativeness, completeness, comparability and sensitivity (PARCCS) are addressed in the GM-QAPP (Haley & Aldrich, 2010). The following summary highlights the data evaluation findings for the above-defined events:

- Precision of the data was verified through the review of the field and laboratory data quality indicators that include: FDs, LCS/LCSDs, MS/MSDs, serial dilution, and laboratory duplicate RPDs. Precision was generally acceptable, with the exception of several analytical results that were qualified as estimated due to FD, MS/MSD, or laboratory duplicate RPD issues. Overall, 1 result out of 2,557 total results (less than 0.1 percent) were qualified for precision exceptions.
- Accuracy of the data was verified through the review of the LCS, MS/MSD, post-spike, and surrogate standard recoveries, as well as the evaluation of the method blank/field blank data. Accuracy was generally acceptable, with the exception of some analytical results being qualified as estimated detected and nondetected results due to LCS, MS/MSD, and/or surrogate issues. Eight 2-CLEVE results were rejected due to low MS/MSD recoveries. Overall, 37 results out of 2,557 total results (approximately 1.4 percent) were qualified for accuracy exceptions. Analytical/field blank data were

generally free of contamination, with some analytical results being qualified as nondetect. Overall, 7 results out of 2,557 total results (approximately 0.3 percent) were qualified for blank contamination exceptions.

- Representativeness of the data was verified through the sample's collection, storage, and the verification of holding-time compliance. No issues related to sample collection or storage of the samples were noted by the laboratories. Overall, 12 results out of 2,557 total results (approximately 0.5 percent) were qualified for holding time exceptions. All other data were reported from analyses within the EPA-recommended holding times.
- Comparability of the data was verified through the use of standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Sensitivity is a measurement based upon the analytical instrument method reporting limits (MRLs) determined by each subcontract laboratory. The analytical reporting limits were determined based upon the completion of instrument-specific MDL studies performed annually in accordance with the Title 40, *Code of Federal Regulations*, Part 136, Appendix B (EPA, 1984). The MRLs are generally established by multiplying the MDL by a factor of 3 to 5 as recommended by generally accepted laboratory practice and is further supported by the lowest-level analytical standard in the initial calibration process. Sensitivity is ensured through compliance with the MRLs specified in the GM-QAPP (Haley & Aldrich, 2010). Any nondetect results that were reported by the laboratory, or were flagged nondetect due to blank contamination, have been evaluated against the project screening levels as discussed in the work plan.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as data that are not rejected for project use. The completeness goal of 90 percent was met for all analyte/methods, as indicated in Table B-8, with the exception of 2-CLEVE. Adequate data could not be obtained for this compound.

Evaluation of 100 percent of the chemical data was performed by using the GM-QAPP (Haley & Aldrich, 2010) as a guide for data quality evaluation. The overall completeness was met and with the exception of the improperly preserved sample containers for 2-CLEVE, no other systematic protocol errors were identified during the monitoring of the field or laboratory efforts. This along with the PARCCS evaluation demonstrate that the overall quality of the analytical program and laboratory are sufficient to meet the project data quality objectives.

TABLE B-8

Site Completeness Summary

2016 Third Quarter Sitewide Groundwater Monitoring Data Usability Assessment Report, SSFL, Ventura County, California

| Method | Total Number of Samples ^a | Total Number of Results | Number of Qualified Results as Nondetect ^b | | Number of Qualified Results as Estimated ^c | | Number of Qualified Results as Rejected ^d | | Percent Completeness | |
|--|--------------------------------------|-------------------------|---|-----|---|------|--|-----|----------------------|----------------|
| | | | Number | % | Number | % | Number | % | Number | % ^e |
| 4500-NH3F Ammonia | 17 | 17 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 17 | 100.0 |
| E1625C NDMA | 22 | 22 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 22 | 100.0 |
| E300.0 Anions | 18 | 49 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 49 | 100.0 |
| E314 Perchlorate | 16 | 16 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 16 | 100.0 |
| E900 Gross Alpha/Beta | 2 | 8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 8 | 100.0 |
| E901.1 Gamma-emitting isotopes | 2 | 84 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 84 | 100.0 |
| E905.0 Strontium-90 | 2 | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 |
| E906.0 Tritium | 2 | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 |
| HASL 300 Isotopic Uranium | 2 | 6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 100.0 |
| SW8015B TPH | 16 | 122 | 2 | 1.6 | 2 | 1.6 | 0 | 0.0 | 122 | 100.0 |
| SW8260B VOCs | 27 | 1,871 | 0 | 0.0 | 24 | 1.3 | 27 | 1.4 | 1,844 | 98.6 |
| SW8260B-SIM 1,4-Dioxane/ 1,2,3-Trichloropropane | 28 | 33 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 33 | 100.0 |
| SW8270C-SIM Phthalates | 9 | 54 | 5 | 9.3 | 0 | 0.0 | 0 | 0.0 | 54 | 100.0 |
| SW8315A Formaldehyde/Hydrazines | 16 | 40 | 0 | 0.0 | 12 | 30.0 | 0 | 0.0 | 40 | 100.0 |
| SW8330A Explosives/Energetics | 16 | 224 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 224 | 100.0 |
| SW9040C pH | 7 | 7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 100.0 |

^a Includes field duplicate and normal samples.

^b Results flagged U.

^c Results flagged J or UJ.

^d Results flagged R.

^e % Complete = (reported results-unusable results)/reported results)*100.

NDMA = n-nitrosodimethylamine

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

SECTION 4

References

U.S. Environmental Protection Agency (EPA). 1984. *Guidelines Establishing Test Procedures for the Analysis of Pollutants*. Title 40, *Code of Federal Regulations*, Part 136, Appendix B. Washington, D.C.: Government Printing Office. March.

Haley & Aldrich, Inc. (Haley & Aldrich). 2010. Groundwater Monitoring Quality Assurance Project Plan, SSFL Ventura County, California, Revision 1. December.

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Attachment A
Data Summary Reports

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PROJECT: SSFL 3Q 2016 GW
SDG: 16G302

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** - Not Requested



LABORATORIES, INC.
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Date: 08-24-2016
EMAX Batch No.: 16G302

Attn: Mark Fesler

CH2M Hill
2525 Airpark Drive
Redding, CA 96001

Subject: Laboratory Report
Project: SSFL 3Q 2016 GW

Enclosed is the Laboratory report for samples received on 07/27/16.
The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|---------------|-----------|----------|--------|---|
| CAQW2459Q001 | G302-01 | 07/26/16 | WATER | VOLATILES + APP 9 TPH GASOLINE |
| HAR19GW01S016 | G302-02 | 07/26/16 | WATER | VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F TPH TPH GASOLINE ANIONS BY IC ALKALINITY TOTAL DISSOLVED SOLIDS DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS DISSOLVED METALS BY ICP-MS PH |
| ND135GW01D011 | G302-03 | 07/26/16 | WATER | VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F TPH TPH GASOLINE ANIONS BY IC ALKALINITY |

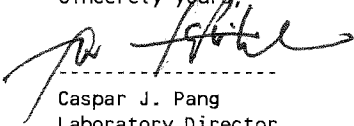
| Sample ID | Control # | Col Date | Matrix | Analysis |
|------------------|-----------|----------|--------|---|
| ND135GW01S011 | G302-04 | 07/26/16 | WATER | TOTAL DISSOLVED SOLIDS DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS DISSOLVED METALS BY ICP-MS PH VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F TPH TPH GASOLINE ANIONS BY IC ALKALINITY TOTAL DISSOLVED SOLIDS DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS DISSOLVED METALS BY ICP-MS PH |
| HAR19GW01S016MS | G302-02M | 07/26/16 | WATER | VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F TPH TPH GASOLINE ANIONS BY IC DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS DISSOLVED METALS BY ICP-MS PH |
| HAR19GW01S016MSD | G302-02S | 07/26/16 | WATER | VOLATILES + APP 9 TPH TPH GASOLINE DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS DISSOLVED METALS BY ICP-MS |
| HAR19GW01S016DUP | G302-02D | 07/26/16 | WATER | VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F ANIONS BY IC ALKALINITY TOTAL DISSOLVED SOLIDS |
| ND135GW01S011MS | G302-04M | 07/26/16 | WATER | VOLATILES + APP 9 AMMONIA-N BY SM4500-NH3 F TPH TPH GASOLINE ANIONS BY IC DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS |

| Sample ID | Control # | Col Date | Matrix | Analysis |
|------------------|-----------|----------|--------|--|
| ND135GW01S011MSD | G302-04S | 07/26/16 | WATER | DISSOLVED METALS BY ICP-MS VOLATILES + APP 9 TPH TPH GASOLINE DISSOLVED MERCURY SEMIVOLATILE ORGANICS BY GCMS |
| ND135GW01S011DUP | G302-04D | 07/26/16 | WATER | DISSOLVED METALS BY ICP-MS AMMONIA-N BY SM4500-NH3 F ANIONS BY IC ALKALINITY TOTAL DISSOLVED SOLIDS |

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number E871112
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

166302

Chain of Custody Record

COC Number: EMAX07261601

CH2MHILL

7/26/2016 1:07:41 PM

Page 1 of 8

| | | | |
|----------------------|-----------------|-------------------|--|
| Project Name | SSFL | Location | Santa Susana Field Lab |
| Task Order | 505 | Project: | 3Q2016 SA/PCP & AIG GWS |
| Project Number | 476119.01.02 | | |
| Project Manager | Jeremy Hilliard | | |
| Sample Manager | Jamie Beckett | (530) 570-5084 | |
| Turnaround Time | 10 Days | | |
| PO Number | 956656 | | |
| Sample ID | CAQW2459Q001 | Sample Date/Time | 26-Jul-16 7:10 N Water |
| | | Matrix | N Water |
| | | # Containers | 3 |
| | | Preserv | |
| VOCs full list | | Field Filtered: | <input type="checkbox"/> 3 HCL pH<2.4C |
| Report Carbon Ranges | | Field Filtered: | <input type="checkbox"/> 3 HCL pH<2.4C |
| | | Total Containers: | 6 |

1

Cooler #1 T = 3.4°C
 Cooler #2 T = 2.2°C
 Cooler #3 T = 2.0°C
 Cooler #4 T = 1.0°C
 Cooler #5 T = 1.7°C

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|--------------------|-----------|--------------|
| Approved by | <i>[Signature]</i> | Date/Time | 7/26/16 1600 |
| Sampled by | <i>[Signature]</i> | | |
| Relinquished by | <i>[Signature]</i> | | |
| Received by | <i>[Signature]</i> | | |
| Relinquished by | | | |
| Received by | | | |

| | | |
|------------------|---------------------|-------------------|
| Shipping Details | Method of Shipment: | FedEx |
| | On Ice: | yes / no |
| | Airbill No: | |
| | Lab Name: | EMAX Laboratories |
| | Lab Phone: | (310) 618-8889 |

| | |
|-------|-----------------------------|
| ATTN: | Sample Custody and Ye Myint |
|-------|-----------------------------|

| | |
|-----------------------|--|
| Special Instructions: | CH582 PO: 100067101891 CH614 PO: 100067103941 |
| Report Copy to | Jon Freed (208) 660-4929 |

164302

Chain of Custody Record COC Number: **EMAX07261601**

CH2MHILL

7/26/2016 1:07:41 PM Page 2 of 8

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 505 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 476119.01.02
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 955656

Sample ID HAR19GW01S016 **Sample Date/Time** 26-Jul-16 11:00 **Type** N **Matrix** Water **# Containers** 1 **Preserv** 4C

| Parameter | Field Filtered | Lab Filtered | Matrix | # Containers | Preserv |
|---|--------------------------|-------------------------------------|--------|--------------|-----------------|
| Alkalinity, Bicarbonate | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | 4C |
| Title 22 + Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | 1 | HNO3, 4C |
| SO4, Cl, NO2, NO3, F | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | 4C |
| Ammonia | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | H2SO4, pH<2, 4C |
| Mercury | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | HNO3, 4C |
| pH | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | 4C |
| SVOcs plus phthalates | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 2 | 4C |
| TDS | <input type="checkbox"/> | <input type="checkbox"/> | 1 | 1 | 4C |
| Report Carbon Ranges incl. EFH C8-C30 Total | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 2 | 4C |
| VOCs full list | <input type="checkbox"/> | <input type="checkbox"/> | 3 | 3 | HCL pH<2 4C |
| Report Carbon Ranges | <input type="checkbox"/> | <input type="checkbox"/> | 3 | 3 | HCL pH<2 4C |
| Total Containers: | | | | | 17 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/26/16 1600
Sampled by *[Signature]*
Relinquished by *[Signature]*
Received by *[Signature]* 7/27/16 0850
Relinquished by *[Signature]*
Received by *[Signature]*

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: EMAX Laboratories
Lab Phone: (310) 618-8889

ATTN:
 Sample Custody
 and
 Ye Myint

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

16 G302

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 505 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 476119.01.02
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 955656

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-------------------------------------|----------|------------------|--------------------------|
| HAR19GW015016MS | 26-Jul-16 | 11:00 | MS Water | | |
| Alkalinity, Bicarbonate | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Title 22 + Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> |
| Mercury | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| SVOCs plus phthalates | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| TDS | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: | | | | | 16 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time | Shipping Details | Special Instructions: |
|-----------------|-------------------|--------------|-----------------------------|------------------------|
| Sampled by | <i>Matt Allen</i> | 7/26/16 1000 | Method of Shipment: FedEx | CH582 PO: 100067101891 |
| Relinquished by | <i>Matt Allen</i> | | On Ice: yes / no | CH614 PO: 100067103941 |
| Received by | <i>Matt Allen</i> | 7/27/16 0850 | Airbill No: | Report Copy to |
| Relinquished by | <i>J. Beckett</i> | | Lab Name: EMAX Laboratories | Jon Freed |
| Received by | | | Lab Phone: (310) 618-8889 | (208) 660-4929 |

ATTN: Sample Custody and Ye Myint

166302

Chain of Custody Record COC Number: **EMAX07261601**

CH2MHILL

7/26/2016 1:07:42 PM Page 4 of 8

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 505 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 476119.01.02
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 955656

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| | | | | | |
|--|-----------------|-------------------------------------|----|------------------|--------------------------|
| HAR19GW01S016SD | 26-Jul-16 | 11:00 | SD | Water | |
| Alkalinity, Bicarbonate | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Title 22 +Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> |
| Mercury | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| SVOCs plus phthalates | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| TDS | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: | | | | | 16 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* **Signatures** **Date/Time** 7/26/16 1600
Sampled by *Mitchell*
Relinquished by *Mitchell*
Received by *J. Hilliard* 7/27/16 0830
Relinquished by
Received by

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: EMAX Laboratories
Lab Phone: (310) 618-8889

ATTN:
 Sample Custody
 and
 Ye Myint

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

16 G 302

| | |
|--|---|
| Project Name SSFL | Location Santa Susana Field Lab |
| Task Order 505 | Project: 3Q2016 SA/PCP & AIG GWS |
| Project Number 476119.01.02 | |
| Project Manager Jeremy Hilliard | |
| Sample Manager Jamie Beckett | |
| Turnaround Time 10 Days | |
| PO Number 955656 | |

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-------------------------------------|--------|------------------|--------------------------|
| ND135GW01D011 | 26-Jul-16 | 9:00 | N | Water | |
| Alkalinity, Bicarbonate | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Title 22 + Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> |
| Mercury | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| pH | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| SVOCs plus phthalates | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| TDS | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: | | | | | 17 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|------------------------|--------------------|----------------------------|-------------------|
| Approved by | <i>[Signature]</i> | Date/Time | 7/26/16 10:00 |
| Sampled by | <i>[Signature]</i> | Method of Shipment: | FedEx |
| Relinquished by | <i>[Signature]</i> | On Ice: | yes / no |
| Received by | <i>[Signature]</i> | Airbill No: | |
| Relinquished by | <i>[Signature]</i> | Lab Name: | EMAX Laboratories |
| Received by | <i>[Signature]</i> | Lab Phone: | (310) 618-8889 |

| | |
|------------------------------|--|
| Special Instructions: | CH582 PO: 100067101891 CH614 PO: 100067103941 |
| ATTN: | Sample Custody and Ye Myint |
| Report Copy to | Jon Freed (208) 660-4929 |

16 G302

Chain of Custody Record COC Number: **EMAX07261601** **CH2MHILL** 7/26/2016 1:07:42 PM Page 6 of 8

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 505 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 476119.01.02
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 955656

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| | | | | | |
|---|-----------------|-------------------------------------|---|-----------------|--------------------------|
| ND135GW01S011 | 26-Jul-16 | 9:00 | N | Water | |
| Alkalinity, Bicarbonate | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Title 22 + Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4C | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | <input type="checkbox"/> |
| Mercury | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4C | <input type="checkbox"/> |
| pH | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| SVOCs plus phthalates | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| TDS | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2 4C | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2 4C | <input type="checkbox"/> |
| Total Containers: | | | | | 17 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/26/16 1600
Sampled by *[Signature]*
Relinquished by *[Signature]*
Received by *[Signature]* 7/27/16 0800
Relinquished by
Received by

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: EMAX Laboratories
Lab Phone: (310) 618-8889

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

ATTN: Sample Custody and Ye Myint

Report Copy to
 Jon Freed
 (208) 660-4929

16 G302

| | | | | | |
|---|---|---|-----------------|---------------------|--------------------------|
| Project Name SSFL | | Location Santa Susana Field Lab | | | |
| Task Order 505 | | Project: 3Q2016 SA/PCP & AIG GWS | | | |
| Project Number 476119.01.02 | | | | | |
| Project Manager Jeremy Hilliard | | | | | |
| Sample Manager Jamie Beckett | | (530) 570-5084 | | | |
| Turnaround Time 10 Days | | | | | |
| PO Number 956656 | | | | | |
| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
| ND135GW01S011MS | 26-Jul-16 9:00 MS | Water | | | |
| Alkalinity, Bicarbonate | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Title 22 + Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Ammonia | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | <input type="checkbox"/> |
| Mercury | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| SVOCs plus phthalates | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| TDS | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2 4C | | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2 4C | | <input type="checkbox"/> |
| Total Containers: | | | | 16 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|------------------------|----------------------|------------------|--------------|
| Approved by | <i>Mitchell Clay</i> | Date/Time | 7/26/16 1600 |
| Sampled by | <i>Mitchell Clay</i> | | |
| Relinquished by | <i>Mitchell Clay</i> | | |
| Received by | <i>JFB</i> | | 7/27/16 0850 |
| Relinquished by | | | |
| Received by | | | |

| | |
|-------------------------|------------------------------------|
| Shipping Details | Method of Shipment: FedEx |
| | On Ice: yes / no |
| | Airbill No.: |
| | Lab Name: EMAX Laboratories |
| | Lab Phone: (310) 618-8889 |

| | |
|------------------------------|--|
| ATTN: | Sample Custody and Ye Myint |
| Special Instructions: | CH582 PO: 100067101891 CH614 PO: 100067103941 |
| Report Copy to | Jon Freed (208) 660-4929 |

4

16 05302

Chain of Custody Record COC Number: **EMAX07261601** **CH2MHILL** 7/26/2016 1:07:42 PM Page 8 of 8

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 505 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 476119.01.02
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 955656

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--|---|------|-----------------|--------------|--------------------------|
| ND135GW01S011SD | 26-Jul-16 | 9:00 | SD Water | | |
| Alkalinity, Bicarbonate | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Title 22 +Ca, Fe, Mg, Mn, K, Na, Sr, Zn, Ba, B | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| SO4, Cl, NO2, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Ammonia | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | <input type="checkbox"/> |
| Mercury | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| SVOcs plus phthalates | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| TDS | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2 4C | | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2 4C | | <input type="checkbox"/> |
| Total Containers: | | | | 16 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|------------------------------------|--------------|-----------------------------|
| Approved by <i>[Signature]</i> | 7/26/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>[Signature]</i> | | On Ice: yes / no |
| Relinquished by <i>[Signature]</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/27/16 0800 | Lab Name: EMAX Laboratories |
| Relinquished by | | Lab Phone: (310) 618-8889 |
| Received by | | |

| | | |
|---|---|--|
| Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 | ATTN: Sample Custody and Ye Myint | Report Copy to Jon Freed (208) 660-4929 |
|---|---|--|

4

| | | |
|---|--|---|
| Type of Delivery <input checked="" type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others | Airbill / Tracking Number ① 7836 7331 3690 ② -4733 ③ -1861 ④ -5774 ⑤ -8454 | ECN 16 6302 Recipient I ASEZ Date 7/27/16 Time 0850 |
|---|--|---|

COC INSPECTION

| | | | | | |
|---|---|--|--|---|--|
| <input checked="" type="checkbox"/> Client Name | <input checked="" type="checkbox"/> Client PM/FC | <input checked="" type="checkbox"/> Sampler Name | <input checked="" type="checkbox"/> Sampling Date/Time | <input checked="" type="checkbox"/> Sample ID | <input checked="" type="checkbox"/> Matrix |
| <input checked="" type="checkbox"/> Address | <input checked="" type="checkbox"/> Tel # / Fax # | <input type="checkbox"/> Courier Signature | <input checked="" type="checkbox"/> Analysis Required | <input checked="" type="checkbox"/> Preservative (if any) | <input checked="" type="checkbox"/> TAT |
| Safety Issues (if any) Note: _____ | <input type="checkbox"/> High concentrations expected | <input type="checkbox"/> From Superfund Site | <input type="checkbox"/> Rad screening required | | |

PACKAGING INSPECTION

| | | |
|--|---|---|
| Container <input checked="" type="checkbox"/> Cooler (5) | <input type="checkbox"/> Box | <input type="checkbox"/> Other |
| Condition <input checked="" type="checkbox"/> Custody Seal | <input checked="" type="checkbox"/> Intact | <input type="checkbox"/> Damaged |
| Packaging <input checked="" type="checkbox"/> Bubble Pack | <input type="checkbox"/> Styrofoam | <input type="checkbox"/> Popcorn |
| Temperatures (Cool. 56 °C but not frozen) | <input checked="" type="checkbox"/> Cooler 1 3.4 °C | <input checked="" type="checkbox"/> Cooler 2 2.2 °C |
| Thermometer: A - S/N 130532505 | B - S/N 140252070 | C - S/N 140252067 |
| | <input checked="" type="checkbox"/> Cooler 3 2.0 °C | <input checked="" type="checkbox"/> Cooler 4 1.0 °C |
| | <input type="checkbox"/> Cooler 6 _____ °C | <input type="checkbox"/> Cooler 7 _____ °C |
| | <input type="checkbox"/> Cooler 8 _____ °C | <input type="checkbox"/> Cooler 9 _____ °C |
| | <input type="checkbox"/> Cooler 10 _____ °C | <input checked="" type="checkbox"/> Cooler 5 1.7 °C |
| Comments: <input type="checkbox"/> Temperature is out of range. PM was informed IMMEDIATELY. | | |
| Note: _____ | | |

DISCREPANCIES

| LabSampleID | LabSampleContainerID | Code | ClientSample Label ID / Information | Corrective Action |
|-------------|----------------------|------|-------------------------------------|-------------------|
| 4 | 7776, 7981 | D14 | | RA |
| 4 | 8587, 8890 | D14 | | R4 |
| | | | | |

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: Most of the vials had w/ small Bubbles LP 7/27/16

LEGEND:

| | | |
|---|---|--|
| Code Description- Sample Management | Code Description-Sample Management | Code Description-Sample Management |
| D1 Analysis is not indicated in _____ | D13 Out of Holding Time | R1 Proceed as indicated in <input type="checkbox"/> COC <input type="checkbox"/> Label |
| D2 Analysis mismatch COC vs label | D14 Bubble is >6mm | R2 Refer to attached instruction |
| D3 Sample ID mismatch COC vs label | D15 No trip blank in cooler | R3 Cancel the analysis |
| D4 Sample ID is not indicated in _____ | D16 Preservation not indicated in _____ | R4 Use vial with smallest bubble first |
| D5 Container -[improper] [leaking] [broken] | D17 Preservation mismatch COC vs label | R5 Log-in with latest sampling date and time+1 min |
| D6 Date/Time is not indicated in _____ | D18 Insufficient chemical preservative | R6 Adjust pH as necessary |
| D7 Date/Time mismatch COC vs label | D19 Insufficient Sample | R7 Filter and preserved as necessary |
| D8 Sample listed in COC is not received | D20 No filtration info for dissolved analysis | R8 _____ |
| D9 Sample received is not listed in COC | D21 No sample for moisture determination | R9 _____ |
| D10 No initial/date on corrections in COC/label | D22 _____ | R10 _____ |
| D11 Container count mismatch COC vs received | D23 _____ | R11 _____ |
| D12 Container size mismatch COC vs received | D24 _____ | R12 _____ |

REVIEWS:

| | | |
|------------------------------------|------------------------|--------------|
| Sample Labeling <i>[Signature]</i> | SRF <i>[Signature]</i> | PM LP for 16 |
| Date 7/27/16 | Date 7/27/16 | Date 7/27/16 |

AT-3.4C

ORIGIN ID:MGMA (334) 215-9078
MITCHELL CLINE
CH2M HILL INC
4121 CARMICHAEL ROAD, SUITE 400
MONTGOMERY, AL 36106
UNITED STATES US

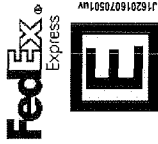
SHIP DATE: 26 JUL 16
ACT WT: 40.00 LB
CAD: 104057289MSX12500
DIMS: 24x14x16 IN
BILL SENDER

TO YE MYINT

EMAX LABORATORIES, INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF: 654377.82.FW
INV: PO: DEPT:



J1629160705914

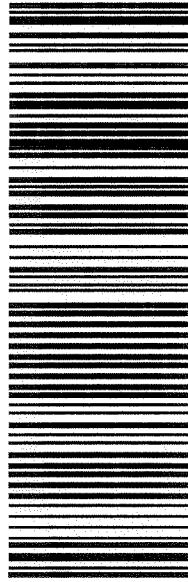
54411/SCBD/4E8

WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7836 7331 3690

0201

XH HHRA 90501
CA-US LAX



VIA

② T-2.2°C

ORIGIN ID:MGMA (334) 215-9078
MITCHELL CLINE
CH2MHILL INC
4121 CARMICHAEL ROAD, SUITE 400
MONTGOMERY, AL 36106
UNITED STATES US

SHIP DATE: 26JUL16
ACT WGT: 40.00 LB
CAD: 104051289MSX12500
DIMS: 24X14X16 IN
BILL SENDER

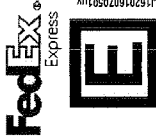
TO YE MYINT

EMAX LABORATORIES, INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF: 654377 82.FW
INV: PO: DEPT:

54411/5C8D/14E8



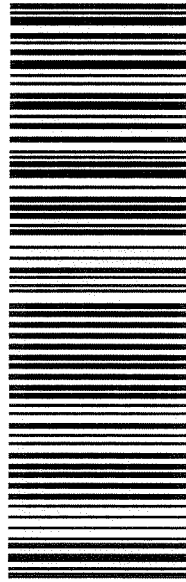
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WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7836 7330 4733

0201

XH HHRA 90501
CA-US LAX



3

T-2.0°C

ORIGIN ID:MGMA (334) 215-9078
MITCHELL CLINE
CH2M HILL INC
4121 CARMICHAEL ROAD, SUITE 400
MONTGOMERY, AL 36106
UNITED STATES US

SHIP DATE: 26 JUL 16
ACT WGT: 40.00 LB
CAD: 10.4051289 WXSX12500
DIMS: 24x14x16 N
BILL SENDER

TO YE MYINT

EMAX LABORATORIES, INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 616-8889 REF: 654377 82 FW
INV. DEPT:

64431/5C8D/14E8



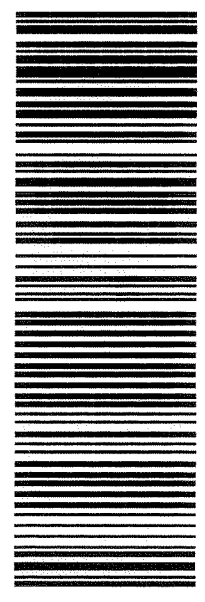
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WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7836 7332 1861

0201

XH HHRA 90501
CA-US LAX



ORIGIN ID:MGMA (334) 215-9078
MITCHELL CLINE
CH2M HILL INC
4121 CARMICHAEL ROAD, SUITE 400
MONTGOMERY, AL 36106
UNITED STATES US

SHIP DATE: 26JUL16
ACTWGT: 40.00 LB
CAD: 10405128975X12500
DIMS: 24x14x16 IN
BILL SENDER

TO YE MYINT
EMAX LABORATORIES, INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF: 654377.82 FW
INV: DEPT:
PO:



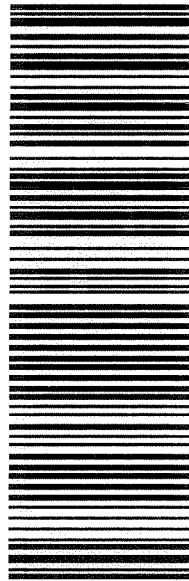
J1620160705019V

WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7836 7324 5774

XH HHRA

90501
CA-US LAX



(4)

T-1.0°C

ORIGIN:MGMA (334) 215-9078
MITCHELL CLINE
CH2MHILL INC
4121 CARMICHAEL ROAD, SUITE 400
MONTGOMERY, AL 36106
UNITED STATES US

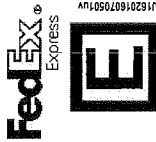
SHIP DATE: 26JUL16
ACTWGT: 40.00 LB
CAD: 104051289MSX12500
DIMS: 24x14x16 IN
BILL SENDER

TO YE MYINT

EMAX LABORATORIES, INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 616-8889 REF: 654377 82 FW
INV: DEPT: P.O:



1622160709014V

WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7836 7332 8454

0201

XH HHRA

90501
CA-US LAX



5

T-1.7°C

REPORTING CONVENTIONS

DATA QUALIFIERS:

| Lab Qualifier | AFCEE Qualifier | Description |
|---------------|-----------------|--|
| J | F | Indicates that the analyte is positively identified and the result is less than RL but greater than MDL. |
| N | | Indicates presumptive evidence of a compound. |
| B | B | Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level. |
| E | J | Indicates that the result is above the maximum calibration range or estimated value. |
| * | * | Out of QC limit. |

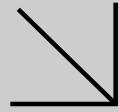
Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

| | |
|-------------|-----------------------------------|
| CRDL | Contract Required Detection Limit |
| RL | Reporting Limit |
| MRL | Method Reporting Limit |
| PQL | Practical Quantitation Limit |
| MDL | Method Detection Limit |
| DO | Diluted out |

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.



WORK ORDER NUMBER: 16-07-0773

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/22/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-0773

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/13/16. They were assigned to Work Order 16-07-0773.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-0773 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/13/16 10:00 |
| | Number of Containers: 63 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2442Q001 | 16-07-0773-1 | 07/12/16 07:00 | 1 | Aqueous |
| HAR20GW01S006 | 16-07-0773-2 | 07/12/16 09:15 | 31 | Aqueous |
| RD49AGW01S005 | 16-07-0773-3 | 07/12/16 12:30 | 31 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-0773

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 9 | 1 |
| EPA 300.0 | N/A | 969 | IC 10 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 682 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 933 | GC 56 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |



Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: CALS07121601 **CH2MHILL** 7/12/2016 12:23:41 PM Page 1 of 5

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-6084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample Date/Time 12-Jul-16 7:00 N Water # Containers Preserv

CAQW2442Q001 Field Filtered: 3 HCL pH<2.4C

1,4-Dioxane LL Field Filtered: 3 HCL pH<2.4C

VOCs full list Field Filtered: 3 HCL pH<2.4C

Report Carbon Ranges Total Containers: 9

| | | | | | |
|---------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

16-07-0773

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Matt Hilliard Date/Time 7/12/16 1500
 Sampled by Matt Hilliard
 Relinquished by Matt Hilliard
 Received by Matt Hilliard Airbill No. 7/12/16 1000
 Relinquished by Matt Hilliard
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody and
 Michele Castro

①

0773

Chain of Custody Record COC Number: **CALS07121601**

CH2MHILL 7/12/2016 12:23:42 PM Page 2 of 5

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|-----------------|--------------|-------------------------------------|
| HAR20GW01S006 | 12-Jul-16 9:15 | N | Water | | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL, pH<2.4C | | <input checked="" type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL, pH<2.4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4C | | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | <input checked="" type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Clin* **Signatures** **Date/Time** 7/12/16 1500
Sampled by *Matt Clin*
Relinquished by *Matt Clin*
Received by *Jon Freed* 7/12/16 1000
Relinquished by
Received by

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929



0773

CH2MHILL 7/12/2016 12:23:42 PM Page 3 of 5

Chain of Custody Record COC Number: **CALS07121601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|---------|
| TDS | | Field Filtered: | 1 | 4C | |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | 2 | 4C | |
| VOCs full list | | Field Filtered: | 3 | HCL pH<2.4C | |
| EDB/DBCP | | Field Filtered: | 3 | Na2S2O3, 4C | |
| Report Carbon Ranges | | Field Filtered: | 3 | HCL pH<2.4C | |
| Total Containers: 31 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time | Shipping Details |
|-----------------|------------------|--------------|---------------------------|
| Sampled by | <i>Matt Clin</i> | 7/12/16 1500 | Method of Shipment: FedEx |
| Relinquished by | <i>Matt Clin</i> | ↓ | On Ice: yes / no |
| Received by | <i>Matt Clin</i> | 7/13/16 1000 | Airbill No: |
| Relinquished by | <i>Matt Clin</i> | | Lab Name: CalScience |
| Received by | | | Lab Phone: (949) 870-8766 |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

Chain of Custody Record COC Number: **CALS07121601** **CH2MHILL** 7/12/2016 12:23:42 PM Page 4 of 5 (0773)

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| | | | | | |
|--------------------------|---|-------|------------------|-------|--|
| RD49AGW01S005 | 12-Jul-16 | 12:30 | N | Water | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell Clin* **Date/Time** 7/12/16 1500
Sampled by *Mitchell Clin*
Relinquished by *Mitchell Clin*
Received by *Mitchell Clin* 7/13/16 1000
Relinquished by
Received by

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

0773

Chain of Custody Record COC Number: CH2MHILL 7/12/2016 12:23:42 PM Page 5 of 5

CALS07121601

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|-------------|
| TDS | | Field Filtered: | | 1 | 4C |
| Report Carbon Ranges Incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| EDB/DBC | | Field Filtered: | | 3 | Na2S2O3, 4C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | |
|--------------------------------------|------------|--------------|
| Approved by <i>Mitch Clin</i> | Signatures | Date/Time |
| Sampled by <i>Mitch Clin</i> | | 7/12/16 1500 |
| Relinquished by <i>Mitch Clin</i> | | |
| Received by <i>Mitch Clin</i> | | |
| Relinquished by | | |
| Received by | | |

| | |
|---------------------------|---------------------------|
| Shipping Details | Method of Shipment: FedEx |
| On Ice: yes / no | |
| Airbill No: | |
| Lab Name: CalScience | |
| Lab Phone: (949) 870-8766 | |

| | |
|-----------------------|---|
| Special Instructions: | CH582 PO: 100067101891 CH614 PO 100067103941 |
| Report Copy to | Jon Freed (208) 660-4929 |

| | |
|-------|---|
| ATTN: | Sample Custody and Michele Castro |
|-------|---|



0773

PO: DEPT:





TRK# 7835 7171 6217
 0201

WED - 13 JUL 10:30A
 PRIORITY OVERNIGHT

XH APVA 92841
 CA-US SNA

PO: DEPT:




TRK# 7835 7170 4452
 0201

WED - 13 JUL 10:30A
 PRIORITY OVERNIGHT

XH APVA 92841
 CA-US SNA




TRK# 7835 7168 8420
 0201

WED - 13 JUL 10:30A
 PRIORITY OVERNIGHT

XH APVA 92841
 CA-US SNA



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SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CH2M Hill

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 2.7 °C (w/ CF): 2.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 826

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 826
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1053

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA¹² VOA³na₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz^{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 826/1053
 s = H₂SO₄, u = ultra-pure, z^{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 5/826



SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CHAMILL

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 2.5 °C (w/ CF): 2.5 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 836

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 836

Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_z_{na} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_{na} _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, **u** = ultra-pure, **z**_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 836

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SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

CLIENT: Cham Hill

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 2.0 °C (w/ CF): 2.0 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 836

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 836
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1053

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_p _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 836



SAMPLE ANOMALY REPORT

DATE: 07 / 13 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
 - Sample(s) received but NOT LISTED on COC
 - Holding time expired (list client or ECI sample ID and analysis)
 - Insufficient sample amount for requested analysis (list analysis)
 - Improper container(s) used (list analysis)
 - Improper preservative used (list analysis)
 - No preservative noted on COC or label (list analysis and notify lab)
 - Sample container(s) not labeled
 - Client sample label(s) illegible (list container type and analysis)
 - Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
 - Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
 - Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)
- * Transferred at client's request.

Comments

(2) Ferrous Iron

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

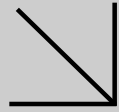
(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| 2-3 | Z | 1 | Ferrous Iron |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: 8x
 Reviewed by: 15

** Record the total number of containers (i.e., vials or bottles) for the affected sample.



WORK ORDER NUMBER: 16-07-0774

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.W

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/26/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 16-07-0774

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/13/16. They were assigned to Work Order 16-07-0774.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-0774 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.W |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/13/16 10:00 |
| | Number of Containers: 36 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR07GWS008 | 16-07-0774-1 | 07/12/16 09:30 | 20 | Aqueous |
| HAR20GW01S006 | 16-07-0774-2 | 07/12/16 09:15 | 9 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-0774

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 9 | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8015B (M) | EPA 3510C | 972 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 933 | GC 56 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |


Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-0774

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: CALS07121602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

16-07-0774

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|-------------------|-----------------|
| HAR07GWS008 | 12-Jul-16 9:30 | N | Water | | |
| 1,4-Dioxane LL | | Field Filtered: | | 3 | HCL pH<2.4C |
| Nitrobenzene, 1,3-dinitrobenzene | | Field Filtered: | | 2 | 4C |
| Fluoride, Nitrate | | Field Filtered: | | 1 | 4C |
| Ammonia | | Field Filtered: | | 1 | H2SO4, pH<2, 4C |
| NDMA - LL | | Field Filtered: | | 2 | 4C |
| Perchlorate | | Field Filtered: | | 1 | 4C |
| Perchlorate - HOLD | | Field Filtered: | | 1 | 4C |
| pH | | Field Filtered: | | 1 | 4C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4C |
| VOCs incl. Isopropyl Alcohol | | Field Filtered: | | 3 | HCL, pH<2.4C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL, pH<2.4C |
| | | | | Total Containers: | 20 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by [Signature] Date/Time 7/13/16 1500
 Sampled by [Signature]
 Relinquished by [Signature]
 Received by [Signature] 7/13/16 1000
 Relinquished by [Signature]
 Received by [Signature]

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody and Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to Jon Freed (208) 660-4929

Chain of Custody Record COC Number: CALS07121602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------------|------------------|------|-----------------|-------------------------------------|--------------------------|
| HAR20GW01S006 | 12-Jul-16 9:15 | N | Water | 2 | 4°C |
| Nitrobenzene, 1,3-Dinitrobenzene | | | Field Filtered: | <input type="checkbox"/> | <input type="checkbox"/> |
| Ammonia | | | Field Filtered: | <input type="checkbox"/> | <input type="checkbox"/> |
| incl. Phthalates | | | Field Filtered: | <input type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate | | | Field Filtered: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate - HOLD | | | Field Filtered: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 7 |
| RD41BGW01S007 | 12-Jul-16 13:30 | N | Water | 3 | HCL pH<2.4C |
| 1,4-Dioxane LL | | | Field Filtered: | <input type="checkbox"/> | <input type="checkbox"/> |
| Ca, Fe, Mg, Mn, K, Na, Sr, Zn | | | Field Filtered: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| VOCs full list | | | Field Filtered: | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 7 |

0774

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/12/16 1:50
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *Mitchell* Date/Time 7/13/16 1:00
 Relinquished/by
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929



Richard Villafania

From: Mark.Fesler@CH2M.com
Sent: Friday, July 15, 2016 10:30 AM
To: Richard Villafania
Cc: Linda Ta
Subject: FW: CH582 / 666267.14.Q3.W - 16-07-0774 - Sample Receipt Confirmation & COC Document
Attachments: 16-07-0774_sample_receipt.pdf
Categories: Need Response

Richard:

Just got word that Sample 16-07-0774-3 (RD41BGW01S007) needs to be cancelled for all analyses. Sample well was not purged correctly; needs to be resampled.

Let me know if you can cancel the analyses before they are started.

Mark Fesler

Associate Scientist
 Ext. 33273
mark.fesler@ch2m.com

From: Linda Ta [mailto:LindaTa@eurofinsUS.com]
Sent: Thursday, July 14, 2016 9:15 AM
To: Hilliard, Jeremy/MGM <Jeremy.Hilliard@CH2M.com>; Beckett, Jamie/RDD <Jamie.Beckett@CH2M.com>; Fesler, Mark/RDD <Mark.Fesler@CH2M.com>
Cc: Richard Villafania <RichardVillafania@eurofinsUS.com>
Subject: CH582 / 666267.14.Q3.W - 16-07-0774 - Sample Receipt Confirmation & COC Document [EXTERNAL]

Good morning All,

Please advise if you require Appendix IX – SVOCs, Pthalates – SVOCs, or both for sample “HAR20GW01S006”. Also please review sample anomaly form.

Thanks!

Linda Ta
 Project Manager Assistant

Eurofins Calscience, Inc.

7440 Lincoln Way
 Garden Grove, CA 92841
 USA
 P: +1 714 895 5494
 F: +1 714 894 7501

Email: LindaTa@eurofinsus.com

Website: http://secure-web.cisco.com/1YSgeddzyimJferpv-1EGlApj-grd9cLBHDhOfHGLezbYl_H8txrVMwFr_EhBaa7a_eBTk8mkqHoLIXHfaGr08zQG3KPTXpPMh3nL1mguX33mOGHkJPy3dgepMQ5-n4nTA5xHbW2xT-

0774



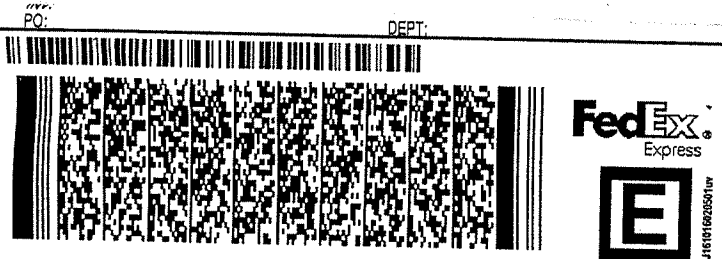
WED - 13 JUL 3:00P
STANDARD OVERNIGHT

TRK# 7835 7173 0839
0201

92841

XH APVA

CA-US SNA



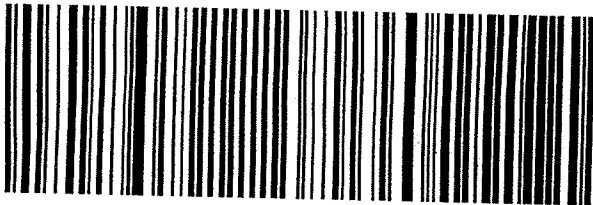
WED - 13 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 7835 7171 6217
0201

92841

XH APVA

CA-US SNA



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: CH2MHill

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 2.0 °C (w/ CF): 2.0 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 836

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 836

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 659

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBznnn 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

Labeled/Checked by: 836/659

s = H₂SO₄, u = ultra-pure, znnn = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 5/8

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SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: CH2MHill

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 25 °C (w/ CF): 25 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 876

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 876
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{anna} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 679
 s = H₂SO₄, u = ultra-pure, z_{anna} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 876

SAMPLE ANOMALY REPORT

DATE: 07/13/2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
 - Sample(s) received but NOT LISTED on COC
 - Holding time expired (list client or ECI sample ID and analysis)
 - Insufficient sample amount for requested analysis (list analysis)
 - Improper container(s) used (list analysis)
 - Improper preservative used (list analysis)
 - No preservative noted on COC or label (list analysis and notify lab)
 - Sample container(s) not labeled
 - Client sample label(s) illegible (list container type and analysis)
 - Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
 - Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
 - Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)
- * Transferred at client's request.

Comments

(-1) Received 22 containers instead of 20.
 (2 - 1 liter amber glass for SW 8315 not requested on COC)

(-2) Received 9 containers instead of 7
 (2 - 1 liter amber glass for SW 8315 not requested on COC)

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

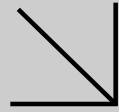
(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: 619
 Reviewed by: 802

** Record the total number of containers (i.e., vials or bottles) for the affected sample.



WORK ORDER NUMBER: 16-07-0858

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/27/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-07-0858

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/13/16. They were assigned to Work Order 16-07-0858.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-0858 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/13/16 18:45 |
| | Number of Containers: 58 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2443Q001 | 16-07-0858-1 | 07/13/16 07:00 | 9 | Aqueous |
| RD05AGW01S006 | 16-07-0858-2 | 07/13/16 10:15 | 20 | Aqueous |
| RD05BGW01S007 | 16-07-0858-3 | 07/13/16 13:00 | 20 | Aqueous |
| RD40GW01S007 | 16-07-0858-4 | 07/13/16 13:15 | 3 | Aqueous |
| SP33CGW01S005 | 16-07-0858-5 | 07/13/16 09:00 | 6 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-0858

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8015B (M) | EPA 3510C | 972 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 933 | GC 56 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |

Glossary of Terms and Qualifiers

Work Order: 16-07-0858

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: **CALS07131601** **CH2MHILL** 7/13/2016 2:17:44 PM Page 1 of 4

16-07-0858

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number ~~65477-02-1B~~ 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------|------------------|---|--------|--------------|--------------------------|
| CAQW2443Q001 | 13-Jul-16 | 7:00 N Water | | | |
| 1,4-Dioxane LL | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| VOCs full list | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Report Carbon Ranges | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: 9 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitch Clin* Date/Time 7/13/16 1500
 Sampled by *Mitch Clin*
 Relinquished by *Mitch Clin*
 Received by *EA* 7/13/16 1500
 Relinquished by *EA*
 Received by *EA* 7/13/16 1845
 Relinquished by *EA*
 Received by *EA* 7/13/16 1845

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

0858

Chain of Custody Record COC Number: **CALS07131601** **CH2MHILL** 7/13/2016 2:17:44 PM Page 2 of 4

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 0854977-82-1B-666267, 14, Q3, FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|-------------------------------------|--------------|-----------------|
| RD05AGW01S006 | 13-Jul-16 10:15 | N | Water | | |
| 1,4-Dioxane LL | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered | <input type="checkbox"/> | 2 | 4C |
| Fluoride, Nitrate | | Field Filtered | <input type="checkbox"/> | 1 | 4C |
| Ammonia | | Field Filtered | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C |
| NDMA - LL | | Field Filtered | <input type="checkbox"/> | 2 | 4C |
| Perchlorate | | Field Filtered | <input checked="" type="checkbox"/> | 1 | 4C |
| Perchlorate - HOLD | | Field Filtered | <input checked="" type="checkbox"/> | 1 | 4C |
| pH | | Field Filtered | <input type="checkbox"/> | 1 | 4C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | <input type="checkbox"/> | 2 | 4C |
| VOCs full list | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Report Carbon Ranges | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: | | | | 20 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | | |
|------------------------|-----------------|------------------|-----------------|------------------|--------------|
| Approved by | <i>Mitchell</i> | Signature | <i>Mitchell</i> | Date/Time | 7/13/16 1500 |
| Sampled by | <i>Mitchell</i> | Signature | <i>Mitchell</i> | Date/Time | 7/13/16 1500 |
| Relinquished by | <i>ea</i> | Signature | <i>ea</i> | Date/Time | 7/13/16 1500 |
| Received by | <i>Pannyle</i> | Signature | <i>Pannyle</i> | Date/Time | 7/13/16 1845 |
| Relinquished by | | Signature | | Date/Time | 7/13/16 1845 |
| Received by | | Signature | | Date/Time | 7/13/16 1845 |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

0858

Chain of Custody Record COC Number: **CALS07131601** **CH2MHILL** 7/13/2016 2:17:44 PM Page 3 of 4

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number ~~666167~~ **666167, 14-Q3, FW**
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | RD05BGW01S007 | Sample Date/Time | 13-Jul-16 13:00 | Type | N | Matrix | Water | # Containers | Preserv |
|---|---------------|------------------|-------------------------------------|------|------------------|--------|-------|--------------|---------|
| 1,4-Dioxane LL | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | | | | |
| Fluoride, Nitrate | | Field Filtered | <input type="checkbox"/> | 1 | 4°C | | | | |
| Ammonia | | Field Filtered | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | | | |
| NDMA - LL | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | | | | |
| Perchlorate | | Field Filtered | <input checked="" type="checkbox"/> | 1 | 4°C | | | | |
| Perchlorate - HOLD | | Field Filtered | <input checked="" type="checkbox"/> | 1 | 4°C | | | | |
| pH | | Field Filtered | <input type="checkbox"/> | 1 | 4°C | | | | |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | | | | |
| VOCs full list | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | |
| Report Carbon Ranges | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | |
| Total Containers: 20 | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | | | | |
|-----------------|--------------------|------------|-----------|---------------|------------------|---------------------|-------|
| Approved by | <i>Mitch Clin</i> | Signatures | Date/Time | 7/13/16 15:00 | Shipping Details | Method of Shipment: | FedEx |
| Sampled by | <i>Mitch Clin</i> | | | | On Ice: | yes / no | |
| Relinquished by | <i>Mitch Clin</i> | | | | Airbill No: | | |
| Received by | <i>EA</i> | | | | Lab Name: | CalScience | |
| Relinquished by | <i>[Signature]</i> | | | | Lab Phone: | (949) 870-8766 | |
| Received by | <i>[Signature]</i> | | | | | | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

0858

Chain of Custody Record COC Number: **CALS07131601** **CH2MHILL** 7/13/2016 2:17:45 PM Page 4 of 4

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number ~~664977-92-1B-666267.14.Q3.FW~~
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------|---|------|-------------|--------------------------|---------|
| RD40GW01S007 | 13-Jul-16 13:15 | N | Water | | |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| | | | | Total Containers: | 3 |
| SP33CGW01S005 | 13-Jul-16 9:00 | N | Water | | |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| VOCs full list | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| | | | | Total Containers: | 6 |

4

5

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-------------------------------------|------------|---------------------------|---|
| Approved by <i>Matt Clin</i> | Signatures | Date/Time 7/13/16 1500 | Shipping Details Method of Shipment: FedEx |
| Sampled by <i>Matt Clin</i> | | | On Ice: yes / no |
| Relinquished by <i>Matt Clin</i> | | | Airbill No: |
| Received by <i>Pammyle En</i> | | 7/13/16 1500 | Lab Name: CalScience |
| Relinquished by | | 7/13/16 10:45 | Lab Phone: (949) 870-8766 |
| Received by | | 7/13/16 18:45 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CHAZM HILL

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 726

Return to Contents

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CHAZM HILL

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.9 °C (w/ CF): 3.9 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 728

Return to Contents

SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

CLIENT: CHAZM HILL

DATE: 07/13/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1017

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation Yes No N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 522



SAMPLE ANOMALY REPORT

DATE: 07 / 13 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| -1 | D | 9 | | | |
| -3 | E (empty) | 2 | | | |
| -5 | CID | 6 | | | |
| | | | | | |

Comments

Comments

(Containers with bubble for other analysis)

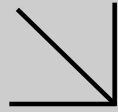
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: 1017
 Reviewed by: 778

** Record the total number of containers (i.e., vials or bottles) for the affected sample.





WORK ORDER NUMBER: 16-07-0920

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-07-0920

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| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
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| 6 | 16-07-0920 EPA 8315 Formaldehyde and 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/13/16. They were assigned to Work Order 16-07-0920.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-0920 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/13/16 09:40 |
| | Number of Containers: 8 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR07GWS008 | 16-07-0920-1 | 07/12/16 09:30 | 4 | Aqueous |
| HAR20GW01S006 | 16-07-0920-2 | 07/12/16 09:15 | 4 | Aqueous |

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053 | 1682189 | 8472544-45

16-07-0920

Chain of Custody Record COC Number: CALS07121603 CH2MHILL 7/12/2016 12:27:03 PM Page 1 of 1

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | |
|---|------------------|------|--------|-----------------|--------------------------|---|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Project Name SSFL Location Santa Susana Field Lab Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS Project Number 666267.14.Q3.FW Project Manager Jeremy Hilliard (530) 570-5084 Sample Manager Jamie Beckett Turnaround Time 10 Days PO Number 100067103941 | | | | | | | | | | | | | | | | | | | | |
| HAR07GWS008 | 12-Jul-16 | 9:30 | N | Water | | | | | | | | | | | | | | | | |
| Formaldehyde | | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | |
| 1,1-DMH, UDMH | | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | |
| Total Containers: 4 | | | | | | | | | | | | | | | | | | | | |
| HAR20GW01S006 | 12-Jul-16 | 9:15 | N | Water | | | | | | | | | | | | | | | | |
| Formaldehyde | | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | |
| 1,1-DMH, UDMH | | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | |
| Total Containers: 4 | | | | | | | | | | | | | | | | | | | | |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|--------------------|-----------|--------------|
| Approved by | <i>[Signature]</i> | Date/Time | 7/12/16 1500 |
| Sampled by | <i>[Signature]</i> | | |
| Relinquished by | <i>[Signature]</i> | | |
| Received by | <i>[Signature]</i> | | |
| Relinquished by | <i>[Signature]</i> | | |
| Received by | <i>[Signature]</i> | | |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Lancaster Laboratories
Lab Phone: (318) 618-8889

Special Instructions:
CH582 PO: 100067101891
CH614 PO 100067103941

Report Copy to
Jon Freed
(208) 660-4929

ATTN:
Sample Custody
and
Kay Hower



CO920

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/13/2016 9:40
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Timothy Cubberley (6520) at 10:58 on 07/13/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | DT131 | 1.8 | DT | Wet | Y | Loose | N |

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SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: CH2M Hill

DATE: 07/14/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_z 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: _____
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: _____



One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) Hydrazines

ANALYTICAL RESULTS

Prepared by:

 Eurofins Lancaster Laboratories Environmental
 2425 New Holland Pike
 Lancaster, PA 17601

Prepared for:

 Eurofins Calscience, Inc
 7440 Lincoln Way
 Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-0920

Submittal Date: 07/13/2016

Group Number: 1682189

SDG: CSF11

PO Number: 16-07-0920

State of Sample Origin: CA

Client Sample Description

 HAR07GWS008 Water
 HAR20GW01S006 Water

Lancaster Labs

(LL) #

8472544

8472545

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

 Electronic Copy To Eurofins Calscience
 Electronic Copy To Eurofins Calscience

 Attn: Terri Chang
 Attn: Richard Villafania

Respectfully Submitted,



Kay Hower

(510) 672-3979

11053 | 1682189 | 8472544-45

Chain of Custody Record COC Number: **CALS07121603** **CH2MHILL** 7/12/2016 12:27:03 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|-------------------|------------------|------|--|--------------|--------------------------|
| HAR07GWS008 | 12-Jul-16 | 9:30 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> 2 | 4C | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> 2 | 4C | <input type="checkbox"/> |
| Total Containers: | | | | 4 | |
| HAR20GW01S006 | 12-Jul-16 | 9:15 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> 2 | 4C | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> 2 | 4C | <input type="checkbox"/> |
| Total Containers: | | | | 4 | |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | |
|-------------------------------------|------------|---------------------------|---|--|
| Approved by <i>Matt Chen</i> | Signatures | Date/Time 7/12/16 1500 | Shipping Details Method of Shipment: FedEx | Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 |
| Sampled by <i>Matt Chen</i> | | | On Ice: yes / no | Report Copy to Jon Freed (208) 660-4929 |
| Relinquished by <i>Matt Chen</i> | | | Airbill No: | |
| Received by <i>JS</i> | | | Lab Name: Lancaster Laboratories | ATTN: Sample Custody and Kay Hower |
| Relinquished by | | | Lab Phone: (318) 618-8889 | |
| Received by | | | | |



Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/13/2016 9:40
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Timothy Cubberley (6520) at 10:58 on 07/13/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | DT131 | 1.8 | DT | Wet | Y | Loose | N |

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

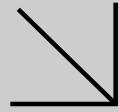
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



WORK ORDER NUMBER: 16-07-0971

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/26/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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| 7 | Chain-of-Custody/Sample Receipt Form. | 73 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/14/16. They were assigned to Work Order 16-07-0971.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-0971 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/14/16 19:30 |
| | Number of Containers: 71 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2444Q001 | 16-07-0971-1 | 07/14/16 07:00 | 9 | Aqueous |
| WS06GW01S002 | 16-07-0971-2 | 07/14/16 10:00 | 31 | Aqueous |
| WS08GW01S002 | 16-07-0971-3 | 07/14/16 12:00 | 31 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-0971

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 1063 | GC 25 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |



Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-0971

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-0971

CH2MHILL 7/14/2016 2:38:55 PM Page 1 of 5

Chain of Custody Record COC Number: **CALS07141601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID **CAQW2444Q001** Sample Date/Time 14-Jul-16 7:00 N Water Type Matrix # Containers Preserv
 1,4-Dioxane LL Field Filtered: 3 HCL pH<2.4C
 VOCs full list Field Filtered: 3 HCL pH<2.4C
 Report Carbon Ranges Field Filtered: 3 HCL pH<2.4C
Total Containers: 9

| | | | | | |
|---------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

①

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Cley* Date/Time 7/14/16 16:00
 Sampled by *Matt Cley* Method of Shipment: FedEx
 Relinquished by *Matt Cley* On Ice: yes / no
 Received by *EC* Airbill No: 7/14/16 16:00
 Relinquished by *EC* Lab Name: CalScience
 Received by *ECI* Lab Phone: (949) 870-8766

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:

Sample Custody
 and
 Michele Castro

0971

CH2MHILL 7/14/2016 2:38:55 PM Page 2 of 5

Chain of Custody Record COC Number: **CALS07141601**

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------|--------------------------|
| WS06GW01S002 | 14-Jul-16 10:00 | N | Water | | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL, pH<2.4C | | <input type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL, pH<2.4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time | Shipping Details |
|-----------------|----------------------|----------------|---------------------------|
| Sampled by | <i>Mitchell Clin</i> | 7/14/16 18:00 | Method of Shipment: FedEx |
| Relinquished by | <i>Mitchell Clin</i> | ↓ | On Ice: yes / no |
| Received by | <i>EA</i> | 7/14/16 16:00 | Airbill No: |
| Relinquished by | <i>EA</i> | 7/14/16 19:30 | Lab Name: CalScience |
| Received by | <i>EA</i> | 07/14/16 19:30 | Lab Phone: (949) 870-8766 |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

Chain of Custody Record COC Number: **CALS07141601** **CH2MHILL** 7/14/2016 2:38:55 PM Page 3 of 5

| | |
|--|---|
| Project Name SSFL | Location Santa Susana Field Lab |
| Task Order 582 | Project: 302016 SA/PCP & AIG GWS |
| Project Number 654377.82.LB | |
| Project Manager Jeremy Hilliard | |
| Sample Manager Jamie Beckett | (530) 570-5084 |
| Turnaround Time 10 Days | |
| PO Number 100067101891 | |

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|----------------------------|--------------|--------------------------|
| TDS | | Field Filtered: | <input type="checkbox"/> 1 | 4C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | <input type="checkbox"/> 2 | 4C | <input type="checkbox"/> |
| VOCs full list | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2.4C | <input type="checkbox"/> |
| EDB/DECP | | Field Filtered: | <input type="checkbox"/> 3 | Na2S2O3, 4C | <input type="checkbox"/> |
| Report Carbon Ranges | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: 31 | | | | | |

②

| | | |
|--|------------------------------------|----------------------------------|
| MS = Matrix Spike | SD = Matrix Spike Duplicate | Shipping Details |
| Approved by <i>Mitchell Clin</i> | Date/Time 7/14/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>Mitchell Clin</i> | | On Ice: yes / no |
| Relinquished by <i>Mitchell Clin</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/14/16 16:00 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/14/16 16:30 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | ECL 071416 1930 | |

| | |
|---|---|
| Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 | ATTN: Sample Custody and Michele Castro |
| Report Copy to Jon Freed (208) 660-4929 | |

097

Chain of Custody Record COC Number: **CALS07141601**

CH2MHILL 7/14/2016 2:38:55 PM Page 4 of 5

Project Name **SSFL** Location **Santa Susana Field Lab**
 Task Order **582** Project: **3Q2016 SA/PCP & AIG GWS**
 Project Number **654377.82.LB**
 Project Manager **Jeremy Hilliard**
 Sample Manager **Jamie Beckett** (530) 570-5084
 Turnaround Time **10 Days**
 PO Number **100067101891**

Sample ID Sample Date/Time Type Matrix # Containers Preserve

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserve |
|--------------------------|---|------|------------------|--------------|----------|
| WS08GW01S002 | 14-Jul-16 12:00 | N | Water | | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Clu* Date/Time **7/14/16 1600** Shipping Details Method of Shipment: **FedEx**
 Sampled by *Matt Clu* On Ice: **yes / no**
 Relinquished by *Matt Clu* Airbill No: **7/14/16 16.00**
 Received by *ECU* Lab Name: **CalScience**
 Relinquished by *ECU* Lab Phone: **(949) 870-8766**
 Received by *ECU* Lab Phone: **(949) 870-8766**

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

2



0971

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CH2MHILL 7/14/2016 2:38:56 PM

Chain of Custody Record COC Number: CALS07141601

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|--|------|-------------|--------------|---------|
| TDS | Field Filtered: <input type="checkbox"/> | 1 | 4C | | |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4C | | |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| EDB/DBCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S203, 4C | | |
| Report Carbon Ranges | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Total Containers: | | | | 31 | |

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10Days
 PO Number 100067101891

3

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|-----------------------|---------------|
| <i>Michele Castro</i> | 7/14/16 1600 |
| <i>Michele Castro</i> | |
| <i>Michele Castro</i> | |
| <i>[Signature]</i> | 7/14/16 1600 |
| <i>[Signature]</i> | 7/14/16 15:30 |
| <i>[Signature]</i> | 07/14/16 1950 |

Approved by
 Sampled by
 Relinquished by
 Received by
 Relinquished by
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: CH2M Hill

DATE: 07 / 14 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: 2)

Aqueous: VOA ¹² VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z^{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_{uf}
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____)
Air: Tedlar™ Canister Sorbent Tube PUF Other Matrix (____): _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 659

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SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: CH2M Hill

DATE: 07 / 14 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1067

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PBna _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 679



SAMPLE ANOMALY REPORT

DATE: 07 / 14 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| 1 | C | 3 | | | |
| 3 | I | 3 | | | |
| | | | | | |
| | | | | | |

Comments

Comments

(Containers with bubble for other analysis)

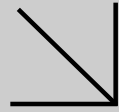
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| 2,3 | P | 1 | Ferrous Iron |
| | | | |
| | | | |

Comments: _____

Reported by: 1017
 Reviewed by: 619

** Record the total number of containers (i.e., vials or bottles) for the affected sample.





WORK ORDER NUMBER: 16-07-0972

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/27/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-07-0972

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/14/16. They were assigned to Work Order 16-07-0972.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-0972 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/14/16 19:30 |
| | Number of Containers: 64 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| RD05CGW01S006 | 16-07-0972-1 | 07/14/16 09:30 | 20 | Aqueous |
| SP882GGW01S005 | 16-07-0972-2 | 07/14/16 12:00 | 8 | Aqueous |
| WS04AGW01D006 | 16-07-0972-3 | 07/14/16 09:45 | 18 | Aqueous |
| WS04AGW01S006 | 16-07-0972-4 | 07/14/16 09:45 | 18 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-0972

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 1063 | GC 25 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |

Glossary of Terms and Qualifiers

Work Order: 16-07-0972

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-0972

CH2MHILL 7/14/2016 2:41:04 PM Page 1 of 4

Chain of Custody Record COC Number: **CALS07141602**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|-------------------------------------|--------------------------|-----------------|
| RD05CGW01S006 | 14-Jul-16 9:30 | N | Water | | |
| 1,4-Dioxane LL | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered: | <input type="checkbox"/> | 2 | 4C |
| Fluoride, Nitrate | | Field Filtered: | <input type="checkbox"/> | 1 | 4C |
| Ammonia | | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C |
| NDMA - LL | | Field Filtered: | <input type="checkbox"/> | 2 | 4C |
| Perchlorate | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C |
| Perchlorate - HOLD | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C |
| pH | | Field Filtered: | <input type="checkbox"/> | 1 | 4C |
| Report Carbon Ranges incl. EPH C8-C30 Total | | Field Filtered: | <input type="checkbox"/> | 2 | 4C |
| VOCs full list | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Report Carbon Ranges | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| | | | | Total Containers: | 20 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/14/16 1600
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* 7/14/16 1600
 Relinquished by *[Signature]* 7/14/16 1930
 Received by *[Signature]* ECI 07/14/16 1930

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

①

0972

CH2MHILL

COC Number: CALS07141602

Chain of Custody Record

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 614 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------|------------------|--------------------------|--------|--------------|--------------------------|
| SP882GGW01S005 | 14-Jul-16 | 12:00 | N | Water | |
| 1,4-Dioxane LL | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: 8 | | | | | |

2

MS = Matrix Spike **SD = Matrix Spike Duplicate**

| Signatures | Date/Time | Shipping Details |
|------------------------------------|-------------------|---------------------------|
| Approved by <i>Mitch Clai</i> | 7/14/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>Mitch Clai</i> | | On Ice: yes / no |
| Relinquished by <i>Mitch Clai</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/14/16 16:00 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/14/16 19:30 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | ECL 07/14/16 1930 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro



0972

CH2MHILL

COC Number: CALS07141602

Chain of Custody Record

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|---|------|-----------------|--------------|--------------------------|
| WS04AGW01D006 | 14-Jul-16 | 9:45 | N | Water | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL | pH<2, 4C | <input type="checkbox"/> |
| Nitrobenzene, 1,3-dinitrobenzene | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| Fluoride, Nitrate | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Ammonia | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| incl. Phthalates | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| Perchlorate | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Perchlorate - HOLD | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL | pH<2, 4C | <input type="checkbox"/> |
| Total Containers: | | | | | 18 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|------------------------------------|---------------|---------------------------|
| Approved by <i>Matt Clin</i> | 7/14/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>Matt Clin</i> | | On Ice: yes / no |
| Relinquished by <i>Matt Clin</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/14/16 1600 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/14/16 15:30 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | 7/14/16 1930 | |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

0972

Chain of Custody Record COC Number: **CALS07141602** **CH2MHILL** 7/14/2016 2:41:05 PM Page 4 of 4

| Project Name | SSFL | Location | Santa Susana Field Lab |
|---|-----------------|--|-------------------------|
| Task Order | 614 | Project: | 3Q2016 SA/PCP & AIG GWS |
| Project Number | 666267.14.Q3.FW | Project Number | 666267.14.Q3.FW |
| Project Manager | Jeremy Hilliard | Sample Manager | Jamie Beckett |
| Sample Manager | Jamie Beckett | Turnaround Time | 10 Days |
| PO Number | 100067103941 | Sample ID | |
| Sample ID WS04AGW01S006 | | | |
| Sample Date/Time 14-Jul-16 9:45 | | Type Matrix N Water | |
| Field Filtered: <input type="checkbox"/> 3 | | HCL pH<2.4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 2 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 1 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 1 | | H2SO4, pH<2, 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 2 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 2 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input checked="" type="checkbox"/> 1 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input checked="" type="checkbox"/> 1 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 2 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 2 | | 4C <input type="checkbox"/> | |
| Field Filtered: <input type="checkbox"/> 3 | | HCL pH<2.4C <input type="checkbox"/> | |
| Total Containers: 18 | | | |
| 1,4-Dioxane LL <input type="checkbox"/> | | | |
| Nitrobenzene, 1,3-dinitrobenzene <input type="checkbox"/> | | | |
| Fluoride, Nitrate <input checked="" type="checkbox"/> | | | |
| Ammonia <input type="checkbox"/> | | | |
| NDMA - LL <input type="checkbox"/> | | | |
| incl. Phthalates <input checked="" type="checkbox"/> | | | |
| Perchlorate <input type="checkbox"/> | | | |
| Perchlorate - HOLD <input type="checkbox"/> | | | |
| Report Carbon Ranges incl. EFH C8-C30 Total <input type="checkbox"/> | | | |
| VOCs full list <input type="checkbox"/> | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Clu* **Date/Time** 7/14/16 1600

Sampled by *Matt Clu*

Relinquished by *Matt Clu*

Received by *EEI* 7/14/16 16.00

Relinquished by *EEI* 7/14/16 19.30

Received by *EEI* 07/14/16 1930

Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: CalScience Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro

Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941

Report Copy to Jon Freed (208) 660-4929



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: CH2M Hill

DATE: 07 / 14 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 659

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 659

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: JR/1053



SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: CH2M Hill

DATE: 07 / 14 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:

| | | | | | |
|-----------|---|---|---|------------------------------|------------------------|
| Cooler | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>804</u> |
| Sample(s) | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>659</u> |

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

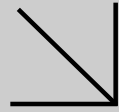
CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOA^b VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz^{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 659
 s = H₂SO₄, u = ultra-pure, z^{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1053



WORK ORDER NUMBER: 16-07-1078

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/27/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1078

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/15/16. They were assigned to Work Order 16-07-1078.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1078 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/15/16 18:45 |
| | Number of Containers: 133 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2445Q001 | 16-07-1078-1 | 07/15/16 07:00 | 9 | Aqueous |
| EBQW2176Q001 | 16-07-1078-2 | 07/15/16 13:00 | 31 | Aqueous |
| HAR05GW01S006 | 16-07-1078-3 | 07/15/16 10:00 | 31 | Aqueous |
| HAR06GW01S002 | 16-07-1078-4 | 07/15/16 12:00 | 31 | Aqueous |
| RD47GW01S003 | 16-07-1078-5 | 07/15/16 09:45 | 31 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1078

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 1063 | GC 25 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 61 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2320B | N/A | 650 | PH1/BUR16 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |



Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1078

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1078

CH2MHILL 7/15/2016 1:31:02 PM Page 1 of 9

Chain of Custody Record COC Number: **CALS07151602**

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| | | | | | |
|--------------------------|-----------------|--------------------------|---|-------------|--------------------------|
| CAQW2445Q001 | 15-Jul-16 | 7:00 | N | Water | |
| 1,4-Dioxane LL | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: | | | | | 9 |

| | | | | |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Michael Clin* **Signatures**
Sampled by *Michael Clin*
Relinquished by *Michael Clin*
Received by *[Signature]*
Relinquished by *[Signature]*
Received by *[Signature]*

Date/Time 7/15/16 1600
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1078

Chain of Custody Record COC Number: **CALS07151602** **CH2MHILL** 7/15/2016 1:31:02 PM Page 2 of 9

| | | | |
|--|-------------------------------------|--|-------------------------------------|
| Project Name SSFL Location Santa Susana Field Lab Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS Project Number 654377.82.LB Project Manager Jeremy Hilliard Sample Manager Jamie Beckett (530) 570-5084 Turnaround Time 10 Days PO Number 100067101891 | | Sample Date/Time 15-Jul-16 13:00 N Water Sample ID EBQW2176Q001 Alkalinity Field Filtered: <input type="checkbox"/> 1 4°C CO2 Field Filtered: <input type="checkbox"/> 2 4°C 1,4-Dioxane LL Field Filtered: <input type="checkbox"/> 3 HCL pH<2.4C Methane, ethane, ethene Field Filtered: <input type="checkbox"/> 3 HCL pH<2.4C Ba, B, Ca, Mg, K, Na, Sr Field Filtered: <input checked="" type="checkbox"/> 1 HNO3, 4°C Mn Field Filtered: <input checked="" type="checkbox"/> 1 HNO3, 4°C Ferrous Iron Field Filtered: <input checked="" type="checkbox"/> 1 4°C SO4, Cl, NO3, F Field Filtered: <input type="checkbox"/> 1 4°C Conductivity Field Filtered: <input type="checkbox"/> 1 4°C Sulfide Field Filtered: <input type="checkbox"/> 1 NaOH, ZnAc, 4°C TOC Field Filtered: <input type="checkbox"/> 1 H2SO4, pH<2, 4°C Ba, B, Ca, Mg, K, Na, Sr Field Filtered: <input type="checkbox"/> 1 HNO3, 4°C NDMA - LL Field Filtered: <input type="checkbox"/> 2 4°C | |
| 300.0 | <input type="checkbox"/> | 300.0 | <input type="checkbox"/> |
| 504.1 | <input checked="" type="checkbox"/> | 504.1 | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | A2320B | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | E376.2 | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | RSK175M | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | SM2540C | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | SM3500-Fe-D | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | SW1625M-LL | <input checked="" type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | SW6010B/6020 | <input checked="" type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | SW6010F | <input checked="" type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | SW6010F/6020 | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | SW8015B | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | SW8015-P | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | SW8260B | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | SW8260BSIM-LL | <input checked="" type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | SW9050 | <input checked="" type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | SW9060 | <input checked="" type="checkbox"/> |

| | | |
|---|--|---|
| MS = Matrix Spike SD = Matrix Spike Duplicate Approved by <i>Mitchell Clin</i> Date/Time 7/15/16 16:00 Sampled by <i>Mitchell Clin</i> 7/15/16 16:00 Relinquished by <i>Mitchell Clin</i> 7/15/16 16:00 Received by <i>[Signature]</i> 7/15/16 18:45 Relinquished by <i>[Signature]</i> 7/15/16 18:45 Received by <i>[Signature]</i> 7/15/16 18:45 | | Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: CalScience Lab Phone: (949) 870-8766 |
| Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 | ATTN: Sample Custody and Michele Castro | |
| Report Copy to Jon Freed (208) 660-4929 | | |

Chain of Custody Record COC Number: **CALS07151602** **CH2MHILL** 7/15/2016 1:31:02 PM Page 3 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| | | | | |
|---|-----------------|--------------------------|---|--------------|
| TDS | Field Filtered: | <input type="checkbox"/> | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| EDB/DBCP | Field Filtered: | <input type="checkbox"/> | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|-------------------------------------|--------------|---------------------------|
| Approved by <i>Mitchel Clin</i> | 7/15/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>Mitchel Clin</i> | ↓ | On Ice: yes / no |
| Relinquished by <i>Mitchel Clin</i> | ↓ | Airbill No: |
| Received by <i>[Signature]</i> | 7/15/16 1600 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/15/16 1845 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | 7/15/16 1845 | |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

1078

Chain of Custody Record COC Number: **CALS07151602**

7/15/2016 1:31:02 PM

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CH2MHILL

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|-------|-----------------|---------------------------------------|------------------|
| HAR05GW01S006 | 15-Jul-16 | 10:00 | N | Water | |
| Alkalinity | | | Field Filtered: | <input type="checkbox"/> 1 | 4°C |
| CO2 | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C |
| 1,4-Dioxane LL | | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered: | <input checked="" type="checkbox"/> 1 | HNO3, 4°C |
| Mn | | | Field Filtered: | <input checked="" type="checkbox"/> 1 | HNO3, 4°C |
| Ferrous Iron | | | Field Filtered: | <input checked="" type="checkbox"/> 1 | 4°C |
| SO4, Cl, NO3, F | | | Field Filtered: | <input type="checkbox"/> 1 | 4°C |
| Conductivity | | | Field Filtered: | <input type="checkbox"/> 1 | 4°C |
| Sulfide | | | Field Filtered: | <input type="checkbox"/> 1 | NaOH, ZnAc, 4°C |
| TOC | | | Field Filtered: | <input type="checkbox"/> 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered: | <input type="checkbox"/> 1 | HNO3, 4°C |
| NDMA - LL | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/15/16 1600
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *Shirley* Date/Time 7/15/16 1600
 Relinquished by *Shirley* Date/Time 7/15/16 1845
 Received by *Shirley* Date/Time 7/15/16 1845

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:

Sample Custody
 and
 Michele Castro

1078

CH2MHILL 7/15/2016 1:31:02 PM Page 5 of 9

Chain of Custody Record COC Number: **CALS07151602**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

TDS Field Filtered: 1 4C

Report Carbon Ranges incl. EFH C8-C30 Total Field Filtered: 2 4C

VOCs incl. Isopropyl Alcohol Field Filtered: 3 HCL pH<2.4C

EDB/DBCP Field Filtered: 3 Na2S2O3, 4°C

Report Carbon Ranges Field Filtered: 3 HCL pH<2.4C

Total Containers: 31

| | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|--------------------|--------------|---------------------------|
| Approved by | Signatures | Date/Time | Shipping Details |
| Sampled by | <i>Mitch Allen</i> | 7/15/16 1600 | Method of Shipment: FedEx |
| Relinquished by | <i>Mitch Allen</i> | | On Ice: yes / no |
| Received by | <i>Mitch Allen</i> | 7/15/16 1600 | Airbill No: |
| Relinquished by | <i>[Signature]</i> | 7/15/16 1845 | Lab Name: CalScience |
| Received by | <i>[Signature]</i> | 7/15/16 1845 | Lab Phone: (949) 870-8766 |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929



1078

| Project Name | SSFL | Location | Santa Susana Field Lab |
|--------------------------|----------------|---|--|
| Task Order | 582 | Project: | 3Q2016 SA/PCP & AIG GWS |
| Project Number | 654377.82.LB | Project Manager | Jeremy Hilliard |
| Sample Manager | Jamie Beckett | Turnaround Time | 10 Days |
| PO Number | 100067101891 | Sample Date/Time | 15-Jul-16 12:00 N Water |
| Sample ID | HAR06GW01S002 | Type | N Water |
| Matrix | Alkalinity | Matrix | Field Filtered: <input type="checkbox"/> 1 4°C |
| # Containers | CO2 | # Containers | Field Filtered: <input type="checkbox"/> 2 4°C |
| Preserv | 1,4-Dioxane LL | Preserv | Field Filtered: <input type="checkbox"/> 3 HCL pH<2.4C |
| Methane, ethane, ethene | | Field Filtered: <input type="checkbox"/> 3 HCL pH<2.4C | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: <input checked="" type="checkbox"/> 1 HNO3, 4°C | |
| Mn | | Field Filtered: <input checked="" type="checkbox"/> 1 HNO3, 4°C | |
| Ferrous Iron | | Field Filtered: <input checked="" type="checkbox"/> 1 4°C | |
| SO4, Cl, NO3, F | | Field Filtered: <input type="checkbox"/> 1 4°C | |
| Conductivity | | Field Filtered: <input type="checkbox"/> 1 4°C | |
| Sulfide | | Field Filtered: <input type="checkbox"/> 1 NaOH, ZnAc, 4°C | |
| TOC | | Field Filtered: <input type="checkbox"/> 1 H2SO4, pH<2, 4°C | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: <input type="checkbox"/> 1 HNO3, 4°C | |
| NDMA - LL | | Field Filtered: <input type="checkbox"/> 2 4°C | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | | | |
|-----------------|--------------------|------------|-----------|--------------|---------------------------|---------------------------|
| Approved by | <i>Muted Clem</i> | Signatures | Date/Time | 7/16/15 1609 | Shipping Details | Method of Shipment: FedEx |
| Sampled by | <i>Muted Clem</i> | | | | On Ice: yes / no | |
| Relinquished by | <i>Muted Clem</i> | | | | Airbill No: | |
| Received by | <i>[Signature]</i> | | | | Lab Name: CalScience | |
| Relinquished by | <i>[Signature]</i> | | | | Lab Phone: (949) 870-8766 | |
| Received by | <i>[Signature]</i> | | | | | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

Chain of Custody Record COC Number: **CALS07151602**

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1078

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|--|------|--------------|--------------|---------|
| TDS | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| EDB/DBCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S203, 4°C | | |
| Report Carbon Ranges | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Total Containers: | | | | 31 | |

14

| | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time | Shipping Details |
|-----------------|-------------------|----------------|---------------------------|
| Sampled by | <i>Mitch Clew</i> | 7/15/16 1600 | Method of Shipment: FedEx |
| Relinquished by | <i>Mitch Clew</i> | ↓ | On Ice: yes / no |
| Received by | <i>Mitch Clew</i> | 7/15/16 1600 | Airbill No: |
| Relinquished by | <i>Dannys</i> | 7/15/16 1845 | Lab Name: CalScience |
| Received by | <i>Dannys</i> | 7/15/16 (8:45) | Lab Phone: (949) 870-8766 |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

1078

Chain of Custody Record COC Number: **CALS07151602** **CH2MHILL** 7/15/2016 1:31:03 PM Page 8 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|-----------------|------------------|--------------|---------|
| RD47GW01S003 | 15-Jul-16 9:45 | N | Water | | |
| Alkalinity | | Field Filtered: | | 1 | 4°C |
| CO2 | | Field Filtered: | | 2 | 4°C |
| 1,4-Dioxane LL | | Field Filtered: | HCL pH<2.4C | 3 | |
| Methane, ethane, ethene | | Field Filtered: | HCL pH<2.4C | 3 | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: | HNO3, 4°C | 1 | |
| Mn | | Field Filtered: | HNO3, 4°C | 1 | |
| Ferrous Iron | | Field Filtered: | 4°C | 1 | |
| SO4, Cl, NO3, F | | Field Filtered: | 4°C | 1 | |
| Conductivity | | Field Filtered: | 4°C | 1 | |
| Sulfide | | Field Filtered: | NaOH, ZnAc, 4°C | 1 | |
| TOC | | Field Filtered: | H2SO4, pH<2, 4°C | 1 | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: | HNO3, 4°C | 1 | |
| NDMA - LL | | Field Filtered: | 4°C | 2 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|------------------------------------|--------------|---------------------------|
| Approved by <i>[Signature]</i> | 7/15/16 1600 | Method of Shipment: FedEx |
| Sampled by <i>[Signature]</i> | | On Ice: yes / no |
| Relinquished by <i>[Signature]</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/15/16 1845 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/15/16 1845 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | 7/15/16 1845 | |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

1078

Chain of Custody Record

COC Number: CALS07151602

7/15/2016 1:31:03 PM

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Project Name SSFL Location Santa Susana Field Lab
Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Table with columns: Sample ID, Sample Date/Time, Type, Matrix, # Containers, Preserv, TDS, Report Carbon Ranges incl. EFH C8-C30 Total, VOCs full list, EDB/BCP, Report Carbon Ranges. Includes handwritten '5' in a circle and various checkboxes.

Total Containers: 31

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by [Signature] Date/Time 7/15/16 1600
Sampled by [Signature]
Relinquished by [Signature]
Received by [Signature] Date/Time 7/15/16 1600
Relinquished by [Signature] Date/Time 7/15/16 1845
Received by [Signature] Date/Time 7/15/16 1845

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
CH614 PO 100067103941

ATTN:

Sample Custody and Michele Castro

Report Copy to Jon Freed (208) 660-4929

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: CH2 M H.U

DATE: 07/15/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.1 °C (w/ CF): 3.1 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: SLW

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: SLW
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA ⁽²⁾ VOA^(b) VOA⁽³⁾ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn⁽³⁾ 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PBn _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: SLW/1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: SLW/659



SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: CHEM H.U

DATE: 07/15/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.2 °C (w/ CF): 3.2 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: SLD

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: SLD

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na} 100PJ 100PJ_{na} 125AGB 125AGB_h 125AGB_p 125PB

125PB_{znna} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s

500PB 1AGB 1AGB_{na} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, znna = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 659

SAMPLE ANOMALY REPORT

DATE: 07 / 14 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| 1 | H, I, FG | 3 | | | |
| 2 | B2 | 2 | | | |
| 3 | C | 3 | | | |
| | | | | | |

Comments

Comments

(Containers with bubble for other analysis)

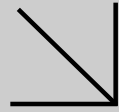
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| E2 | 2, 3, 4, 5 | 1 | Ferrous Iron |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: *8/2/16*
 Reviewed by: *6/29*

** Record the total number of containers (i.e., vials or bottles) for the affected sample.





WORK ORDER NUMBER: 16-07-1080

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 07/29/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1080

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| | 3.2 EPA 8330 Nitroaromatics and Nitramines (Aqueous). | 6 |
| | 3.3 EPA 350.1 Ammonia (Aqueous). | 8 |
| | 3.4 SM 4500 H+ B pH (Aqueous). | 9 |
| | 3.5 EPA 1625C (M) NDMA (Aqueous). | 10 |
| | 3.6 EPA 8260B Volatile Organics (Aqueous). | 11 |
| | 3.7 EPA 8260B SIM Emergent Volatiles (Aqueous). | 17 |
| 4 | Quality Control Sample Data. | 18 |
| | 4.1 MS/MSD. | 18 |
| | 4.2 Sample Duplicate. | 21 |
| | 4.3 LCS/LCSD. | 22 |
| 5 | Sample Analysis Summary. | 29 |
| 6 | Glossary of Terms and Qualifiers. | 30 |
| 7 | Chain-of-Custody/Sample Receipt Form. | 31 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/15/16. They were assigned to Work Order 16-07-1080.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1080 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/15/16 18:45 |
| | Number of Containers: 14 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR05GW01S006 | 16-07-1080-1 | 07/15/16 10:00 | 6 | Aqueous |
| SP882BGW01S004 | 16-07-1080-2 | 07/15/16 12:30 | 8 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1080

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| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1080

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| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1080

7/15/2016 1:32:15 PM

CH2MHILL

COC Number: CALS07151603

Chain of Custody Record

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 302016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------------|------------------|-------------------------------------|--------|-------------------|--------------------------|
| HAR05GW01S006 | 15-Jul-16 10:00 | N | Water | | |
| Nitrobenzene, 1,3-Dinitrobenzene | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | <input type="checkbox"/> |
| Perchlorate | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Perchlorate - HOLD | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| pH | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| | | | | Total Containers: | 6 |
| SP882BGW01S004 | 15-Jul-16 12:30 | N | Water | | |
| 1,4-Dioxane LL | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2 4C | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2 4C | <input type="checkbox"/> |
| | | | | Total Containers: | 8 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Mitch Clai Date/Time 7/15/16 16:00
 Sampled by Mitch Clai
 Relinquished by Mitch Clai
 Received by [Signature] Date/Time 7/15/16 16:00
 Relinquished by [Signature] Date/Time 7/15/16 16:45
 Received by [Signature] Date/Time 7/15/16 18:45

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929
 ATTN:
 Sample Custody
 and
 Michele Castro



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CH2M HILL

DATE: 07/15/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.0 °C (w/ CF): 3.0 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 820

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 820

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1017

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation Yes No N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

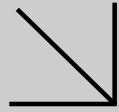
Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

Labeled/Checked by: 728/1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 820/1017

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WORK ORDER NUMBER: 16-07-1194

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/01/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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| | 3.2 RSK-175M Dissolved Gases (Aqueous). | 6 |
| | 3.3 EPA 300.0 Anions (Aqueous). | 8 |
| | 3.4 SM 2320B Alkalinity (Aqueous). | 10 |
| | 3.5 SM 2510 B Specific Conductance (Aqueous). | 11 |
| | 3.6 SM 2540 C Total Dissolved Solids (Aqueous). | 12 |
| | 3.7 SM 3500-FeB Ferrous Iron (Aqueous). | 13 |
| | 3.8 SM 4500 S2 - D Sulfide (Aqueous). | 14 |
| | 3.9 SM 5310 B Total Organic Carbon (Aqueous). | 15 |
| | 3.10 EPA 8015B (M) C8-C40 (Aqueous). | 16 |
| | 3.11 EPA 8015B (M) TPH Gasoline (Aqueous). | 19 |
| | 3.12 EPA 6020 ICP/MS Metals Scan Total (Aqueous). | 21 |
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| | 3.14 EPA 1625C (M) NDMA (Aqueous). | 27 |
| | 3.15 EPA 504.1 EDB and DBCP (Aqueous). | 29 |
| | 3.16 EPA 8260B Volatile Organics (Aqueous). | 31 |
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| | 4.3 Sample Duplicate. | 66 |
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| 5 | Sample Analysis Summary. | 93 |
| 6 | Glossary of Terms and Qualifiers. | 94 |
| 7 | Chain-of-Custody/Sample Receipt Form. | 95 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/18/16. They were assigned to Work Order 16-07-1194.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1194 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/18/16 18:20 |
| | Number of Containers: 164 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2446Q001 | 16-07-1194-1 | 07/18/16 07:00 | 9 | Aqueous |
| HAR21GW01S006 | 16-07-1194-2 | 07/18/16 12:30 | 31 | Aqueous |
| HAR23GW01S006 | 16-07-1194-3 | 07/18/16 11:00 | 31 | Aqueous |
| ND136GW01S002 | 16-07-1194-4 | 07/18/16 12:00 | 31 | Aqueous |
| ND136GW02S002 | 16-07-1194-5 | 07/18/16 13:00 | 31 | Aqueous |
| WS09GW01S005 | 16-07-1194-6 | 07/18/16 09:30 | 31 | Aqueous |



Calscience

Sample Analysis Summary Report

Work Order: 16-07-1194

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| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3005A Filt. | 776 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 776 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 1063 | GC 25 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 8 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |

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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1194

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1194

CH2MHILL 7/18/2016 1:53:06 PM Page 1 of 11

Chain of Custody Record COC Number: **CALS07181601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID **CAQW2446Q001** Sample Date/Time 18-Jul-16 7:00 N Water
 1,4-Dioxane LL Field Filtered 3 HCL pH<2.4C
 VOCs full list Field Filtered 3 HCL pH<2.4C
 Report Carbon Ranges Field Filtered 3 HCL pH<2.4C
Total Containers: 9

| | | | |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/18/16 15:00
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *ec1* 7/18/16 15:00
 Relinquished by *ec1* 7/18/16 18:20
 Received by *ec1* 7/18/16 18:20

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:06 PM Page 2 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|----------------|--------|--------------|------------------|
| HAR21GW01S006 | 18-Jul-16 12:30 | N | Water | | |
| Alkalinity | | Field Filtered | | 1 | 4°C |
| CO2 | | Field Filtered | | 2 | 4°C |
| 1,4-Dioxane LL | | Field Filtered | | 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | Field Filtered | | 3 | HCL pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| Mn | | Field Filtered | | 1 | HNO3, 4°C |
| Ferrous Iron | | Field Filtered | | 1 | 4°C |
| SO4, Cl, NO3, F | | Field Filtered | | 1 | 4°C |
| Conductivity | | Field Filtered | | 1 | 4°C |
| Sulfide | | Field Filtered | | 1 | NaOH, ZnAc, 4°C |
| TOC | | Field Filtered | | 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| NDMA - LL | | Field Filtered | | 2 | 4°C |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* **Signatures** **Date/Time** **Shipping Details**
Sampled by *Mitchell* 7/18/16 15:00 **Method of Shipment:** FedEx
Relinquished by *Mitchell* ↓ **On Ice:** yes / no
Received by *Samir* 7/18/16 15:00 **Airbill No:**
Relinquished by *Samir* 7/18/16 15:20 **Lab Name:** CalScience
Received by *Samir* 7/18/16 18:20 **Lab Phone:** (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:

Sample Custody
 and
 Michele Castro

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:06 PM Page 3 of 11

Project Name **SSFL** Location **Santa Susana Field Lab**
 Task Order **582** Project **3Q2016 SA/PCP & AIG GWS**
 Project Number **654377.82.LB**
 Project Manager **Jeremy Hilliard**
 Sample Manager **Jamie Beckett** (530) 570-5084
 Turnaround Time **10 Days**
 PO Number **100067101891**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|-------------|
| TDS | | Field Filtered | | 1 | 4C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4C |
| VOCs full list | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered | | 3 | Na2S2O3.4C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

2

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | |
|------------------------------------|------------|----------------------------|---|--|
| Approved by <i>Mitchell</i> | Signatures | Date/Time 7/18/16 15:00 | Shipping Details Method of Shipment: FedEx | Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 |
| Sampled by <i>Mitchell</i> | | ↓ | On Ice: yes / no | ATTN: Sample Custody and Michele Castro |
| Relinquished by <i>Mitchell</i> | | ↓ | Airbill No: | |
| Received by <i>EU</i> | | 7/18/16 15:00 | Lab Name: CalScience | Report Copy to Jon Freed (208) 660-4929 |
| Relinquished by <i>SAVING</i> | | 7/18/16 18:20 | Lab Phone: (949) 870-8766 | |
| Received by | | 7/18/16 18:20 | | |



1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:06 PM Page 4 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett
Turnaround Time 10 Days (530) 570-5084
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|----------------|--------|--------------|------------------|
| HAR23GW01S006 | 18-Jul-16 11:00 | N | Water | | |
| Alkalinity | | Field Filtered | | 1 | 4°C |
| CO2 | | Field Filtered | | 2 | 4°C |
| 1,4-Dioxane LL | | Field Filtered | | 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | Field Filtered | | 3 | HCL pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| Mn | | Field Filtered | | 1 | HNO3, 4°C |
| Ferrous Iron | | Field Filtered | | 1 | 4°C |
| SO4, Cl, NO3, F | | Field Filtered | | 1 | 4°C |
| Conductivity | | Field Filtered | | 1 | 4°C |
| Sulfide | | Field Filtered | | 1 | NaOH, ZnAc, 4°C |
| TOC | | Field Filtered | | 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| NDMA - LL | | Field Filtered | | 2 | 4°C |

MS = Matrix Spike **SD = Matrix Spike Duplicate**

Approved by *Mitchell* **Date/Time** 7/18/16 15:00
Sampled by *Mitchell*
Relinquished by *Mitchell*
Received by *BCJ* 7/18/16 15:00
Relinquished by *BCJ* 7/18/16 18:20
Received by *Dannigle* 7/18/16 18:20

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:06 PM Page 5 of 11

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|-------------|
| TDS | | Field Filtered | | 1 | 4C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4C |
| VOCs incl. Isopropyl Alcohol | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/BCP | | Field Filtered | | 3 | Na2S2O3, 4C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/18/16 1500
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *Sanjiv* Date/Time 7/18/16 1500
 Relinquished by *Sanjiv*
 Received by *Sanjiv*

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No: *1500*
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:06 PM Page 6 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|----------------|--------|--------------|------------------|
| ND136GW01S002 | 18-Jul-16 12:00 | N | Water | | |
| Alkalinity | | Field Filtered | | 1 | 4°C |
| CO2 | | Field Filtered | | 2 | 4°C |
| 1,4-Dioxane LL | | Field Filtered | | 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | Field Filtered | | 3 | HCL pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| Mn | | Field Filtered | | 1 | HNO3, 4°C |
| Ferrous Iron | | Field Filtered | | 1 | 4°C |
| SO4, Cl, NO3, F | | Field Filtered | | 1 | 4°C |
| Conductivity | | Field Filtered | | 1 | 4°C |
| Sulfide | | Field Filtered | | 1 | NaOH, ZnAc, 4°C |
| TOC | | Field Filtered | | 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered | | 1 | HNO3, 4°C |
| NDMA - LL | | Field Filtered | | 2 | 4°C |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell Chen* **Date/Time** 7/18/16 1:50
Sampled by *Mitchell Chen*
Relinquished by *Mitchell Chen*
Received by *EC* 7/18/16 15:20
Relinquished by *EC* 7/18/16 18:20
Received by *Dannylee* 7/18/16 18:20

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

4



1194

Chain of Custody Record COC Number: **CALS07181601**

CH2MHILL 7/18/2016 1:53:06 PM Page 7 of 11

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|-------------|
| TDS | | Field Filtered | | 1 | 4C |
| Report Carbon Ranges Incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4C |
| VOCs full list | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered | | 3 | Na2S2O3, 4C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/18/16 15:00
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *EA* Date/Time 7/18/16 15:00
 Relinquished by *EA* Date/Time 7/18/16 18:20
 Received by *Danning* Date/Time 7/18/16 18:20

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

4

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:07 PM Page 8 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett
Turnaround Time 10 Days (530) 570-5084
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | 300.0 | 504.1 | A2320B | E376.2 | RSK175 | RSK175M | SM2540C | SM3500-Fe-D | SW1625M-LL | SW6010B/6020 | SW6010F | SW6010F/6020 | SW8015B | SW8015-P | SW8260B | SW8260BSIM-LL | SW9050 | SW9060 | |
|--------------------------|------------------|------|----------------|--------------|------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| ND136GW02S002 | 18-Jul-16 13:00 | N | Water | | | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Alkalinity | | | Field Filtered | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| CO2 | | | Field Filtered | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,4-Dioxane LL | | | Field Filtered | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Methane, ethane, ethene | | | Field Filtered | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mn | | | Field Filtered | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ferrous Iron | | | Field Filtered | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SO4, Cl, NO3, F | | | Field Filtered | 1 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Conductivity | | | Field Filtered | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sulfide | | | Field Filtered | 1 | NaOH, ZnAc, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TOC | | | Field Filtered | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NDMA - LL | | | Field Filtered | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* **Signatures** **Date/Time** 7/18/16 1500
Sampled by *Mitchell*
Relinquished by *Mitchell*
Received by *EC* 7/18/16 15:00
Relinquished by *EC* 7/18/16 18:20
Received by *Dannyle* 7/18/16 18:20

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1194

COC Number: **CALS07181601**

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|--------------|
| TDS | | Field Filtered | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4°C |
| VOCs full list | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered | | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|--------------------------------------|---------------|--|
| Approved by <i>Matt Hilliard</i> | 7/18/16 15:00 | Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: CalScience Lab Phone: (949) 870-8766 |
| Sampled by <i>Matt Hilliard</i> | | |
| Relinquished by <i>Matt Hilliard</i> | 7/18/16 15:00 | |
| Received by <i>EG</i> | 7/18/16 18:20 | |
| Relinquished by <i>Donny Ear</i> | 7/18/16 18:20 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro



1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:07 PM Page 10 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|--|------|------------------|--------------|-------------------------------------|
| WS09GW01S005 | 18-Jul-16 9:30 | N | Water | | |
| Alkalinity | Field Filtered <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| CO2 | Field Filtered <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input checked="" type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Mn | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered <input checked="" type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Conductivity | Field Filtered <input type="checkbox"/> | 1 | 4°C | | <input checked="" type="checkbox"/> |
| Sulfide | Field Filtered <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | <input type="checkbox"/> |
| TOC | Field Filtered <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input type="checkbox"/> | 1 | HNO3, 4°C | | <input checked="" type="checkbox"/> |
| NDMA - LL | Field Filtered <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* **Date/Time** 7/18/16 1:50
Sampled by *Mitchell*
Relinquished by *Mitchell*
Received by *EU* **Airbill No:** 7/18/16 15:00
Relinquished by *EU* **Lab Name:** CalScience 7/18/16 18:30
Received by *DAMR* **Lab Phone:** (949) 870-8766 7/18/16 18:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1194

Chain of Custody Record COC Number: **CALS07181601** **CH2MHILL** 7/18/2016 1:53:07 PM Page 11 of 11

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|--------------|
| TDS | | Field Filtered | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4°C |
| VOCs incl. Isopropyl Alcohol | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered | | 3 | Na2S203, 4°C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>[Signature]</i> | 7/19/16 1:50 |
| <i>[Signature]</i> | 7/18/16 18:00 |
| <i>[Signature]</i> | 7/18/16 18:20 |
| <i>[Signature]</i> | 7/18/16 18:20 |

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CH2MHILL

DATE: 07/18/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.2 °C (w/ CF): 3.2 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1053

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: 12 3 (Trip Blank Lot Number: 2)
Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_u
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 659



SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CH2MHILL

DATE: 07 / 18 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_{na} _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

Reviewed by: 689

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

CLIENT: CH2MHILL

DATE: 07/18/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

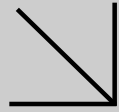
(Trip Blank Lot Number: _____)

CONTAINER TYPE:

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PBaf _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 689



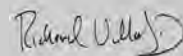

WORK ORDER NUMBER: 16-07-1195
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 07/29/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1195

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| 2 | Sample Summary. | 4 |
| 3 | Client Sample Data. | 5 |
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| | 3.2 EPA 8330 Nitroaromatics and Nitramines (Aqueous). | 6 |
| | 3.3 EPA 350.1 Ammonia (Aqueous). | 9 |
| | 3.4 SM 4500 H+ B pH (Aqueous). | 10 |
| | 3.5 EPA 8270C SIM (Aqueous). | 11 |
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| | 4.2 Sample Duplicate. | 13 |
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| 6 | Glossary of Terms and Qualifiers. | 19 |
| 7 | Chain-of-Custody/Sample Receipt Form. | 20 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/18/16. They were assigned to Work Order 16-07-1195.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1195 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/18/16 18:20 |
| | Number of Containers: 13 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR21GW01S006 | 16-07-1195-1 | 07/18/16 12:30 | 7 | Aqueous |
| HAR23GW01S006 | 16-07-1195-2 | 07/18/16 11:00 | 6 | Aqueous |



Calscience

Sample Analysis Summary Report

Work Order: 16-07-1195

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |


Return to Contents

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1195

Page 1 of 1

CH2MHILL 7/18/2016 1:54:26 PM

Chain of Custody Record COC Number: CALS07181602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | |
|----------------------------------|------------------|-------|-------------------|--------------|------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| ① HAR21GW01S006 | 18-Jul-16 | 12:30 | N | Water | | | | | | | | | | | | | | | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | | Field Filtered | 2 | 4°C | | | | | | | | | | | | | | | |
| Ammonia | | | Field Filtered | 1 | H2SO4, pH<2, 4°C | | | | | | | | | | | | | | | |
| incl. Phthalates | | | Field Filtered | 2 | 4°C | | | | | | | | | | | | | | | |
| Perchlorate | | | Field Filtered | 1 | 4°C | | | | | | | | | | | | | | | |
| Perchlorate - HOLD | | | Field Filtered | 1 | 4°C | | | | | | | | | | | | | | | |
| | | | Total Containers: | | | 7 | | | | | | | | | | | | | | |
| ② HAR23GW01S006 | 18-Jul-16 | 11:00 | N | Water | | | | | | | | | | | | | | | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | | Field Filtered | 2 | 4°C | | | | | | | | | | | | | | | |
| Ammonia | | | Field Filtered | 1 | H2SO4, pH<2, 4°C | | | | | | | | | | | | | | | |
| Perchlorate | | | Field Filtered | 1 | 4°C | | | | | | | | | | | | | | | |
| Perchlorate - HOLD | | | Field Filtered | 1 | 4°C | | | | | | | | | | | | | | | |
| pH | | | Field Filtered | 1 | 4°C | | | | | | | | | | | | | | | |
| | | | Total Containers: | | | 6 | | | | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|----------------------|---------------|---------------------------|
| Approved by | Signatures | Date/Time | Shipping Details |
| Sampled by | <i>Mitchell Chen</i> | 7/18/16 15:00 | Method of Shipment: FedEx |
| Relinquished by | <i>Mitchell Chen</i> | | On Ice: yes / no |
| Received by | <i>Mitchell Chen</i> | | Airbill No: |
| Relinquished by | <i>ECU</i> | 7/18/16 18:20 | Lab Name: CalScience |
| Received by | <i>Sammye Orr</i> | 7/18/16 18:20 | Lab Phone: (949) 870-8766 |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CHZMHILL

DATE: 07 / 18 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ_p 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB

125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s

500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

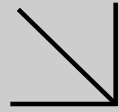
Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 652/1053

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 652/1053



WORK ORDER NUMBER: 16-07-1295

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/01/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1295

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/19/16. They were assigned to Work Order 16-07-1295.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD $> 10\%$. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1295 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/19/16 18:43 |
| | Number of Containers: 133 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2447Q001 | 16-07-1295-1 | 07/19/16 07:00 | 9 | Aqueous |
| HAR11GW01S007 | 16-07-1295-2 | 07/19/16 12:00 | 31 | Aqueous |
| ND136GW03S003 | 16-07-1295-3 | 07/19/16 10:30 | 31 | Aqueous |
| ND136GW04S002 | 16-07-1295-4 | 07/19/16 11:30 | 31 | Aqueous |
| RD49CGW01S006 | 16-07-1295-5 | 07/19/16 12:00 | 31 | Aqueous |



Calscience

Sample Analysis Summary Report

Work Order: 16-07-1295

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 9 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3005A Filt. | 776 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 776 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 715 | GC 24 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| RSK-175M | N/A | 1074 | GC 14 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1295

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1295

CH2MHILL 7/19/2016 2:37:19 PM Page 1 of 9

Chain of Custody Record COC Number: **CALS07191601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard (530) 570-5084
 Sample Manager Jamie Beckett
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID **CAQW2447Q001** Sample Date/Time 19-Jul-16 7:00 N Water Type Matrix # Containers Preserv
 1,4-Dioxane LL Field Filtered: 3 HCL pH<2.4C
 VOCs full list Field Filtered: 3 HCL pH<2.4C
 Report Carbon Ranges Field Filtered: 3 HCL pH<2.4C
 Total Containers: 9

| | | | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell Clevi* Date/Time 7/19/16 15:00
 Sampled by *Mitchell Clevi*
 Relinquished by *Mitchell Clevi*
 Received by *[Signature]* Date/Time 7/19/16 15:00
 Relinquished by *[Signature]* Date/Time 7/19/16 18:43
 Received by *[Signature]* Date/Time 7/19/16 18:43

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to Jon Freed (208) 660-4929

1295

Chain of Custody Record

COC Number: CALS07191601

CH2MHILL

7/19/2016 2:37:19 PM

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Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|-----------------|--------------------------|--------------------------|
| HAR11GW01S007 | 19-Jul-16 12:00 | N | Water | | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4C | <input type="checkbox"/> | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>Matt Clari</i> | 7/19/16 15:00 |
| <i>Matt Clari</i> | |
| <i>Matt Clari</i> | |
| <i>EC</i> | 7/19/16 15:00 |
| <i>[Signature]</i> | 7/19/16 18:43 |
| <i>[Signature]</i> | 7/19/16 18:43 |

Approved by
 Sampled by
 Relinquished by
 Received by
 Relinquished by
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929



Return to Contents

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CH2MHILL

COC Number: **CALS07191601**

Chain of Custody Record

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB

Project Manager Jeremy Hilliard (530) 570-5084
 Sample Manager Jamie Beckett

Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|-------------------------------------|--------------|-------------------------------------|
| TDS | | Field Filtered: | <input type="checkbox"/> | 1 | 4°C |
| Report Carbon Ranges Incl. EFH C8-C30 Total | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| VOCs full list | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered: | <input type="checkbox"/> | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: 31 | | | | | |
| SW9060 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW9050 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW8260BSIM-LL | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW8260B | | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| SW8015-P | | | <input type="checkbox"/> | | <input checked="" type="checkbox"/> |
| SW8015B | | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| SW6010F/6020 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW6010F | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW6010B/6020 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SW1625M-LL | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SM3500-Fe-D | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| SM2540C | | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| RSK175M | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| RSK175 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| E376.2 | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| A2320B | | | <input type="checkbox"/> | | <input type="checkbox"/> |
| 504.1 | | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| 300.0 | | | <input type="checkbox"/> | | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | |
|--|---|
| Approved by <i>Mitch Allen</i> 7/19/16 15:00 | Shipping Details Method of Shipment: FedEx |
| Sampled by <i>Mitch Allen</i> 7/19/16 15:00 | On Ice: yes / no |
| Relinquished by <i>Mitch Allen</i> 7/19/16 15:00 | Airbill No: |
| Received by <i>[Signature]</i> 7/19/16 15:43 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> 7/19/16 15:43 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> 7/19/16 15:43 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

1295

Chain of Custody Record COC Number: **CALS07191601** **CH2MHILL** 7/19/2016 2:37:20 PM Page 4 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------|---------|
| ND136GW03S003 | 19-Jul-16 10:30 | N | Water | | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/19/16 15:00
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *ECU* 7/19/16 15:00
 Relinquished by *Mitchell* 7/19/16 18:43
 Received by *Mitchell* 7/19/16 18:43

| Shipping Details | Special Instructions: |
|---------------------------|--|
| Method of Shipment: FedEx | CH582 PO: 100067101891 |
| On Ice: yes / no | CH614 PO 100067103941 |
| Airbill No: | Report Copy to Jon Freed (208) 660-4929 |
| Lab Name: CalScience | ATTN: Sample Custody and Michele Castro |
| Lab Phone: (949) 870-8766 | |

1295

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Chain of Custody Record COC Number: CALS07191601

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Sample Manager Jeremy Hilliard (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserve
 TDS Field Filtered: 1 4°C
 Report Carbon Ranges incl. EFH C8-C30 Total Field Filtered: 2 4°C
 VOCs full list Field Filtered: 3 HCL pH<2.4C
 EDB/DBCP Field Filtered: 3 Na2S2O3, 4°C
 Report Carbon Ranges Field Filtered: 3 HCL pH<2.4C
 Total Containers: 31

| | | | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/19/16 15:00
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* Date/Time 7/19/16 15:00
 Relinquished by *[Signature]* Date/Time 7/19/16 18:43
 Received by *[Signature]* Date/Time 7/19/16 18:43

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

(1295)

Chain of Custody Record

COC Number: CALS07191601

CH2MHILL

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Project Name SSFL Location Santa Susana Field Lab
Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard

Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID ND136GW04S002
Sample Date/Time 19-Jul-16 11:30 N Water
Type Matrix # Containers Preserv
Field Filtered: 1 4C

Alkalinity Field Filtered: 2 4C
CO2 Field Filtered: 3 HCL pH<2.4C

1,4-Dioxane LL Field Filtered: 3 HCL pH<2.4C
Methane, ethane, ethene Field Filtered: 1 HNO3, 4C

Ba, B, Ca, Mg, K, Na, Sr Field Filtered: 1 HNO3, 4C
Mn Field Filtered: 1 HNO3, 4C

Ferrous Iron Field Filtered: 1 4C
SO4, Cl, NO3, F Field Filtered: 1 4C

Conductivity Field Filtered: 1 4C
Sulfide Field Filtered: 1 NaOH, ZnAc, 4C

TOC Field Filtered: 1 H2SO4, pH<2, 4C
Ba, B, Ca, Mg, K, Na, Sr Field Filtered: 1 HNO3, 4C

NDMA - LL Field Filtered: 2 4C

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by [Signature] Date/Time 7/19/16 15:00
Sampled by [Signature]
Relinquished by [Signature]
Received by [Signature] 7/19/16 15:00
Relinquished by [Signature] 7/19/16 14:43
Received by [Signature] 7/19/16 14:43

Shipping Details Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro

Special Instructions: CH582 PO: 100067101891
CH614 PO 100067103941
Report Copy to Jon Freed (208) 660-4929

Table with columns for Sample ID, Date/Time, Type Matrix, # Containers, Preserv, and various chemical parameters (Alkalinity, CO2, 1,4-Dioxane LL, Methane, ethane, ethene, Ba, B, Ca, Mg, K, Na, Sr, Mn, Ferrous Iron, SO4, Cl, NO3, F, Conductivity, Sulfide, TOC, Ba, B, Ca, Mg, K, Na, Sr, NDMA - LL) with checkboxes for field filtering.

1295

Chain of Custody Record COC Number: **CALS07191601** **CH2MHILL** 7/19/2016 2:37:20 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv
 TDS Field Filled: 1 4C
 Report Carbon Ranges incl. EFH C8-C30 Total Field Filled: 2 4C
 VOCs full list Field Filled: 3 HCL pH<2.4C
 EDB/DBCP Field Filled: 3 Na2S2O3, 4C
 Report Carbon Ranges Field Filled: 3 HCL pH<2.4C
 Total Containers: 31

| | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | |
|-----------------|----------------------|-----------|--------------|-----------|
| Approved by | <i>Mitchell Clay</i> | Signature | 7/19/16 1500 | Date/Time |
| Sampled by | <i>Mitchell Clay</i> | | | |
| Relinquished by | <i>Mitchell Clay</i> | | | |
| Received by | <i>EG</i> | | 7/19/16 1500 | |
| Relinquished by | <i>EG</i> | | 7/19/16 1843 | |
| Received by | <i>EG</i> | | 7/19/16 1943 | |

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

1295

Chain of Custody Record COC Number: **CALS07191601** **CH2MHILL** 7/19/2016 2:37:20 PM Page 8 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| | | | | | |
|--------------------------|-----------------|-------------------------------------|---|------------------|-------------------------------------|
| RD49CGW01S006 | 19-Jul-16 | 12:00 | N | Water | |
| Alkalinity | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| CO2 | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Mn | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input checked="" type="checkbox"/> |
| Conductivity | Field Filtered: | <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Sulfide | Field Filtered: | <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | <input type="checkbox"/> |
| TOC | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C | <input checked="" type="checkbox"/> |
| NDMA - LL | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/19/16 1520
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* Airbill No: EG 7/19/16 15:00
 Relinquished by *[Signature]* Lab Name: CalScience
 Received by *[Signature]* Lab Phone: (949) 870-8766

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

1295

Chain of Custody Record COC Number: **CALS07191601**

CH2MHILL

7/19/2016 2:37:21 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett
 Turnaround Time 10 Days
 PO Number 100067101891

(530) 570-5084

Sample Date/Time Type Matrix # Containers Preserv

| | | | |
|---|-----------------|---|--------------|
| TDS | Field Filtered: | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | 2 | 4°C |
| VOCs full list | Field Filtered: | 3 | HCL pH<2.4C |
| EDB/DBCP | Field Filtered: | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | Field Filtered: | 3 | HCL pH<2.4C |
| Total Containers: | | | 31 |

| | | | | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

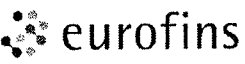
MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|--------------------|--------------|---------------------------|
| <i>Mitchell</i> | 7/19/16 1500 | Method of Shipment: FedEx |
| <i>Mitchell</i> | | On Ice: yes / no |
| <i>Mitchell</i> | 7/19/16 1500 | Airbill No: |
| <i>[Signature]</i> | 7/19/16 1543 | Lab Name: CalScience |
| <i>[Signature]</i> | 7/19/16 1543 | Lab Phone: (949) 870-8766 |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro



WORK ORDER NUMBER: 16-07-1295

Calscience

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CH2MHILL

DATE: 07/19/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOA² VOA³ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PB_n 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB_n _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Labeled/Checked by: 1053
Reviewed by: 10/107

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SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CHZMHILL

DATE: 07/19/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.8 °C (w/ CF): 3.8 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1053

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_{n_f} 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_n _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1017

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SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

DATE: 07 / 19 / 2016

CLIENT: CHZMHILL

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

Yes No N/A

Chain-of-Custody (COC) document(s) received with samples

COC document(s) received complete

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC

Sample container label(s) consistent with COC

Sample container(s) intact and in good condition

Proper containers for analyses requested

Sufficient volume/mass for analyses requested

Samples received within holding time

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen

Proper preservation chemical(s) noted on COC and/or sample container

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PB_{nf} 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB_{nf} _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 1017

SAMPLE ANOMALY REPORT

DATE: 07 / 19 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| 2 | C, F, L | 12 | | | |
| 5 | G, I | 12 | | | |
| | | | | | |
| | | | | | |

Comments

Comments

(Containers with bubble for other analysis)

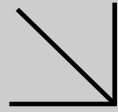
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| 2-5 | V | 1 | Ferrous Iron |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: 1053
Reviewed by: 107

** Record the total number of containers (i.e., vials or bottles) for the affected sample.





WORK ORDER NUMBER: 16-07-1296

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/01/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



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 Work Order Number: 16-07-1296

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/19/16. They were assigned to Work Order 16-07-1296.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1296 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/19/16 18:43 |
| | Number of Containers: 34 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR08GW01S007 | 16-07-1296-1 | 07/19/16 09:30 | 20 | Aqueous |
| HAR11GW01S007 | 16-07-1296-2 | 07/19/16 12:00 | 7 | Aqueous |
| RD49CGW01S006 | 16-07-1296-3 | 07/19/16 12:00 | 7 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1296

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 9 | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |
| EPA 8015B (M) | EPA 3510C | 607 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 715 | GC 24 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |
| SM 4500 H+ B | N/A | 650 | PH 1 | 1 |


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1296

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1296

CH2MHILL 7/19/2016 2:42:07 PM Page 1 of 2

Chain of Custody Record COC Number: CALS07191602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # | Containers | Preserv | <input type="checkbox"/> | | | | | | | | | | |
|---|------------------|-----------------|--------|-------|-----------------|-----------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| HAR08GW01S007 | 19-Jul-16 | 9:30 | N | Water | | | <input type="checkbox"/> | | | | | | | | | | |
| 1,4-Dioxane LL | | Field Filtered: | | 3 | HCL pH<2.4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Nitrobenzene, 1,3-dinitrobenzene | | Field Filtered: | | 2 | 4C | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fluoride, Nitrate | | Field Filtered: | | 1 | 4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ammonia | | Field Filtered: | | 1 | H2SO4, pH<2, 4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NDMA - LL | | Field Filtered: | | 2 | 4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate | | Field Filtered: | | 1 | 4C | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate - HOLD | | Field Filtered: | | 1 | 4C | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| pH | | Field Filtered: | | 1 | 4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4C | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Total Containers: | | | | | | 20 | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by [Signature] Date/Time 7/19/16 1300
 Sampled by [Signature]
 Relinquished by [Signature] Airbill No: 7/19/16 15:28
 Received by [Signature] Lab Name: CalScience
 Relinquished by [Signature] Lab Phone: (949) 870-8766
 Received by [Signature]

Shipping Details Method of Shipment: FedEx On Ice: yes / no
 Airbill No: 7/19/16 15:28
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro
 Special Instructions: CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to Jon Freed (208) 660-4929

1296

Chain of Custody Record COC Number: **CALS07191602**

CH2MHILL 7/19/2016 2:42:07 PM Page 2 of 2

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------------|------------------|-----------------|--------------------|--------------|---------|
| HAR11GW01S007 | 19-Jul-16 12:00 | N | Water | | |
| Nitrobenzene, 1,3-dinitrobenzene | | Field Filtered: | | 2 | 4°C |
| Ammonia | | Field Filtered: | 1 H2SO4, pH<2, 4°C | | |
| incl. Phthalates | | Field Filtered: | | 2 | 4°C |
| Perchlorate | | Field Filtered: | | 1 | 4°C |
| Perchlorate - HOLD | | Field Filtered: | | 1 | 4°C |
| Total Containers: 7 | | | | | |
| RD49CGW01S006 | 19-Jul-16 12:00 | N | Water | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered: | | 2 | 4°C |
| Ammonia | | Field Filtered: | 1 H2SO4, pH<2, 4°C | | |
| incl. Phthalates | | Field Filtered: | | 2 | 4°C |
| Perchlorate | | Field Filtered: | | 1 | 4°C |
| Perchlorate - HOLD | | Field Filtered: | | 1 | 4°C |
| Total Containers: 7 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|--------------------|-----------|--------------|
| Approved by | <i>[Signature]</i> | Date/Time | 7/19/16 1500 |
| Sampled by | <i>[Signature]</i> | | |
| Relinquished by | <i>[Signature]</i> | | |
| Received by | <i>[Signature]</i> | | |
| Relinquished by | <i>[Signature]</i> | | |
| Received by | <i>[Signature]</i> | | |

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No: 719161515

Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CHZMHILL

DATE: 07 / 19 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

| SAMPLE CONDITION: | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{nna} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 659/1017
 s = H₂SO₄, u = ultra-pure, z_{nna} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1053/659



SAMPLE ANOMALY REPORT

DATE: 07 / 19 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

(-2) Received approximately 400 mL
for ammonia.

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

(Containers with bubble for other analysis)

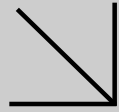
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Comments: _____

Reported by: 1017

Reviewed by: 659

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

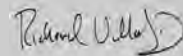

WORK ORDER NUMBER: 16-07-1378
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 08/01/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1378

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/20/16. They were assigned to Work Order 16-07-1378.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD $> 10\%$. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1378 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/20/16 18:30 |
| | Number of Containers: 133 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2448Q001 | 16-07-1378-1 | 07/20/16 07:00 | 9 | Aqueous |
| ND133GW01S002 | 16-07-1378-2 | 07/20/16 09:30 | 31 | Aqueous |
| ND133GW02S002 | 16-07-1378-3 | 07/20/16 10:30 | 31 | Aqueous |
| ND133GW03S002 | 16-07-1378-4 | 07/20/16 11:30 | 31 | Aqueous |
| ND133GW04S002 | 16-07-1378-5 | 07/20/16 12:30 | 31 | Aqueous |



Calscience

Sample Analysis Summary Report

Work Order: 16-07-1378

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 834 | IC 9 | 1 |
| EPA 300.0 | N/A | 1037 | IC 9 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 682 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 902 | GC 1 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 11 | 1 |

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1378

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1378

Chain of Custody Record

COC Number: **CALS07201601**

CHAMPAIGN 7/20/2016 1:16:44 PM Page 1 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------|------------------|------|---|--------------|-------------|
| CAQW2448Q001 | 20-Jul-16 | 7:00 | N Water | | |
| 1,4-Dioxane LL | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C |
| VOCs full list | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Report Carbon Ranges | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: 9 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time |
|-----------------|------------|--------------|
| Sampled by | | 7/20/16 1406 |
| Relinquished by | | 7/20/16 1400 |
| Received by | | 7/20/16 1400 |
| Relinquished by | | 7/20/16 1400 |
| Received by | | 7/20/16 1830 |
| Received by | | 7/20 1830 |

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

1378

Chain of Custody Record COC Number: **CALS07201601** **CALHILL** 7/20/2016 1:16:44 PM Page 2 of 9

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 302016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|--|------|------------------|--------------|---------|
| ND133GW01S002 | 20-Jul-16 9:30 | N | Water | | |
| Alkalinity | Field Filtered <input type="checkbox"/> | 1 | 4°C | | |
| CO2 | Field Filtered <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Mn | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered <input checked="" type="checkbox"/> | 1 | 4°C | | |
| SO4, Cl, NO3, F | Field Filtered <input type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered <input type="checkbox"/> | 2 | 4°C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>[Signature]</i> | 7/20/16 1400 |
| <i>[Signature]</i> | 7/20/16 1400 |
| <i>[Signature]</i> | 7/20/16 1400 |
| <i>[Signature]</i> | 7/20/16 14:00 |
| <i>[Signature]</i> | 7/20/16 1830 |
| <i>[Signature]</i> | 7/20/16 1830 |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1378

Chain of Custody Record COC Number: **CALS07201601**

CHAZARILL 7/20/2016 1:16:44 PM Page 4 of 9

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 302016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett
Turnaround Time 10 Days (530) 570-5084
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|--|------|-----------------|--------------|---------|
| ND133GW02S002 | 20-Jul-16 10:30 | N | Water | | |
| Alkalinity | Field Filtered <input type="checkbox"/> | 1 | 4C | | |
| CO2 | Field Filtered <input type="checkbox"/> | 2 | 4C | | |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | 3 | HCL pH<24C | | |
| Methane, ethane, ethene | Field Filtered <input type="checkbox"/> | 3 | HCL pH<24C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | |
| Mn | Field Filtered <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | |
| Ferrous Iron | Field Filtered <input checked="" type="checkbox"/> | 1 | 4C | | |
| SO4, Cl, NO3, F | Field Filtered <input type="checkbox"/> | 1 | 4C | | |
| Conductivity | Field Filtered <input type="checkbox"/> | 1 | 4C | | |
| Sulfide | Field Filtered <input type="checkbox"/> | 1 | NaOH, ZnAc, 4C | | |
| TOC | Field Filtered <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input type="checkbox"/> | 1 | HNO3, 4C | | |
| NDMA - LL | Field Filtered <input type="checkbox"/> | 2 | 4C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>[Signature]</i> | 7/20/16 14:50 |
| <i>[Signature]</i> | 7/20/16 |
| <i>[Signature]</i> | 7/20/16 |
| <i>[Signature]</i> | 7/20/16 14:50 |
| <i>[Signature]</i> | 7/20/16 18:00 |
| <i>[Signature]</i> | 7/20/16 18:00 |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

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1378

Chain of Custody Record COC Number: **CALS07201601** **CH2NHILL** 7/20/2016 1:16:44 PM Page 5 of 9

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|---|--------|--------------|--------------------------|
| TDS | | Field Filtered <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| VOCs full list | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| EDB/DBCP | | Field Filtered <input type="checkbox"/> | 3 | Na2S2O3, 4C | <input type="checkbox"/> |
| Report Carbon Ranges | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: 31 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|------------|---------------|
| | 7/20/16 14:00 |
| | 7/20/16 |
| | 7/20/16 |
| | 7/20/16 14:00 |
| | 7/20/16 15:10 |
| | 7/20/16 15:14 |

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

137C

Chain of Custody Record COC Number: **CALS07201601**

CHERRYHILL 7/20/2016 1:16:45 PM Page 6 of 9

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|-------|----------------|--------------|------------------|
| ND133GW03S002 | 20-Jul-16 | 11:30 | N | Water | |
| Alkalinity | | | Field Filtered | 1 | 4°C |
| CO2 | | | Field Filtered | 2 | 4°C |
| 1,4-Dioxane LL | | | Field Filtered | 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | | Field Filtered | 3 | HCL pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered | 1 | HNO3, 4°C |
| Mn | | | Field Filtered | 1 | HNO3, 4°C |
| Ferrous Iron | | | Field Filtered | 1 | 4°C |
| SO4, Cl, NO3, F | | | Field Filtered | 1 | 4°C |
| Conductivity | | | Field Filtered | 1 | 4°C |
| Sulfide | | | Field Filtered | 1 | NaOH, ZnAc, 4°C |
| TOC | | | Field Filtered | 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered | 1 | HNO3, 4°C |
| NDMA - LL | | | Field Filtered | 2 | 4°C |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|------------------------------------|---------------|---------------------------|
| Approved by <i>[Signature]</i> | 7/20/16 14:00 | Method of Shipment: FedEx |
| Sampled by <i>[Signature]</i> | 7/20/16 | On Ice: yes / no |
| Relinquished by <i>[Signature]</i> | 7/23/16 | Airbill No: |
| Received by <i>[Signature]</i> | 7/20/16 14:00 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/20/16 18:50 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | 7/20/16 18:50 | |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

1378

Chain of Custody Record COC Number: **CALS07201601** **CH2M HILL** 7/20/2016 1:16:45 PM Page 7 of 9

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett
Turnaround Time 10 Days (530) 570-5084
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|----------------|--------|--------------|--------------|
| TDS | | Field Filtered | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered | | 2 | 4°C |
| VOCs full list | | Field Filtered | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered | | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | | Field Filtered | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>[Signature]</i> | 7/20/16 14:00 |
| <i>[Signature]</i> | 7/20/16 |
| <i>[Signature]</i> | 7/20/16 |
| <i>[Signature]</i> | 7/20/16 14:00 |
| <i>[Signature]</i> | 7/20/16 16:30 |
| <i>[Signature]</i> | 7/20/16 16:30 |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1378

Chain of Custody Record COC Number: **CALS07201601** **CH2M HILL** 7/20/2016 1:16:45 PM Page 8 of 9

| Project Name | SSFL | Location | Santa Susana Field Lab |
|--------------------------|--|------------------|-------------------------|
| Task Order | 582 | Project | 3Q2016 SA/PCP & AIG GWS |
| Project Number | 654377.82.LB | Project Manager | Jeremy Hilliard |
| Sample Manager | Jamie Beckett | Turnaround Time | 10 Days |
| PO Number | 100067101891 | Sample Date/Time | 20-Jul-16 12:30 |
| Sample ID | ND133GW04S002 | Type | N |
| Alkalinity | Field Filtered <input type="checkbox"/> | Matrix | Water |
| CO2 | Field Filtered <input type="checkbox"/> | # Containers | 1 |
| 1,4-Dioxane LL | Field Filtered <input type="checkbox"/> | Preserv | 4°C |
| Methane, ethane, ethene | Field Filtered <input type="checkbox"/> | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input checked="" type="checkbox"/> | | |
| Mn | Field Filtered <input checked="" type="checkbox"/> | | |
| Ferrous Iron | Field Filtered <input checked="" type="checkbox"/> | | |
| SO4, Cl, NO3, F | Field Filtered <input type="checkbox"/> | | |
| Conductivity | Field Filtered <input type="checkbox"/> | | |
| Sulfide | Field Filtered <input type="checkbox"/> | | |
| TOC | Field Filtered <input type="checkbox"/> | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered <input type="checkbox"/> | | |
| NDMA - LL | Field Filtered <input type="checkbox"/> | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|------------------------|--------------------|----------------------------|----------------|
| Approved by | <i>[Signature]</i> | Date/Time | 7/20/16 11:00 |
| Sampled by | <i>[Signature]</i> | Method of Shipment: | FedEx |
| Relinquished by | <i>[Signature]</i> | On Ice: | yes / no |
| Received by | <i>[Signature]</i> | Airbill No: | |
| Relinquished by | <i>[Signature]</i> | Lab Name: | CalScience |
| Received by | <i>[Signature]</i> | Lab Phone: | (949) 870-8766 |

Shipping Details

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

1376

Chain of Custody Record COC Number: **CALS07201601** ~~CALIFORNIA~~ 7/20/2016 1:16:45 PM Page 9 of 9

| | |
|--|--|
| Project Name SSFL | Location Santa Susana Field Lab |
| Task Order 582 | Project 3Q2016 SA/PCP & AIG GWS |
| Project Number 654377.82.LB | |
| Project Manager Jeremy Hilliard | |
| Sample Manager Jamie Beckett | (530) 570-5084 |
| Turnaround Time 10 Days | |
| PO Number 100067101891 | |

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|---|--------|--------------|---------|
| TDS | | Field Filtered <input type="checkbox"/> | 1 | 4°C | |
| Report Carbon Ranges Incl. EFH C8-C30 Total | | Field Filtered <input type="checkbox"/> | 2 | 4°C | |
| VOCs full list | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | |
| EDB/DBCP | | Field Filtered <input type="checkbox"/> | 3 | Na2S2O3, 4°C | |
| Report Carbon Ranges | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | |
| Total Containers: | | | | | 31 |

| | | | | | |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | |
|---|--------------------|----------------------------|----------------|
| MS = Matrix Spike SD = Matrix Spike Duplicate | | Shipping Details | |
| Approved by | <i>[Signature]</i> | Method of Shipment: | FedEx |
| Sampled by | <i>[Signature]</i> | On Ice: | yes / no |
| Relinquished by | <i>[Signature]</i> | Airbill No: | |
| Received by | <i>[Signature]</i> | Lab Name: | CalScience |
| Relinquished by | <i>[Signature]</i> | Lab Phone: | (949) 870-8766 |
| Received by | <i>[Signature]</i> | | |

| | |
|--|---|
| Special Instructions: | ATTN: |
| CH582 PO: 100067101891 CH614 PO: 100067103941 | Sample Custody and Michele Castro |
| Report Copy to | |
| Jon Freed (208) 660-4929 | |

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CH2M HILL

DATE: 07/20/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input checked="" type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA⁽¹²⁾ VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB ⁽²⁾
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PB_n 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB_n _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

Labeled/Checked by: 1017

Reviewed by: 728

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CH2M HILL

DATE: 07 / 20 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: 804
 Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input checked="" type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)
Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} 250PB_n _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 278

SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

CLIENT: CH2M HILL

DATE: 07/20/2016

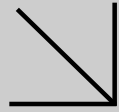
TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: 804
 Checked by: 1017

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA_h VOAn₂ 100PJ 100PJna₂ 125AGB 125AGB_h 125AGB_p 125PB
 125PBz_{na} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGBna₂ 1AGB_s 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) : _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH
 Reviewed by: 719





WORK ORDER NUMBER: 16-07-1392

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/01/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-07-1392

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/20/16. They were assigned to Work Order 16-07-1392.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1392 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/20/16 18:30 |
| | Number of Containers: 32 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| SP881CGW01S005 | 16-07-1392-1 | 07/20/16 08:45 | 8 | Aqueous |
| SP881GGW01S005 | 16-07-1392-2 | 07/20/16 12:30 | 8 | Aqueous |
| SP890CGW01S005 | 16-07-1392-3 | 07/20/16 11:30 | 8 | Aqueous |
| SP890GGW01S005 | 16-07-1392-4 | 07/20/16 12:30 | 8 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1392

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 928 | GC/MS III | 1 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |

Glossary of Terms and Qualifiers

Work Order: 16-07-1392

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1392

CHERRILL 7/20/2016 1:17:20 PM Page 1 of 2

Chain of Custody Record COC Number: CALS07201602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 686267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | | | | | |
|----------------------------|------------------|-------|--------|--------------|---|---|-------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| ① SP881GGW01S005 | 20-Jul-16 | 8:45 | N | Water | | | | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 2 | 4C | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | |
| Total Containers: 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| ② SP881GGW01S005 | 20-Jul-16 | 12:30 | N | Water | | | | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 2 | 4C | | | | | | | | | | | | | | | | | |
| | | | | | Field Filtered <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | |
| Total Containers: 8 | | | | | | | | | | | | | | | | | | | | | | | | |

SW1625M-LL
 SW8260B
 SW8260BSIM-LL

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|------------|---------------|
| | 7/20/16 1400 |
| | 7/20/16 1400 |
| | 7/20/16 1440 |
| | 7/20/16 14:00 |
| | 7/20/16 18:30 |
| | 072016 1830 |

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: CH2M HILL

DATE: 07 / 20 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: 804
 Checked by: 601

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA VOA^C VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 601
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1017

Return to Contents

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: CH2M HILL

DATE: 07 / 20 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: 804
 Checked by: 601

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 601
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1017



SAMPLE ANOMALY REPORT

DATE: **07 / 20 / 2016**

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| 1 | BC | 6 | | | |
| 2 | CEF | 6 | | | |
| 3 | B-F | 6 | | | |
| 4 | A-F | 6 | | | |

(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Comments: _____

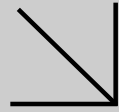
Comments

Comments

Reported by: 601
 Reviewed by: 107

** Record the total number of containers (i.e., vials or bottles) for the affected sample.



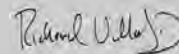

WORK ORDER NUMBER: 16-07-1456
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
Work Order Number: 16-07-1456

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| 2 | Sample Summary. | 4 |
| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
| 5 | Subcontract Narrative. | 9 |
| 6 | 16-07-1456 EPA 8315 Formaldehyde and 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/16/16. They were assigned to Work Order 16-07-1456.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1456 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/16/16 09:45 |
| | Number of Containers: 4 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR05GW01S006 | 16-07-1456-1 | 07/15/16 10:00 | 4 | Aqueous |

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053

1683594

8477962-

16-07-1456

Chain of Custody Record COC Number: CALS07151605 CH2MHILL 7/15/2016 1:36:10 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SAPCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------|------------------|-------|-----------------|---------------------------------------|---------|
| HAR05GW01S006 | 15-Jul-16 | 10:00 | N | Water | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C |
| Hydrazine, MMH, UDMH | | | Field Filtered: | <input checked="" type="checkbox"/> 2 | 4°C |
| Total Containers: | | | | | 4 |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/15/16 1600
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]*

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes no
 Airbill No:
 Lab Name: Lancaster Laboratories
 Lab Phone: (318) 618-8889

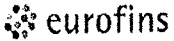
Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Kay Hower

7/16/16
 7/16/16
 7/16/16





Lancaster Laboratories
Environmental

Sample Administration
Receipt Documentation Log

Doc Log ID: 154069
Group Number(s): 1683594

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/16/2016 9:45
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: CA

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | No | Sample Date/Times match COC: | Yes |
| Samples Chilled: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Paperwork Enclosed: | Yes | Total Trip Blank Qty: | 0 |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 11:09 on 07/16/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 1.5 | IR | Wet | Y | Loose | N |

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SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: _____

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) : _____ _____
 Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____
s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn(CH₃CO₂)₂ + NaOH Reviewed by: _____



One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1456

Submittal Date: 07/16/2016
Group Number: 1683594
SDG: CSF14
PO Number: 16-07-1456
State of Sample Origin: CA

Client Sample Description
HAR05GW01S006 Water

Lancaster Labs
(LL) #
8477962

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

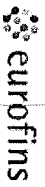
Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

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Lancaster Laboratories
Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 154069
Group Number(s): 1683594

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/16/2016 9:45
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: CA

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | No | Sample Date/Times match COC: | Yes |
| Samples Chilled: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Paperwork Enclosed: | Yes | Total Trip Blank Qty: | 0 |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 11:09 on 07/16/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| <u>Cooler #</u> | <u>Thermometer ID</u> | <u>Corrected Temp</u> | <u>Therm. Type</u> | <u>Ice Type</u> | <u>Ice Present?</u> | <u>Ice Container</u> | <u>Elevated Temp?</u> |
|-----------------|-----------------------|-----------------------|--------------------|-----------------|---------------------|----------------------|-----------------------|
| 1 | 32170023 | 1.5 | IR | Wet | Y | Loose | N |

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

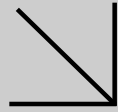
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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WORK ORDER NUMBER: 16-07-1457

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-07-1457

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| 1 | Work Order Narrative. | 3 |
| 2 | Sample Summary. | 4 |
| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
| 5 | Subcontract Narrative. | 9 |
| 6 | 16-07-1457 EPA 8315 Formaldehyde and 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/15/16. They were assigned to Work Order 16-07-1457.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1457 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/15/16 09:10 |
| | Number of Containers: 12 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| RD05CGW01S006 | 16-07-1457-1 | 07/14/16 09:30 | 4 | Aqueous |
| WS04AGW01D006 | 16-07-1457-2 | 07/14/16 09:45 | 4 | Aqueous |
| WS04AGW01S006 | 16-07-1457-3 | 07/14/16 09:45 | 4 | Aqueous |

Glossary of Terms and Qualifiers

Work Order: 16-07-1457

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053 | 1683209 | 8476280-82

16-07-1457

Chain of Custody Record COC Number: CALS07141603 CH2MHILL 7/14/2016 2:42:06 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

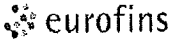
| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | |
|----------------------|------------------|------|-----------------|----------------------------|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| RD05CGW01S006 | 14-Jul-16 | 9:30 | N Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 4 | | | | | | | | | | | | | | | |
| WS04AGW01D006 | 14-Jul-16 | 9:45 | N Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 4 | | | | | | | | | | | | | | | |
| WS04AGW01S006 | 14-Jul-16 | 9:45 | N Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 4 | | | | | | | | | | | | | | | |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Mitchell Chen Date/Time 7/14/16 1600
 Sampled by Mitchell Chen Method of Shipment: FedEx
 Relinquished by Mitchell Chen On Ice: yes no
 Relinquished by Mitchell Chen Airbill No:
 Received by Kristen J... Lab Name: Lancaster Laboratories
 Received by Kristen J... Lab Phone: (318) 618-8889

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929
 ATTN:
 Sample Custody
 and
 Kay Hower



Lancaster Laboratories
Environmental

Sample Administration
Receipt Documentation Log

Doc Log ID: 153909

Group Number(s): 683209

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/15/2016 9:10
 Number of Packages: 2 Number of Projects: 1
 State/Province of Origin: CA

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 10:14 on 07/15/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 3.1 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 2.4 | IR | Wet | Y | Loose | N |

SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: _____

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

THIN VOICE

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB

125PB_z_{na} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s

500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) : _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____

s = H₂SO₄, **u** = ultra-pure, **z**_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: _____

Subcontractor Analysis Report

Work Order: 16-07-1457

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1457

Submittal Date: 07/15/2016

Group Number: 1683209

SDG: CSF13

PO Number: 16-07-1457

State of Sample Origin: CA

Lancaster Labs

Client Sample Description

RD05CGW01S006 Water

WS04AGW01D006 Water

WS04AGW01S006 Water

(LL) #

8476280

8476281

8476282

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

11053 | 1683209 | 8476280-82

Chain of Custody Record

COC Number: **CALS07141603**

CH2MHILL

7/14/2016 2:42:06 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

SM8315
 SM8315A

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | | |
|--------------------------|------------------|------|-----------------|--------------------------|---------|-----|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| RD05CGW01S006 | 14-Jul-16 | 9:30 | N | Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Total Containers: | | | | | 4 | | | | | | | | | | | | | | | | |
| WS04AGW01D006 | 14-Jul-16 | 9:45 | N | Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Total Containers: | | | | | 4 | | | | | | | | | | | | | | | | |
| WS04AGW01S006 | 14-Jul-16 | 9:45 | N | Water | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Total Containers: | | | | | 4 | | | | | | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | | Date/Time | Shipping Details | | ATTN: | Special Instructions: | | |
|-----------------|----------------------|--------------|--|-------------|-------|-----------------------|------------------------------------|---|
| Approved by | <i>Mitchell Clev</i> | 7/14/16 1600 | Method of Shipment: | FedEx | | | Sample Custody and Kay Hower | CH582 PO: 100067101891 CH614 PO 100067103941 |
| Sampled by | <i>Mitchell Clev</i> | ↓ ↓ | On Ice: <input checked="" type="checkbox"/> yes / no | Airbill No: | | | | Report Copy to Jon Freed (208) 660-4929 |
| Relinquished by | <i>Mitchell Clev</i> | | Lab Name: Lancaster Laboratories | | | | | |
| Received by | | | Lab Phone: (318) 618-8889 | | | | | |
| Relinquished by | <i>Kristen Z...</i> | 7/15/16 0910 | | | | | | |
| Received by | | | | | | | | |

Return to Contents

Client: CH2M Hill

Delivery and Receipt Information

| | | | |
|---------------------------|---------------|---------------------|------------------------|
| Delivery Method: | <u>Fed Ex</u> | Arrival Timestamp: | <u>07/15/2016 9:10</u> |
| Number of Packages: | <u>2</u> | Number of Projects: | <u>1</u> |
| State/Province of Origin: | <u>CA</u> | | |

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace \geq 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 10:14 on 07/15/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 3.1 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 2.4 | IR | Wet | Y | Loose | N |

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m3 | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

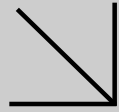
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

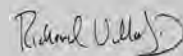

WORK ORDER NUMBER: 16-07-1458
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
Work Order Number: 16-07-1458

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| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
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| 6 | 16-07-1458 EPA 8315 Formaldehyde and EPA 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/14/16. They were assigned to Work Order 16-07-1458.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1458 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/14/16 09:10 |
| | Number of Containers: 8 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| RD05AGW01S006 | 16-07-1458-1 | 07/13/16 10:15 | 4 | Aqueous |
| RD05BGW01S007 | 16-07-1458-2 | 07/13/16 13:00 | 4 | Aqueous |

Glossary of Terms and Qualifiers

Work Order: 16-07-1458

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| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053 | 168 2677 | 84721395-96

16-07-1458

CH2MHILL

Chain of Custody Record COC Number: CALS07131602

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---------------|------------------|------|----------------|-------------------|---------|
| RD06AGW01S006 | 13-Jul-16 10:15 | N | Water | | |
| Formaldehyde | | | Field Filtered | 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered | 2 | 4°C |
| | | | | Total Containers: | 4 |
| RD05BGW01S007 | 13-Jul-16 13:00 | N | Water | | |
| Formaldehyde | | | Field Filtered | 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered | 2 | 4°C |
| | | | | Total Containers: | 4 |

SW8315A
SW8315

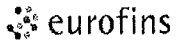
MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Michael Allen* Signatures Date/Time 7/13/16 1500
 Sampled by *Michael Allen*
 Relinquished by *Michael Allen*
 Received by *Kristen Z...*
 Relinquished by
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: Lancaster Laboratories
 Lab Phone: (318) 618-8889

ATTN:
Sample Custody
and
Kay Hower

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929



Lancaster Laboratories
Environmental

**Sample Administration
Receipt Documentation Log**

Doc Log ID: 153764

Group Number(s): **1682677**

Client: CH2M Hill

Delivery and Receipt Information

| | | | |
|---------------------------|---------------|---------------------|------------------------|
| Delivery Method: | <u>Fed Ex</u> | Arrival Timestamp: | <u>07/14/2016 9:10</u> |
| Number of Packages: | <u>1</u> | Number of Projects: | <u>1</u> |
| State/Province of Origin: | <u>CA</u> | | |

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace \geq 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 10:10 on 07/14/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp)* All Temperatures in °C.

| <u>Cooler #</u> | <u>Thermometer ID</u> | <u>Corrected Temp</u> | <u>Therm. Type</u> | <u>Ice Type</u> | <u>Ice Present?</u> | <u>Ice Container</u> | <u>Elevated Temp?</u> |
|-----------------|-----------------------|-----------------------|--------------------|-----------------|---------------------|----------------------|-----------------------|
| 1 | 32170023 | 4.5 | IR | Wet | Y | Loose | N |

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SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: _____

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) reserved for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na₂} 100PJ 100PJ_{na₂} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na₂} 1AGB_s 1PB 1PB_{na} _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____
s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn(CH₃CO₂)₂ + NaOH Reviewed by: _____

Invoice only

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Work Order: 16-07-1458

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One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1458

Submittal Date: 07/14/2016

Group Number: 1682677

SDG: CSF12

PO Number: 16-07-1458

State of Sample Origin: CA

Lancaster Labs

(LL) #

8474395

8474396

Client Sample Description

RD05AGW01S006 Water

RD05BGW01S007 Water

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

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11053 | 1682677 | 8472395-96

Chain of Custody Record

COC Number: **CALS07131602**

CH2MHILL

7/13/2016 2:18:37 PM

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Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | SW8315 | SW8315A | | | | | | | | | | | | | | | | |
|--------------------------|------------------|-------|----------------|--------------------------|----------|--------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| RD05AGW01S006 | 13-Jul-16 | 10:15 | N | Water | | | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1,1-DMH, UDMH | | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Total Containers: | | | | | 4 | | | | | | | | | | | | | | | | | | |
| RD05BGW01S007 | 13-Jul-16 | 13:00 | N | Water | | | | | | | | | | | | | | | | | | | |
| Formaldehyde | | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1,1-DMH, UDMH | | | Field Filtered | <input type="checkbox"/> | 2 | 4°C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Total Containers: | | | | | 4 | | | | | | | | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | |
|--|---|--|---|--|
| <p>Approved by <i>Metal Clem</i></p> <p>Sampled by <i>Metal Clem</i></p> <p>Relinquished by <i>Metal Clem</i></p> <p>Received by _____</p> <p>Relinquished by _____</p> <p>Received by <i>Kristen Z...</i></p> | <p>Signatures</p> <p>Date/Time</p> <p>7/13/16 1500</p> <p>↓ ↓</p> <p>7/14/16 0910</p> | <p>Shipping Details</p> <p>Method of Shipment: FedEx</p> <p>On Ice: (yes) / no</p> <p>Airbill No: _____</p> <p>Lab Name: Lancaster Laboratories</p> <p>Lab Phone: (318) 618-8889</p> | <p>ATTN:</p> <p>Sample Custody</p> <p>and</p> <p>Kay Hower</p> | <p>Special Instructions:</p> <p>CH582 PO: 100067101891</p> <p>CH614 PO 100067103941</p> <p>Report Copy to</p> <p>Jon Freed</p> <p>(208) 660-4929</p> |
|--|---|--|---|--|

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Client: CH2M Hill

Delivery and Receipt Information

| | | | |
|---------------------------|---------------|---------------------|------------------------|
| Delivery Method: | <u>Fed Ex</u> | Arrival Timestamp: | <u>07/14/2016 9:10</u> |
| Number of Packages: | <u>1</u> | Number of Projects: | <u>1</u> |
| State/Province of Origin: | <u>CA</u> | | |

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace \geq 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Kristin Zeigler (2123) at 10:10 on 07/14/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 4.5 | IR | Wet | Y | Loose | N |

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

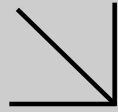
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



WORK ORDER NUMBER: 16-07-1587

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/03/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1587

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/22/16. They were assigned to Work Order 16-07-1587.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

EPA 6020: For 7/29/16 data set - Secondary ICV (M120215A.066) was performed after the ICS analysis, opening ICV (M120215A.055) was performed though target analytes were missing. All batch QC is in control, no further action taken.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD $> 10\%$. All batch QC is in control, no further action taken.

SM 5310 B TOC: One or more samples have a replicate RSD $> 10\%$ which is being attributed to suspected matrix interference. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1587 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/22/16 18:00 |
| | Number of Containers: 257 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| C5GW04S002 | 16-07-1587-1 | 07/22/16 09:30 | 31 | Aqueous |
| C5GW05D002 | 16-07-1587-2 | 07/22/16 09:40 | 31 | Aqueous |
| C5GW05S002 | 16-07-1587-3 | 07/22/16 09:40 | 31 | Aqueous |
| C5GW06S002 | 16-07-1587-4 | 07/22/16 09:50 | 31 | Aqueous |
| CAQW2456Q001 | 16-07-1587-5 | 07/22/16 07:00 | 9 | Aqueous |
| ND132GW03S002 | 16-07-1587-6 | 07/22/16 10:00 | 31 | Aqueous |
| ND132GW04S002 | 16-07-1587-7 | 07/22/16 10:30 | 31 | Aqueous |
| ND132GW05S002 | 16-07-1587-8 | 07/22/16 11:00 | 31 | Aqueous |
| ND137AGW01S002 | 16-07-1587-9 | 07/22/16 10:00 | 31 | Aqueous |



Calscience

Sample Analysis Summary Report

Work Order: 16-07-1587

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 9 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 682 | GC 46 | 1 |
| EPA 8015B (M) | EPA 5030C | 715 | GC 24 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 929 | GC 52 | 2 |
| RSK-175M | N/A | 1074 | GC 14 | 2 |
| RSK-175M | N/A | 1074 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 650 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 8 | 1 |

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1587

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: **CALS07221601**

7/22/2016 2:26:37 PM Page 1 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|-----------------|--------------|--------------------------|
| C5GW04S002 | 22-Jul-16 | 9:30 | N | Water | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4C | | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4C | | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/21/16 18:00
Sampled by *[Signature]*
Relinquished by *[Signature]* **Airbill No:** 702116
Received by *[Signature]* **Lab Name:** CalScience
Relinquished by *[Signature]* **Lab Phone:** (949) 870-8766
Received by *[Signature]* **Lab Phone:** (949) 870-8766

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Method of Shipment: FedEx

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

1887

Chain of Custody Record COC Number: **CALS07221601**

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|--------------|
| TDS | | Field Filtered: | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4°C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered: | | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

| | | | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|------------------------------------|---------------|
| Approved by <i>[Signature]</i> | 7/22/16 15:00 |
| Sampled by <i>[Signature]</i> | 7/22/16 15:00 |
| Relinquished by <i>[Signature]</i> | 7/22/16 18:00 |
| Received by <i>[Signature]</i> | 7/22/16 18:00 |
| Relinquished by <i>[Signature]</i> | 7/22/16 18:00 |
| Received by <i>[Signature]</i> | 7/22/16 18:00 |

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No: *[Handwritten]*
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601**

CH2M HILL 7/22/2016 2:26:38 PM Page 3 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

2

22-Jul-16 9:40 N Water

C5GW05D002

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | SW9060 | SW9050 | SW8260BSIM-LL | SW8260B | SW8015-P | SW8015B | SW6010F/6020 | SW6010F | SW6010B/6020 | SW1625M-LL | SM3500-Fe-D | SM2540C | RSK175M | RSK175 | E376.2 | A2320B | 504.1 | 300.0 |
|--------------------------|------------------|------|--------|---|------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| Alkalinity | | | | Field Filtered: <input type="checkbox"/> 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| CO2 | | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1,4-Dioxane LL | | | | Field Filtered: <input type="checkbox"/> 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Methane, ethane, ethene | | | | Field Filtered: <input type="checkbox"/> 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mn | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ferrous Iron | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SO4, Cl, NO3, F | | | | Field Filtered: <input type="checkbox"/> 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Conductivity | | | | Field Filtered: <input type="checkbox"/> 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sulfide | | | | Field Filtered: <input type="checkbox"/> 1 | NaOH, ZnAc, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TOC | | | | Field Filtered: <input type="checkbox"/> 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | | | | Field Filtered: <input type="checkbox"/> 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NDMA - LL | | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/22/16 15:00
Sampled by *[Signature]*
Relinquished by *[Signature]* **Airbill No:** 601 7/22/16 15:00
Received by *[Signature]* **Lab Name:** CalScience
Relinquished by *[Signature]* **Lab Phone:** (949) 870-8766
Received by *[Signature]* **Date/Time** 7/22/16 18:00

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601**

EFH Hill

7/22/2016 2:26:38 PM

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Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|--|--------|--------------|---------|
| TDS | | Field Filtered: <input type="checkbox"/> | 1 | 4°C | |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: <input type="checkbox"/> | 2 | 4°C | |
| VOCs full list | | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | |
| EDB/DBCP | | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | |
| Report Carbon Ranges | | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | |
| Total Containers: | | | | | 31 |

| | | | | | | | | | | |
|---------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time *7/22/16 15:00*
 Sampled by *[Signature]*
 Relinquished by *[Signature]* Date/Time *7/22/16 15:00*
 Received by *[Signature]* Date/Time *7/22/16 15:00*
 Relinquished by *[Signature]* Date/Time *7/22/16 15:00*
 Received by *[Signature]* Date/Time *7/22/16 15:00*

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

1589

Chain of Custody Record

COC Number: CALS07221601

7/22/2016 2:26:38 PM

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Project Name SSFL Location Santa Susana Field Lab
Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID C5GW05S002 Sample Date/Time 22-Jul-16 9:40 N Water

Table with columns: Parameter, Field Filtered, Matrix, Containers, Type, Matrix, # Containers, Preserv, and multiple checkboxes for analysis results.

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by [Signature] Date/Time 7/22/16 15:05
Sampled by [Signature] Date/Time 7/22/16 18:00
Relinquished by [Signature] Date/Time 7/22/16 18:00
Received by [Signature] Date/Time 7/22/16 18:00
Relinquished by [Signature] Date/Time 7/22/16 18:00
Received by [Signature] Date/Time 7/22/16 18:00

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro

Special Instructions:
CH582 PO: 100067101891
CH614 PO: 100067103941
Report Copy to Jon Freed (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

TDS Field Filtered: 1 4°C

Report Carbon Ranges incl. EFH C8-C30 Total Field Filtered: 2 4°C

VOCs full list Field Filtered: 3 HCL pH<2.4C

EDB/DBCP Field Filtered: 3 Na2S2O3, 4°C

Report Carbon Ranges Field Filtered: 3 HCL pH<2.4C

Total Containers: 31

| | | | | | |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/22/16 15:00
 Sampled by *[Signature]*
 Relinquished by *[Signature]* Date/Time 7/22/16 15:00
 Received by *[Signature]* Date/Time 7/22/16 18:00
 Relinquished by *[Signature]* Date/Time 7/22/16 18:00
 Received by *[Signature]* Date/Time 7/22/16 18:00

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No: 600
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN: Sample Custody and Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to Jon Freed (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601** ~~CONFIDENTIAL~~ 7/22/2016 2:26:39 PM Page 7 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------|--------------------------|
| C5GW06S002 | 22-Jul-16 | 9:50 | N | Water | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2, 4C | | <input type="checkbox"/> |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2, 4C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |

MS = Matrix Spike **SD = Matrix Spike Duplicate**

Signatures **Date/Time**

Approved by *[Signature]* 7/22/16 15:00
 Sampled by *[Signature]* 7/22/16 18:00
 Relinquished by *[Signature]* 7/22/16 18:00
 Received by *[Signature]* 7/22/16 18:00
 Relinquished by *[Signature]* 7/22/16 18:00
 Received by *[Signature]* 7/22/16 18:00

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601**

FFHILL 7/22/2016 2:26:39 PM Page 8 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|-------------|
| TDS | | Field Filtered: | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4°C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered: | | 3 | Na2S2O3, 4C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |
| CAQW2456Q001 | 22-Jul-16 | 7:00 | N | Water | |
| 1,4-Dioxane LL | | Field Filtered: | | 3 | HCL pH<2.4C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 9 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by **Date/Time** 7/22/16 15:00
Sampled by **Method of Shipment:** FedEx
Relinquished by **On Ice:** yes / no
Received by **Airbill No:**
Relinquished by **Lab Name:** CalScience
Received by **Lab Phone:** (949) 870-8766

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601**

CH2M HILL

7/22/2016 2:26:39 PM Page 9 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

ND132GW03S002

22-Jul-16 10:00 N Water

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | SW9060 | SW9050 | SW8260BSIM-LL | SW8260B | SW8015-P | SW8015B | SW6010F/6020 | SW6010F | SW6010B/6020 | SW1625M-LL | SM3500-Fe-D | SM2540C | RSK175M | RSK175 | E376.2 | A2320B | 504.1 | 300.0 |
|--------------------------|------------------|-----------------|-------------------------------------|--------------|-----------------|--------|--------|-------------------------------------|---------|----------|---------|--------------|---------|--------------|------------|-------------|---------|---------|--------|--------|--------|-------|-------|
| Alkalinity | | Field Filtered: | | 1 | 4C | | | | | | | | | | | | | | | | | | |
| CO2 | | Field Filtered: | | 2 | 4C | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane LL | | Field Filtered: | | 3 | HCL pH<2.4C | | | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| Methane, ethane, ethene | | Field Filtered: | | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | | | | | | | | | | | | | | | | | |
| Mn | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4C | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C | | | | | | | | | | | | | | | | | | |
| SO4, Cl, NO3, F | | Field Filtered: | | 1 | 4C | | | | | | | | | | | | | | | | | | |
| Conductivity | | Field Filtered: | | 1 | 4C | | | | | | | | | | | | | | | | | | |
| Sulfide | | Field Filtered: | | 1 | NaOH, ZnAc, 4C | | | | | | | | | | | | | | | | | | |
| TOC | | Field Filtered: | | 1 | H2SO4, pH<2, 4C | | | | | | | | | | | | | | | | | | |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: | | 1 | HNO3, 4C | | | | | | | | | | | | | | | | | | |
| NDMA - LL | | Field Filtered: | | 2 | 4C | | | | | | | | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/22/16 15:00
Sampled by *[Signature]*
Relinquished by *[Signature]* **Airbill No:** 50
Received by *[Signature]* **Lab Name:** CalScience
Relinquished by *[Signature]* **Lab Phone:** (949) 870-8766
Received by *[Signature]*

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record

COC Number: CALS07221601

7/22/2016 2:26:39 PM

Page 10 of 16

Project Name SSFL Location Santa Susana Field Lab
Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|-------------|
| TDS | | Field Filtered: | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4°C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered: | | 3 | Na2S2O3, 4C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by: [Signature] Date/Time: 7/22/16 15:00
 Sampled by: [Signature] Date/Time: 7/22/16 18:00
 Relinquished by: [Signature] Date/Time: 7/22/16 18:00
 Received by: [Signature] Date/Time: 7/22/16 18:00
 Relinquished by: [Signature] Date/Time: 7/22/16 18:00
 Received by: [Signature] Date/Time: 7/22/16 18:00

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:

Sample Custody
and
Michele Castro

Special Instructions:

CH582 PO: 100067101891
CH614 PO: 100067103941

Report Copy to
Jon Freed
(208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601** **CHILL** 7/22/2016 2:26:39 PM Page 11 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**
ND132GW04S002 22-Jul-16 10:30 N Water

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | Alkalinity | CO2 | 1,4-Dioxane LL | Methane, ethane, ethene | Ba, B, Ca, Mg, K, Na, Sr | Mh | Ferrous Iron | SO4, Cl, NO3, F | Conductivity | Sulfide | TOC | Ba, B, Ca, Mg, K, Na, Sr | NDMA - LL |
|---------------|------------------|------|--------|--------------|-------------|--|-----|----------------|-------------------------|--------------------------|----|--------------|-----------------|--------------|---------|-----|--------------------------|-----------|
| SW9060 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW9050 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| SW8260BSIM-LL | | | | | HCL pH<2,4C | Field Filtered: <input type="checkbox"/> | 3 | | | | | | | | | | | |
| SW8260B | | | | | HCL pH<2,4C | Field Filtered: <input type="checkbox"/> | 3 | | | | | | | | | | | |
| SW8015-P | | | | | HNO3, 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW8015B | | | | | HNO3, 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW6010F/6020 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW6010F | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW6010B/6020 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SW1625M-LL | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SM3500-Fe-D | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 1 | | | | | | | | | | | |
| SM2540C | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| RSK175M | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| RSK175 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| E376.2 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| A2320B | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| 504.1 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |
| 300.0 | | | | | 4°C | Field Filtered: <input type="checkbox"/> | 2 | | | | | | | | | | | |

MS = Matrix Spike **SD = Matrix Spike Duplicate**

Approved by *[Signature]* **Date/Time** 7/22/16
Sampled by *[Signature]* 7/22/16 15:00
Relinquished by *[Signature]* 7/22/16 18:00
Received by *[Signature]* 7/22/16 18:00
Relinquished by *[Signature]* 7/22/16 18:00
Received by *[Signature]* 7/22/16 18:00

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

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1587

Chain of Custody Record COC Number: **CALS07221601**

CH2M HILL 7/22/2016 2:26:39 PM Page 12 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|--------------|
| TDS | | Field Filtered: | | 1 | 4°C |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | | 2 | 4°C |
| VOCs full list | | Field Filtered: | | 3 | HCL pH<2.4C |
| EDB/DBCP | | Field Filtered: | | 3 | Na2S2O3, 4°C |
| Report Carbon Ranges | | Field Filtered: | | 3 | HCL pH<2.4C |
| Total Containers: | | | | 31 | |

| | | | | | | | | | | |
|---------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| 300.0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 504.1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| A2320B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E376.2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RSK175M | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM2540C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SM3500-Fe-D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW1625M-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010B/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW6010F/6020 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015B | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8015-P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW8260BSIM-LL | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9050 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| SW9060 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time |
|--------------------|---------------|
| <i>[Signature]</i> | 7/22/16 15:00 |
| <i>[Signature]</i> | 7/22/16 15:00 |
| <i>[Signature]</i> | 7/22/16 18:00 |
| <i>[Signature]</i> | 7/22/16 18:00 |

Approved by _____
Sampled by _____
Relinquished by _____
Received by _____
Relinquished by _____
Received by _____

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No: _____
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601** **Cancelled** 7/22/2016 2:26:39 PM Page 13 of 16

Project Name **SSF** Location **Santa Susana Field Lab**
 Task Order **582** Project **3Q2016 SA/PCP & AIG GWS**
 Project Number **654377.82.LB**
 Project Manager **Jeremy Hilliard**
 Sample Manager **Jamie Beckett** (530) 570-5084
 Turnaround Time **10 Days**
 PO Number **100067101891**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|-------|------------------|--------------|---------|
| ND132GW05S002 | 22-Jul-16 | 11:00 | N | Water | |
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| COD | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Signatures
 Approved by: *[Signature]* Date/Time: *7/22/16 15:00*
 Sampled by: *[Signature]*
 Relinquished by: *[Signature]* Airbill No.: *Eu 7/22/16 15:00*
 Received by: *[Signature]* Lab Name: *CalScience*
 Relinquished by: *[Signature]* Lab Phone: *(949) 870-8766*
 Received by: *[Signature]*

Shipping Details

Method of Shipment: **FedEx**
 On Ice: **yes / no**
 Airbill No.: *Eu 7/22/16 15:00*
 Lab Name: **CalScience**
 Lab Phone: **(949) 870-8766**

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

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1587

Chain of Custody Record COC Number: CALS07221601 **CERRILL** 7/22/2016 2:26:40 PM Page 14 of 16

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|--|------|--------------|--------------|--------------------------|
| TDS | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Report Carbon Ranges Incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| EDB/BCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | | <input type="checkbox"/> |
| Report Carbon Ranges | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Total Containers: | | | | 31 | |

| MS = Matrix Spike | SD = Matrix Spike Duplicate | Signatures | Date/Time | Shipping Details | Special Instructions: |
|-------------------|-----------------------------|--------------------|--------------|--|---|
| Approved by | <i>[Signature]</i> | <i>[Signature]</i> | 7/21/16 5:00 | Method of Shipment: FedEx | ATTN: Sample Custody and Michele Castro |
| Sampled by | <i>[Signature]</i> | <i>[Signature]</i> | 7/21/16 5:00 | On Ice: yes / no | |
| Relinquished by | <i>[Signature]</i> | <i>[Signature]</i> | 7/21/16 5:00 | Airbill No: | |
| Received by | <i>[Signature]</i> | <i>[Signature]</i> | 7/21/16 5:00 | Lab Name: CalScience | |
| Received by | <i>[Signature]</i> | <i>[Signature]</i> | 7/21/16 5:00 | Lab Phone: (949) 870-8766 | |
| | | | | Report Copy to Jon Freed (208) 660-4929 | |



1587

Chain of Custody Record COC Number: **CALS07221601**

CH2M HILL 7/22/2016 2:26:40 PM Page 15 of 16

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

9

ND137AGW01S002

22-Jul-16 10:00 N Water

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | 300.0 | 504.1 | A2320B | E376.2 | RSK175 | RSK175M | SM2540C | SM3500-Fe-D | SW1625M-LL | SW6010B/6020 | SW6010F | SW6010F/6020 | SW8015B | SW8015-P | SW8260B | SW8260BSIM-LL | SW9050 | SW9060 | |
|--------------------------|---|------|------------------|--------------|---------|-------|-------|--------|--------|--------|---------|---------|-------------|------------|--------------|---------|--------------|---------|----------|---------|---------------|--------|--------|--|
| Alkalinity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | | | | | | | | | | | | | | | | | | | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | | | | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | | | | | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | | | | | | | | | | | | | | | | | | | | |
| Mh | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | | | | | | | | | | | | | | | | | | | | |
| SO4, Cl, NO3, F | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | | | | | | | | | | | | | | | | | | | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | | | | | | | | | | | | | | | | | | | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | | | | | | | | | | | | | | | | | | | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | | | | | | | | | | | | | | | | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by _____ **Date/Time** 7/21/16 15:20
Sampled by _____
Relinquished by _____ **Airbill No.** 7/21/16 15:00
Received by _____ **Lab Name:** CalScience
Relinquished by _____ **Lab Name:** CalScience
Received by _____ **Lab Name:** CalScience
Lab Phone: (949) 870-8766

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Shipping Details

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

1587

Chain of Custody Record COC Number: **CALS07221601** **LABBILL** 7/22/2016 2:26:40 PM Page 16 of 16

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

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| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|-----------|
| TDS | | Field Filtered: | 1 | 4°C | |
| Report Carbon Ranges incl. EFH C8-C30 Total | | Field Filtered: | 2 | 4°C | |
| VOCs full list | | Field Filtered: | 3 | HCL pH<2.4C | |
| EDB/BCP | | Field Filtered: | 3 | Na2S2O3, 4°C | |
| Report Carbon Ranges | | Field Filtered: | 3 | HCL pH<2.4C | |
| Total Containers: | | | | | 31 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Signatures Date/Time

Approved by *[Signature]* 7/22/16 15:00
 Sampled by *[Signature]* 7/22/16 15:00
 Relinquished by *[Signature]* 7/22/16 15:00
 Received by *[Signature]* 7/22/16 18:00
 Relinquished by *[Signature]* 7/22/16 18:00
 Received by *[Signature]* 7/22/16 18:00

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 4

CLIENT: CHZM

DATE: 07 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA²h VOA¹²na₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB³

125PBz²na 250AGB 250CGB 250CGBs 250PB 250PBn² 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB⁴ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

s = H₂SO₄, u = ultra-pure, z²na = Zn(CH₃CO₂)₂ + NaOH

Labeled/Checked by: 804/1053

Reviewed by: 1053/659

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 4

CLIENT: CHZM

DATE: 07 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.5 °C (w/ CF): 3.5 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation Yes No N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn_p 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB_n _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 619

SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 4

CLIENT: CHZM

DATE: 07 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation Yes No N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn_p 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB_n _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 619



SAMPLE RECEIPT CHECKLIST

COOLER 4 OF 4

CLIENT: CH2M

DATE: 07 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 804

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 1053

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation Yes No N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn_f 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PBn _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) : _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 1059



SAMPLE ANOMALY REPORT

DATE: 07 / 22 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|---------------------|----------------|---------------|------------------------|----------------|
| 2 | G, H, I | 12 | 8 | A, F, G, I | 12 |
| 3 | E, F, K, L | 12 | 9 | A, C, H, I, J, K, L, P | 12 |
| 5 | A, C, F, G, H, I | 12 | 6 | H, I | 12 |
| 7 | D, E, F, H, I, J, L | 12 | | | |

Comments

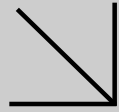
(-) collection time per label
 9:50

Comments

Comments: _____

Reported by: 802/1053
 Reviewed by: 659

** Record the total number of containers (i.e., vials or bottles) for the affected sample.



WORK ORDER NUMBER: 16-07-1588

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/03/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-07-1588

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/22/16. They were assigned to Work Order 16-07-1588.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

EPA 6020: For 7/29/16 data set - Secondary ICV (M120215A.066) was performed after the ICS analysis, opening ICV (M120215A.055) was performed though target analytes were missing. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1588 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/22/16 18:00 |
| | Number of Containers: 7 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| RD41BGW01S008 | 16-07-1588-1 | 07/22/16 14:30 | 7 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1588

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |

Glossary of Terms and Qualifiers

Work Order: 16-07-1588

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1588

Chain of Custody Record COC Number: **CALS07221602** **COLUMBIA** 7/22/2016 2:28:09 PM Page 1 of 1

Project Name: SSFL **Location:** Santa Susana Field Lab
Task Order: 614 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number: 666267.14.Q3.FW
Project Manager: Jeremy Hilliard
Sample Manager: Jamie Beckett (530) 570-5084
Turnaround Time: 10 Days
PO Number: 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv | | | | | | | | | | | | | | | | | |
|-------------------------------|------------------|-------|-----------------|-------------------------------------|---------|--------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| RD41BGW01S008 | 22-Jul-16 | 14:30 | N | Water | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane LL | | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | |
| Ca, Fe, Mg, Mn, K, Na, Sr, Zn | | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | | | | | | | | | | | | | | | |
| VOCs full list | | | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | | | | | | | | | | | | | | | | |
| | | | | | | Total Containers: | 7 | | | | | | | | | | | | | | | |

SW6010F/6020 SW8260B SW8260BSIM-LL

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Method of Shipment: | FedEx | Shipping Details | Special Instructions: |
|------------|---------------|---------------------|----------------|-----------------------------------|---|
| | 7/22/16 | On Ice: yes / no | | Sample Custody and Michele Castro | CH582 PO: 100067101891 CH614 PO 100067103941 |
| | 7/22/16 15:00 | Airbill No: | | | Report Copy to Jon Freed (208) 660-4929 |
| | 7/22/16 18:00 | Lab Name: | CalScience | | |
| | 7/22/16 18:00 | Lab Phone: | (949) 870-8766 | | |

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CH2M

DATE: 07 / 22 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 778

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) : _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 778
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 804

Return to Contents

SAMPLE ANOMALY REPORT

DATE: 07 / 22 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Comments: _____

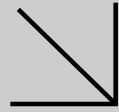
** Record the total number of containers (i.e., vials or bottles) for the affected sample.

Comments

Comments

Reported by: 728
 Reviewed by: *sn*



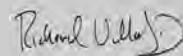

WORK ORDER NUMBER: 16-07-1633
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
Work Order Number: 16-07-1633

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| 6 | 16-07-1633 EPA 8315 Formaldehyde and 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/19/16. They were assigned to Work Order 16-07-1633.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1633 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/19/16 09:25 |
| | Number of Containers: 8 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR21GW01S006 | 16-07-1633-1 | 07/18/16 12:30 | 4 | Aqueous |
| HAR23GW01S006 | 16-07-1633-2 | 07/18/16 11:00 | 4 | Aqueous |

Glossary of Terms and Qualifiers

Work Order: 16-07-1633

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053 1684345 8480522-23

Chain of Custody Record COC Number: **CALS07181604** **CH2MHILL** 7/18/2016 1:57:44 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project 3C2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

16-07-1633

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------|------------------|------|----------------|----------------------------|---------|
| HAR21GW01S006 | 18-Jul-16 12:30 | N | Water | | |
| Formaldehyde | | | Field Filtered | <input type="checkbox"/> 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered | <input type="checkbox"/> 2 | 4°C |
| | | | | Total Containers: | 4 |
| HAR23GW01S006 | 18-Jul-16 11:00 | N | Water | | |
| Formaldehyde | | | Field Filtered | <input type="checkbox"/> 2 | 4°C |
| Hydrazine, MMH, UDMH | | | Field Filtered | <input type="checkbox"/> 2 | 4°C |
| | | | | Total Containers: | 4 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell* Date/Time 7/18/16 1500
 Sampled by *Mitchell*
 Relinquished by *Mitchell*
 Received by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* 7/19/16 9:15

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: Lancaster Laboratories
 Lab Phone: (310) 618-8889

ATTN:
 Sample Custody
 and
 Kay Howser

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

Client: CH2M Hill

1633

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/19/2016 9:25
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Timothy Cubberley (6520) at 11:37 on 07/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 2.1 | IR | Wet | Y | Loose | N |

SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: CH2M Hill

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) : _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____

s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn(CH₃CO₂)₂ + NaOH Reviewed by: _____

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Work Order: 16-07-1633

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster, PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1633

Submittal Date: 07/19/2016

Group Number: 1684345

SDG: CSF15

PO Number: 16-07-1633

State of Sample Origin: CA

Lancaster Labs

(LL) #

8480522

8480523

Client Sample Description

HAR21GW01S006 Water

HAR23GW01S006 Water

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/19/2016 9:25
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Timothy Cubberley (6520) at 11:37 on 07/19/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 2.1 | IR | Wet | Y | Loose | N |

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m3 | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

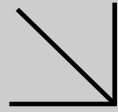
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



WORK ORDER NUMBER: 16-07-1634

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/17/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

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| 6 | 16-07-1634 EPA 8315 Formaldehyde and 8315(M) Hydrazines. | 10 |

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Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|--|
| Client: CH2M HILL | Work Order: 16-07-1634 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/20/16 09:30 |
| | Number of Containers: 12 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR08GW01S007 | 16-07-1634-1 | 07/19/16 09:30 | 4 | Aqueous |
| HAR11GW01S007 | 16-07-1634-2 | 07/19/16 12:00 | 4 | Aqueous |
| RD49CGW01S006 | 16-07-1634-3 | 07/19/16 12:00 | 4 | Aqueous |

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
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| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

A-11053 G-1654818 S-8483306-08

Chain of Custody Record COC Number: CALS07191603

CH2MHILL

7/19/2016 2:43:00 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3C2016 SA/PCP & AIG GWS
 Project Number 664377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

16-07-1634

SW8315A
SW8315

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---------------|------------------|-------|--|---------------------|--------------------------|
| HAR08GW01S007 | 19-Jul-16 | 9:30 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| | | | | Total Containers: 4 | |
| HAR11GW01S007 | 19-Jul-16 | 12:00 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| | | | | Total Containers: 4 | |
| RD49CGW01S006 | 19-Jul-16 | 12:00 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> 2 | 4°C | <input type="checkbox"/> |
| | | | | Total Containers: 4 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Mitchell Date/Time 7/19/16 1500
 Sampled by Mitchell
 Relinquished by Mitchell
 Received by [Signature]
 Relinquished by [Signature]
 Received by [Signature] 7/20/16 930

Shipping Details

Method of Shipment: FedEx
 On Ice: Yes / No
 Alrbill No:
 Lab Name: Lancaster Laboratories
 Lab Phone: (318) 618-8889

ATTN:

Sample Custody
and
Kay Hower

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
Jon Freed
(208) 660-4929



Lancaster Laboratories
Environmental

Sample Administration
Receipt Documentation Log

Doc Log ID: 154381

Group Number(s):

1634
1684818

Client: CH2MHILL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/20/2016 9:30
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Joseph Huber (7831) at 10:45 on 07/20/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp)* *All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 0.2 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 0.3 | IR | Wet | Y | Loose | N |

SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: CH2M Hill

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, **Labeled/Checked by:** _____

s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn(CH₃CO₂)₂ + NaOH **Reviewed by:** _____

FOR INVOICE ONLY

Return to Contents

Work Order: 16-07-1634

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1634

Submittal Date: 07/20/2016
Group Number: 1684818
SDG: CSF16
PO Number: 16-07-1634
State of Sample Origin: CA

Client Sample Description

HAR08GW01S007 Water
HAR11GW01S007 Water
RD49CGW01S006 Water

Lancaster Labs

(LL) #
8483306
8483307
8483308

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

Client: CH2MHILL

1684818

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/20/2016 9:30
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Joseph Huber (7831) at 10:45 on 07/20/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 0.2 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 0.3 | IR | Wet | Y | Loose | N |

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

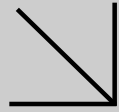
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



WORK ORDER NUMBER: 16-07-1663

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/04/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-07-1663

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/25/16. They were assigned to Work Order 16-07-1663.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

EPA 6020: For 7/29/16 data set - Secondary ICV (M120215A.066) was performed after the ICS analysis, opening ICV (M120215A.055) was performed though target analytes were missing. All batch QC is in control, no further action taken.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1663 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/25/16 17:45 |
| | Number of Containers: 13 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2457Q001 | 16-07-1663-1 | 07/25/16 07:00 | 6 | Aqueous |
| RD41AGW01S006 | 16-07-1663-2 | 07/25/16 08:45 | 7 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1663

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 6020 | EPA 3005A Filtr. | 598 | ICP/MS 03 | 1 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1663

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: **CALS07251601** **CH2MHILL** 7/25/2016 2:08:21 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

16-07-1663

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|-------------------------------|------------------|----------------|-------------------------------------|--------------|-------------|
| CAQW2457Q001 ① | 25-Jul-16 | 7:00 | N | Water | |
| 1,4-Dioxane LL | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| VOCs full list | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: 6 | | | | | |
| RD41AGW01S006 ② | 25-Jul-16 | 8:45 | N | Water | |
| 1,4-Dioxane LL | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Ca, Fe, Mg, Mn, K, Na, Sr, Zn | | Field Filtered | <input checked="" type="checkbox"/> | 1 | HNO3, 4C |
| VOCs full list | | Field Filtered | <input type="checkbox"/> | 3 | HCL pH<2.4C |
| Total Containers: 7 | | | | | |

SW8260BSIM-LL
 SW8260B
 SW6010F/6020

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|-----------------|---------------|---------------------------|
| Approved by | 7/25/16 15:00 | Method of Shipment: FedEx |
| Sampled by | | On Ice: yes / no |
| Relinquished by | | Airbill No: |
| Received by | 7/25/16 15:00 | Lab Name: CalScience |
| Relinquished by | 7/25/16 17:45 | Lab Phone: (949) 870-8766 |
| Received by | 7/25/16 17:45 | |

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
 and
 Michele Castro

Report Copy to

Jon Freed
 (208) 660-4929

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CH2M Hill

DATE: 07/25/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 603

| SAMPLE CONDITION: | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_z 250AGB 250CGB 250CGB_s 250PB 250PB_h 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: 603
s = H₂SO₄, **u** = ultra-pure, **z** = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 360

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SAMPLE ANOMALY REPORT

DATE: 07 / 25 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

MISCELLANEOUS: (Describe)

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| 1 | B-F | 6 | | | |
| | | | | | |
| | | | | | |
| | | | | | |

(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| | | | |
| | | | |
| | | | |
| | | | |

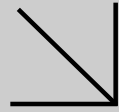
Comments: _____

Comments

Reported by: 603
 Reviewed by: 300

** Record the total number of containers (i.e., vials or bottles) for the affected sample.





WORK ORDER NUMBER: 16-07-1756

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/09/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-07-1756

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| 2 | Sample Summary. | 4 |
| 3 | Client Sample Data. | 5 |
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| | 3.2 EPA 8330 Nitroaromatics and Nitramines (Aqueous). | 6 |
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| | 4.1 MS/MSD. | 9 |
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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/26/16. They were assigned to Work Order 16-07-1756.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1756 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/26/16 18:42 |
| | Number of Containers: 18 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR19GW01S016 | 16-07-1756-1 | 07/26/16 11:00 | 18 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1756

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| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 960 | HPLC 7 | 1 |

Glossary of Terms and Qualifiers

Work Order: 16-07-1756

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| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1756

7/26/2016 1:02:28 PM Page 1 of 2

Chain of Custody Record COC Number: **CALS07261602** **CH2MHILL**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------------|------------------|-----------------|-------------------------------------|--------------|---------|
| HAR19GW01S016 | 26-Jul-16 11:00 | N | Water | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| incl. Phthalates | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| Perchlorate | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4°C |
| Perchlorate - HOLD | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4°C |
| Total Containers: 6 | | | | | |
| HAR19GW01S016MS | 26-Jul-16 11:00 | MS | Water | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| incl. Phthalates | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| Perchlorate | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4°C |
| Perchlorate - HOLD | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4°C |
| Total Containers: 6 | | | | | |

8270CSIM
 E314.1
 SW6850
 SW8330A

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Cleary* Date/Time 7/26/16 1500
 Sampled by *Matt Cleary*
 Relinquished by *Matt Cleary*
 Received by *EU* Date/Time 7/26/16 1500
 Relinquished by *EU* Date/Time 7/26/16 1800
 Received by *FCI* Date/Time 07/26/16 1842

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

1796

Chain of Custody Record COC Number: **CALS07261602**

7/26/2016 1:02:28 PM Page 2 of 2

CH2MHILL

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 614 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------------|------------------|---|--------|----------------------------|---------|
| HAR19GW01S016SD | 26-Jul-16 11:00 | SD | Water | | |
| Nitrobenzene, 1,3-Dinitrobenzene | | Field Filtered: <input type="checkbox"/> | | 2 | 4°C |
| incl. Phthalates | | Field Filtered: <input type="checkbox"/> | | 2 | 4°C |
| Perchlorate | | Field Filtered: <input checked="" type="checkbox"/> | | 1 | 4°C |
| Perchlorate - HOLD | | Field Filtered: <input checked="" type="checkbox"/> | | 1 | 4°C |
| | | | | Total Containers: 6 | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details |
|------------------------------------|--------------|---------------------------|
| Approved by <i>[Signature]</i> | 7/26/16 1500 | Method of Shipment: FedEx |
| Sampled by <i>[Signature]</i> | | On Ice: yes / no |
| Relinquished by <i>[Signature]</i> | | Airbill No: |
| Received by <i>[Signature]</i> | 7/26/16 1500 | Lab Name: CalScience |
| Relinquished by <i>[Signature]</i> | 7/26/16 1842 | Lab Phone: (949) 870-8766 |
| Received by <i>[Signature]</i> | 7/26/16 1842 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2 ³⁰⁰ _{filled}

CLIENT: CHAZM HILL

DATE: 07/26/2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter

Checked by: 804

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 804
 Checked by: 1017

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_z 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄,

Labeled/Checked by: 1017

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 681



WORK ORDER NUMBER: 16-07-1757

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/05/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 654377.82.LB
 Work Order Number: 16-07-1757

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| 2 | Sample Summary. | 4 |
| 3 | Client Sample Data. | 5 |
| | 3.1 RSK-175M Carbon Dioxide (Aqueous). | 5 |
| | 3.2 RSK-175M Dissolved Gases (Aqueous). | 6 |
| | 3.3 EPA 300.0 Anions (Aqueous). | 7 |
| | 3.4 SM 2320B Alkalinity (Aqueous). | 8 |
| | 3.5 SM 2510 B Specific Conductance (Aqueous). | 9 |
| | 3.6 SM 2540 C Total Dissolved Solids (Aqueous). | 10 |
| | 3.7 SM 3500-FeB Ferrous Iron (Aqueous). | 11 |
| | 3.8 SM 4500 S2 - D Sulfide (Aqueous). | 12 |
| | 3.9 SM 5310 B Total Organic Carbon (Aqueous). | 13 |
| | 3.10 EPA 8015B (M) C8-C40 (Aqueous). | 14 |
| | 3.11 EPA 8015B (M) TPH Gasoline (Aqueous). | 15 |
| | 3.12 EPA 6020 ICP/MS Metals Scan Total (Aqueous). | 16 |
| | 3.13 EPA 6020 ICP/MS Metals Scan Filtered (Aqueous). | 18 |
| | 3.14 EPA 1625C (M) NDMA (Aqueous). | 20 |
| | 3.15 EPA 504.1 EDB and DBCP (Aqueous). | 22 |
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| 4 | Quality Control Sample Data. | 34 |
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| | 4.3 Sample Duplicate. | 54 |
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| 5 | Sample Analysis Summary. | 85 |
| 6 | Glossary of Terms and Qualifiers. | 86 |
| 7 | Chain-of-Custody/Sample Receipt Form. | 87 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/26/16. They were assigned to Work Order 16-07-1757.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

SM 5310 B TOC: One or more samples are associated with a Method Blank/ IB/ CCB with a replicate RSD > 10%. All batch QC is in control, no further action taken.

EPA 6020: For 7/29/16 data set - Secondary ICV (M120215A.066) was performed after the ICS analysis, opening ICV (M120215A.055) was performed though target analytes were missing. All batch QC is in control, no further action taken.

EPA 6020: Due to LIMS limitations, the dissolved metals MS/MSD data was not reported. Raw data and summary for the dissolved metals MS/MSD will be included in the level IV data package.

Sample Summary

| | | |
|---------------------------|-----------------------|--|
| Client: CH2M HILL | Work Order: | 16-07-1757 |
| 4121 Carmichael Rd | Project Name: | 3Q2016 SA/PCP & AIG GWS / 654377.82.LB |
| Montgomery, AL 36106-2801 | PO Number: | 100067101891 |
| | Date/Time Received: | 07/26/16 18:42 |
| | Number of Containers: | 173 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2458Q001 | 16-07-1757-1 | 07/26/16 07:00 | 9 | Aqueous |
| HAR19GW01S016 | 16-07-1757-2 | 07/26/16 11:00 | 57 | Aqueous |
| ND135GW01D011 | 16-07-1757-3 | 07/26/16 09:00 | 19 | Aqueous |
| ND135GW01S011 | 16-07-1757-4 | 07/26/16 09:00 | 57 | Aqueous |
| RD49BGW01S005 | 16-07-1757-5 | 07/26/16 09:00 | 31 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1757

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|----------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 969 | IC 15 | 1 |
| EPA 504.1 | EPA 504.1 Ext. | 944 | GC 40 | 1 |
| EPA 6020 | EPA 3005A Filt. | 598 | ICP/MS 03 | 1 |
| EPA 6020 | EPA 3020A Total | 598 | ICP/MS 03 | 1 |
| EPA 8015B (M) | EPA 3510C | 682 | GC 48 | 1 |
| EPA 8015B (M) | EPA 5030C | 902 | GC 1 | 2 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| RSK-175M | N/A | 929 | GC 14 | 2 |
| RSK-175M | N/A | 1074 | GC 52 | 2 |
| SM 2320B | N/A | 650 | PH1/BUR03 | 1 |
| SM 2510 B | N/A | 1068 | SC 2 | 1 |
| SM 2540 C | N/A | 1009 | N/A | 1 |
| SM 3500-FeB | N/A | 990 | UV 7 | 1 |
| SM 4500 S2 - D | N/A | 1064 | N/A | 1 |
| SM 5310 B | N/A | 735 | TOC 8 | 1 |



Return to Contents

Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 16-07-1757

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1757

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CH2MHILL

COC Number: CALS07261601

Chain of Custody Record

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID CAQW2458Q001 Sample Date/Time 26-Jul-16 7:00 N Water Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------|------------------|------|--------|--------------|-------------|
| 1,4-Dioxane LL | 26-Jul-16 7:00 | N | Water | 3 | HCL pH<2.4C |
| VOCs full list | | | | 3 | HCL pH<2.4C |
| Report Carbon Ranges | | | | 3 | HCL pH<2.4C |
| Total Containers: | | | | | 9 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/26/16 15:00
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* 7/26/16 15:00
 Relinquished by *[Signature]* 7/26/16 18:42
 Received by *[Signature]* 072616 1842

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

1757

CH2MHILL 7/26/2016 1:01:12 PM Page 2 of 10

Chain of Custody Record COC Number: **CALS07261601**

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett
Turnaround Time 10 Days
PO Number 100067101891
 (530) 570-5084

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------------------|--------------------------|
| HAR19GW01S016 | 26-Jul-16 11:00 | N | Water | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4C | | <input type="checkbox"/> |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Methane, ethane, ethere | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | <input type="checkbox"/> |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | <input type="checkbox"/> |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | <input type="checkbox"/> |
| EDB/DBCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | | <input type="checkbox"/> |
| | | | | Total Containers: | 19 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Matt Clay* **Date/Time** 7/26/16 1:30
Sampled by *Matt Clay*
Relinquished by *Matt Clay*
Received by *EA* 7/26/16 1:50
Relinquished by *EA* 7/26/16 18:42
Received by *ECI* 07/26/16 18:42

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No.:
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

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CH2MHILL 7/26/2016 1:01:13 PM Page 3 of 10

Chain of Custody Record COC Number: **CALS07261601**

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------------------|---------|
| HAR19GW01S016MS | 26-Jul-16 11:00 | MS | Water | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| EDB/DBCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | | |
| | | | | Total Containers: | 19 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 7/26/16 15:00
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *[Signature]* Date/Time 7/26/16 15:00
 Relinquished by *[Signature]* Date/Time 7/26/16 18:42
 Received by *[Signature]* Date/Time 7/26/16 18:42
 FCI

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

Chain of Custody Record COC Number: **CALS07261601** **CH2MHILL** 7/26/2016 1:01:13 PM Page 4 of 10

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|---|------|------------------|--------------------------|---------|
| HAR19GW01S016SD | 26-Jul-16 11:00 | SD | Water | | |
| CO2 | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Methane, ethane, ethene | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | |
| Mn | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | | |
| Ferrous Iron | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | | |
| Conductivity | Field Filtered: <input type="checkbox"/> | 1 | 4°C | | |
| Sulfide | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | | |
| TOC | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | | |
| Ba, B, Ca, Mg, K, Na, Sr | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | | |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | | |
| EDB/DBCP | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | | |
| | | | | Total Containers: | 19 |

1757

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|-----------------|--------------------|---------------|---------------------------|
| Approved by | Signatures | Date/Time | Shipping Details |
| Sampled by | <i>Mitchell</i> | 7/26/16 1500 | Method of Shipment: FedEx |
| Relinquished by | <i>Mitchell</i> | | On Ice: yes / no |
| Received by | <i>Mitchell</i> | | Airbill No: |
| Relinquished by | <i>BY</i> | 7/26/16 15:00 | Lab Name: CalScience |
| Received by | <i>[Signature]</i> | 7/26/16 1842 | Lab Phone: (949) 870-8766 |
| | | 07/26/16 1842 | |

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO: 100067103941

ATTN:
 Sample Custody
 and
 Michele Castro

Report Copy to
 Jon Freed
 (208) 660-4929

1757

CH2MHILL 7/26/2016 1:01:13 PM Page 5 of 10

Chain of Custody Record COC Number: CALS07261601

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|------|-----------------|---------------------------------------|------------------|
| ND135GW01D011 | 26-Jul-16 | 9:00 | N | Water | |
| CO2 | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C |
| 1,4-Dioxane LL | | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2,4C |
| Methane, ethane, ethene | | | Field Filtered: | <input type="checkbox"/> 3 | HCL pH<2,4C |
| Mn | | | Field Filtered: | <input checked="" type="checkbox"/> 1 | HNO3, 4°C |
| Ferrous Iron | | | Field Filtered: | <input checked="" type="checkbox"/> 1 | 4°C |
| Conductivity | | | Field Filtered: | <input type="checkbox"/> 1 | 4°C |
| Sulfide | | | Field Filtered: | <input type="checkbox"/> 1 | NaOH, ZnAc, 4°C |
| TOC | | | Field Filtered: | <input type="checkbox"/> 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | | Field Filtered: | <input type="checkbox"/> 1 | HNO3, 4°C |
| NDMA - LL | | | Field Filtered: | <input type="checkbox"/> 2 | 4°C |
| EDB/DBCP | | | Field Filtered: | <input type="checkbox"/> 3 | Na2S2O3, 4°C |
| Total Containers: | | | | | 19 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitchell Allen* Date/Time 7/26/16 1500
 Sampled by *Mitchell Allen*
 Relinquished by *Mitchell Allen*
 Received by *EA* Date/Time 7/26/16 1842
 Relinquished by *EA* Date/Time 7/26/16 1842
 Received by *EA* Date/Time 7/26/16 1842

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:
 Sample Custody
 and
 Michele Castro

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
 Report Copy to
 Jon Freed
 (208) 660-4929

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Chain of Custody Record COC Number: **CALS07261601** **CH2MHILL** 7/26/2016 1:01:13 PM Page 6 of 10

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|---|--------|------------------|--------------------------|
| ND135GW01S011 | 26-Jul-16 | 9:00 | N | Water | |
| CO2 | | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| 1,4-Dioxane LL | | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Methane, ethane, ethene | | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Mn | | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Ferrous Iron | | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Conductivity | | Field Filtered: <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> |
| Sulfide | | Field Filtered: <input type="checkbox"/> | 1 | NaOH, ZnAc, 4°C | <input type="checkbox"/> |
| TOC | | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> |
| NDMA - LL | | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> |
| EDB/DBCP | | Field Filtered: <input type="checkbox"/> | 3 | Na2S2O3, 4°C | <input type="checkbox"/> |
| Total Containers: | | | | | 19 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/26/16 1500
Sampled by *[Signature]*
Relinquished by *[Signature]* **Airbill No:**
Received by *[Signature]* **Lab Name:** CalScience
Relinquished by *[Signature]* **Lab Phone:** (949) 870-8766
Received by *[Signature]* 072616 1842

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Lab Name: CalScience
Lab Phone: (949) 870-8766

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:

Sample Custody
 and
 Michele Castro

1757

Chain of Custody Record COC Number: **CALS07261601** **CH2MHILL** 7/26/2016 1:01:13 PM Page 7 of 10

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067101891

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|-----------------|--------|--------------|------------------|
| ND135GW01S011MS | 26-Jul-16 9:00 | MS | Water | | |
| CO2 | | Field Filtered: | | 2 | 4°C |
| 1,4-Dioxane LL | | Field Filtered: | | 3 | HCL pH<2.4C |
| Methane, ethane, ethene | | Field Filtered: | | 3 | HCL pH<2.4C |
| Mn | | Field Filtered: | | 1 | HNO3, 4°C |
| Ferrous Iron | | Field Filtered: | | 1 | 4°C |
| Conductivity | | Field Filtered: | | 1 | 4°C |
| Sulfide | | Field Filtered: | | 1 | NaOH, ZnAc, 4°C |
| TOC | | Field Filtered: | | 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | Field Filtered: | | 1 | HNO3, 4°C |
| NDMA - LL | | Field Filtered: | | 2 | 4°C |
| EDB/DBCP | | Field Filtered: | | 3 | Na2S2O3, 4°C |
| Total Containers: | | | | | 19 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* **Date/Time** 7/26/16 1500
Sampled by *[Signature]*
Relinquished by *[Signature]* **Airbill No:** ↓
Relinquished by *[Signature]* 7/26/16 1842
Received by *[Signature]* **Lab Name:** CalScience
Received by *[Signature]* **Lab Phone:** (949) 870-8766

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Lab Name: CalScience
Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO: 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

4

1757

Chain of Custody Record COC Number: **CALS07261601**

CH2MHILL

7/26/2016 1:01:14 PM

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Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SAV/PCP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067101891

Sample ID **RD49BGW01S005** Sample Date/Time 26-Jul-16 9:00 N Water Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|--------------------------|------------------|------|--------|---|------------------|
| Alkalinity | 26-Jul-16 9:00 | N | Water | Field Filtered: <input type="checkbox"/> 1 | 4°C |
| CO2 | | | | Field Filtered: <input type="checkbox"/> 2 | 4°C |
| 1,4-Dioxane LL | | | | Field Filtered: <input type="checkbox"/> 3 | HCL, pH<2.4C |
| Methane, ethane, ethene | | | | Field Filtered: <input type="checkbox"/> 3 | HCL, pH<2.4C |
| Ba, B, Ca, Mg, K, Na, Sr | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | HNO3, 4°C |
| Mn | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | HNO3, 4°C |
| Ferrous Iron | | | | Field Filtered: <input checked="" type="checkbox"/> 1 | 4°C |
| SO4, Cl, NO3, F | | | | Field Filtered: <input type="checkbox"/> 1 | 4°C |
| Conductivity | | | | Field Filtered: <input type="checkbox"/> 1 | 4°C |
| Sulfide | | | | Field Filtered: <input type="checkbox"/> 1 | NaOH, ZnAc, 4°C |
| TOC | | | | Field Filtered: <input type="checkbox"/> 1 | H2SO4, pH<2, 4°C |
| Ba, B, Ca, Mg, K, Na, Sr | | | | Field Filtered: <input type="checkbox"/> 1 | HNO3, 4°C |
| NDMA - LL | | | | Field Filtered: <input type="checkbox"/> 2 | 4°C |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Mitch Cleary* Date/Time 7/26/16 15:00
 Sampled by *Mitch Cleary*
 Relinquished by *Mitch Cleary*
 Received by *EV* Date/Time 7/26/16 15:00
 Relinquished by *[Signature]* Date/Time 7/26/16 16:42
 Received by *[Signature]* Date/Time 07/26/16 18:12

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

ATTN:

Sample Custody
 and
 Michele Castro

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

Report Copy to
 Jon Freed
 (208) 660-4929

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 3

CLIENT: CH2m Hill

DATE: 07 / 26 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.7 °C (w/ CF): 3.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
 Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB_n 250PB_n 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
 Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
 Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 804/1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1017



SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 3

CLIENT: CH2M HILL

DATE: 07 / 26 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:

| | | | | | |
|-----------|---|---|---|------------------------------|-------------------------|
| Cooler | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>804</u> |
| Sample(s) | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>1017</u> |

| SAMPLE CONDITION: | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input checked="" type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VSA VOA^B VOA^{na} 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz^{na} 250AGB 250CGB 250CGBs 250PBⁿ 250PB^h 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna 250PB _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z^{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 681

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SAMPLE RECEIPT CHECKLIST

COOLER 3 OF 3

CLIENT: CH2M HILL

DATE: 07 / 26 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.6 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:

| | | | | | |
|-----------|---|---|---|------------------------------|-------------------------|
| Cooler | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>804</u> |
| Sample(s) | <input type="checkbox"/> Present and Intact | <input type="checkbox"/> Present but Not Intact | <input checked="" type="checkbox"/> Not Present | <input type="checkbox"/> N/A | Checked by: <u>1017</u> |

| SAMPLE CONDITION: | Yes | No | N/A |
|---|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 1081

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SAMPLE ANOMALY REPORT

DATE: 07 / 26 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired (list client or ECI sample ID and analysis)
- Insufficient sample amount for requested analysis (list analysis)
- Improper container(s) used (list analysis)
- Improper preservative used (list analysis)
- No preservative noted on COC or label (list analysis and notify lab)
- Sample container(s) not labeled
- Client sample label(s) illegible (list container type and analysis)
- Client sample label(s) do not match COC (comment)
 - Project information
 - Client sample ID
 - Sampling date and/or time
 - Number of container(s)
 - Requested analysis
- Sample container(s) compromised (comment)
 - Broken
 - Water present in sample container
- Air sample container(s) compromised (comment)
 - Flat
 - Very low in volume
 - Leaking (not transferred; duplicate bag submitted)
 - Leaking (transferred into ECI Tedlar™ bags*)
 - Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

(Containers with bubble for other analysis)

| ECI Sample ID | ECI Container ID | Total Number** | ECI Sample ID | ECI Container ID | Total Number** |
|---------------|------------------|----------------|---------------|------------------|----------------|
| -1 | C,F,I | 9 | | | |
| -5 | 0 | 12 | | | |
| | | | | | |
| | | | | | |

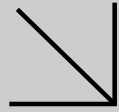
| ECI Sample ID | ECI Container ID | Total Number** | Requested Analysis |
|---------------|------------------|----------------|--------------------|
| 2.4 | C3,D3,E3 | 1 | Ferrous Iron |
| 3 | S | 1 | " |
| 5 | D2 | 1 | " |
| | | | |

Comments: _____

Reported by: 802/1017
 Reviewed by: 681

** Record the total number of containers (i.e., vials or bottles) for the affected sample.



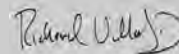

WORK ORDER NUMBER: 16-07-1871
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
 666267.14.Q3.FW

Attention: Jeremy Hilliard
 4121 Carmichael Rd
 Montgomery, AL 36106-2801



 Approved for release on 08/17/2016 by:
 Richard Villafania
 Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-07-1871

| | | |
|---|--|----|
| 1 | Work Order Narrative. | 3 |
| 2 | Sample Summary. | 4 |
| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
| 5 | Subcontract Narrative. | 9 |
| 6 | 16-07-1871 EPA 8315 Formaldehyde and EPA 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/27/16. They were assigned to Work Order 16-07-1871.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1871 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/27/16 09:30 |
| | Number of Containers: 12 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR19GW01S016 | 16-07-1871-1 | 07/26/16 11:00 | 12 | Aqueous |

Glossary of Terms and Qualifiers

Work Order: 16-07-1871

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1871

A-11053
G-1687559
S-8495018-20

CH2MHILL 7/26/2016 1:05:48 PM Page 1 of 1

Chain of Custody Record COC Number: CALS07261604

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SAMPCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|-----------------|------------------|-------|--|--------------------------|----------|
| HAR19GW01S016 | 26-Jul-16 | 11:00 | N Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| | | | | Total Containers: | 4 |
| HAR19GW01S016MS | 26-Jul-16 | 11:00 | MS Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| | | | | Total Containers: | 4 |
| HAR19GW01S016SD | 26-Jul-16 | 11:00 | SD Water | | |
| Formaldehyde | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| 1,1-DMH, UDMH | | | Field Filtered: <input type="checkbox"/> | 2 | 4°C |
| | | | | Total Containers: | 4 |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Matt Allen Date/Time 7/26/16 1600
 Sampled by Matt Allen
 Relinquished by Matt Allen
 Received by [Signature]
 Relinquished by [Signature]
 Received by [Signature]

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: Lancaster Laboratories
 Lab Phone: (318) 618-8888

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941

ATTN:

Sample Custody
and
Kay Hower

Report Copy to

Jon Freed
(208) 660-4929



Lancaster Laboratories
Environmental

Sample Administration
Receipt Documentation Log

Doc Log ID: 155318

Group Number(s): 1087559

Client: CH2M

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/27/2016 9:30 1877
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Krista Abel (3058) at 09:51 on 07/27/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 1.7 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 1.6 | IR | Wet | Y | Loose | N |

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SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: _____

DATE: 07 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter

Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

DUPLICATE INVOICE ONLY

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOAn VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB

125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs

500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____

s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: _____

Work Order: 16-07-1871

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 17, 2016

Project: 16-07-1871

Submittal Date: 07/27/2016

Group Number: 1687559

SDG: CSF17

PO Number: 16-07-1871

State of Sample Origin: CA

Lancaster Labs

Client Sample Description

HAR19GW01S016 Water

HAR19GW01S016MS Water

HAR19GW01S016SD Water

(LL) #

8495018

8495019

8495020

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

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A-11053
G-1687559
S-8495018-20

Chain of Custody Record COC Number: **CALS07261604** **CH2MHILL** 7/26/2016 1:05:48 PM Page 1 of 1

| Project Name | SSFL | Location | Santa Susana Field Lab |
|------------------------|-----------------|-------------------|----------------------------|
| Task Order | 614 | Project: | 3Q2016 SA/PCP & AIG GWS |
| Project Number | 666267.14.Q3.FW | Sample Date/Time | 26-Jul-16 11:00 |
| Project Manager | Jeremy Hilliard | Type | N |
| Sample Manager | Jamie Beckett | Matrix | Water |
| Turnaround Time | 10 Days | # Containers | 2 |
| PO Number | 100067103941 | Preserv | 4°C |
| Sample ID | | Field Filtered: | <input type="checkbox"/> 2 |
| | | Field Filtered: | <input type="checkbox"/> 2 |
| | | Total Containers: | 4 |
| HAR19GW01S016 | | | |
| Formaldehyde | | | |
| 1,1-DMH, UDMH | | | |
| | | | |
| HAR19GW01S016MS | | | |
| Formaldehyde | | | |
| 1,1-DMH, UDMH | | | |
| | | | |
| HAR19GW01S016SD | | | |
| Formaldehyde | | | |
| 1,1-DMH, UDMH | | | |
| | | | |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|---|---|---|---|
| Approved by <i>Mitchell Allen</i> Sampled by <i>Mitchell Allen</i> Relinquished by <i>Mitchell Allen</i> Received by <i>Mitchell Allen</i> Relinquished by <i>Mitchell Allen</i> Received by <i>Mitchell Allen</i> | Signatures Date/Time 7/26/16 1600 ↓ ↓ | Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: Lancaster Laboratories Lab Phone: (318) 618-8889 | Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 Report Copy to Jon Freed (208) 660-4929 |
| ATTN: Sample Custody and Kay Hower | | | |



Client: CH2M

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/27/2016 9:30
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 0 |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Krista Abel (3058) at 09:51 on 07/27/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 1.7 | IR | Wet | Y | Loose | N |
| 2 | 32170023 | 1.6 | IR | Wet | Y | Loose | N |

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

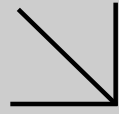
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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WORK ORDER NUMBER: 16-07-1953

The difference is service



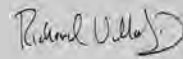
AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



Approved for release on 08/12/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-07-1953

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| 3 | Client Sample Data. | 5 |
| | 3.1 EPA 350.1 Ammonia (Aqueous). | 5 |
| 4 | Quality Control Sample Data. | 6 |
| | 4.1 LCS/LCSD. | 6 |
| 5 | Sample Analysis Summary. | 7 |
| 6 | Glossary of Terms and Qualifiers. | 8 |
| 7 | Chain-of-Custody/Sample Receipt Form. | 9 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/28/16. They were assigned to Work Order 16-07-1953.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-07-1953 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 07/28/16 18:20 |
| | Number of Containers: 1 |
| Attn: Jeremy Hilliard | |

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| HAR11GW01S008 | 16-07-1953-1 | 07/28/16 11:45 | 1 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-07-1953

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 350.1 | N/A | 735 | ACA 1 | 1 |


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Glossary of Terms and Qualifiers

Work Order: 16-07-1953

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

16-07-1953

Chain of Custody Record COC Number: **CALS07281602** **CH2MHILL** 7/28/2016 2:13:17 PM Page 1 of 1

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 614 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---------------|------------------|------|--|--------------------------|---------|
| HAR11GW01S008 | 28-Jul-16 11:45 | N | Water | | |
| Ammonia | | | Field Filtered <input type="checkbox"/> 1 H2SO4, pH<2, 4°C <input checked="" type="checkbox"/> | | |
| | | | | Total Containers: | 1 |

SM4500NH3F

MS = Matrix Spike SD = Matrix Spike Duplicate

| Approved by | Signatures | Date/Time | Shipping Details | Special Instructions: |
|-----------------|--------------------|---------------|---------------------------|---|
| Sampled by | <i>[Signature]</i> | 7/28/16 15:50 | Method of Shipment: FedEx | CH582 PO: 100067101891 CH614 PO 100067103941 |
| Relinquished by | <i>[Signature]</i> | | On Ice: yes / no | Report Copy to Jon Freed (208) 660-4929 |
| Received by | <i>[Signature]</i> | 7/28/16 15:00 | Airbill No: | |
| Relinquished by | <i>[Signature]</i> | 7/28/16 18:20 | Lab Name: CalScience | |
| Received by | <i>[Signature]</i> | 7/28/16 18:20 | Lab Phone: (949) 870-8766 | ATTN: Sample Custody and Michele Castro |

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CHAZM HILL

DATE: 07/28/2016

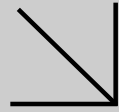
TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC1B (CF: 0.0°C); Temperature (w/o CF): 3.5 °C (w/ CF): 3.5 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 804

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 804
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz_{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (_____) _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1017
 s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH Reviewed by: 804

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WORK ORDER NUMBER: 16-08-0986

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801

Approved for release on 08/25/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

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Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
 Work Order Number: 16-08-0986

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| 3 | Client Sample Data. | 5 |
| | 3.1 EPA 300.0 Anions (Aqueous). | 5 |
| | 3.2 EPA 314.0 Perchlorate (Aqueous). | 6 |
| | 3.3 EPA 8330 Nitroaromatics and Nitramines (Aqueous). | 7 |
| | 3.4 EPA 350.1 Ammonia (Aqueous). | 10 |
| | 3.5 EPA 8015B (M) C8-C40 (Aqueous). | 11 |
| | 3.6 EPA 1625C (M) NDMA (Aqueous). | 13 |
| | 3.7 EPA 8270C SIM (Aqueous). | 14 |
| | 3.8 EPA 8260B Volatile Organics (Aqueous). | 16 |
| | 3.9 EPA 8260B SIM Emergent Volatiles (Aqueous). | 34 |
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| 7 | Chain-of-Custody/Sample Receipt Form. | 54 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/12/16. They were assigned to Work Order 16-08-0986.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-08-0986 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 08/12/16 17:45 |
| | Number of Containers: 56 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| CAQW2471Q001 | 16-08-0986-1 | 08/12/16 07:00 | 6 | Aqueous |
| RD68AGW01S006 | 16-08-0986-2 | 08/12/16 10:30 | 18 | Aqueous |
| RD68BGW01S006 | 16-08-0986-3 | 08/12/16 11:30 | 18 | Aqueous |
| SP29BGW01D003 | 16-08-0986-4 | 08/12/16 09:30 | 7 | Aqueous |
| SP29BGW01S003 | 16-08-0986-5 | 08/12/16 09:30 | 7 | Aqueous |

Sample Analysis Summary Report

Work Order: 16-08-0986

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 1625C (M) | EPA 3520C | 907 | GC/MS III | 1 |
| EPA 300.0 | N/A | 1083 | IC 15 | 1 |
| EPA 314.0 | N/A | 1037 | IC 13 | 1 |
| EPA 350.1 | N/A | 650 | ACA 1 | 1 |
| EPA 8015B (M) | EPA 3510C | 1027 | GC 45 | 1 |
| EPA 8260B | EPA 5030C | 486 | GC/MS QQ | 2 |
| EPA 8260B SIM | EPA 5030C | 486 | GC/MS M | 2 |
| EPA 8270C SIM | EPA 3510C | 907 | GC/MS MM | 1 |
| EPA 8330 | EPA 8330 | 834 | HPLC 7 | 1 |

Glossary of Terms and Qualifiers

Work Order: 16-08-0986

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: **CALS08121601** **CH2MHILL** 8/12/2016 2:03:15 PM

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard Sample
 Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

16-08-0986

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------------|--|------|-------------|--------------|--------------------------|
| CAQW2471Q001 | 12-Aug-16 | 7:00 | N | Water | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | | <input type="checkbox"/> |
| Total Containers: 6 | | | | | |

MS = Matrix Spike SD = Matrix Spike Duplicate

| Signatures | Date/Time | Shipping Details | Special Instructions: |
|-------------------------------------|---------------|---------------------------|---|
| Approved by: <i>[Signature]</i> | 8/12/16 | Method of Shipment: FedEx | CH582 PO: 100067101891 |
| Sampled by: <i>[Signature]</i> | 8/12/16 | On Ice: yes / no | CH614 PO 100067103941 |
| Relinquished by: <i>[Signature]</i> | 8/12/16 14:45 | Arb Bill No: | Report Copy to Jon Freed (208) 660-4929 |
| Received by: <i>[Signature]</i> | 8/12/16 14:45 | Lab Name: CalScience | |
| Relinquished by: <i>[Signature]</i> | 8/12/16 17:45 | Lab Phone: (949) 870-8766 | |
| Received by: <i>[Signature]</i> | 8/12/16 17:45 | | |

ATTN: Sample Custody and Michele Castro



0986

Chain of Custody Record COC Number: **CALS08121601** **CH2MHILL** 8/12/2016 2:03:15 PM Page 2 of 4

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 614 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10Days
PO Number 100067103941

Sample ID **Sample Date/Time** **Type** **Matrix** **# Containers** **Preserv**

| | | | | | |
|---|-----------------|-------------------------------------|---|-----------------|--------------------------|
| RD68AGW01S006 | 12-Aug-16 | 10:30 | N | Water | |
| 1,4-Dioxane LL | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Nitrobenzene, 1,3-Dinitrobenzene | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| Fluoride, Nitrate | Field Filtered: | <input type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Ammonia | Field Filtered: | <input type="checkbox"/> | 1 | H2SO4, pH<2, 4C | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| incl. Phthalates | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| Perchlorate | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Perchlorate - HOLD | Field Filtered: | <input checked="" type="checkbox"/> | 1 | 4C | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: | <input type="checkbox"/> | 2 | 4C | <input type="checkbox"/> |
| VOCs full list | Field Filtered: | <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> |
| Total Containers: | | | | | 18 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *Shelby Dawson* **Date/Time** 8/12/16
Sampled by *Shelby Dawson* 8/12/16
Relinquished by *TOGA Obeyeske* 8/12/16 1445
Received by *TOGA Obeyeske* 8/12/16 1445
Relinquished by *TOGA Obeyeske* 8/12/16 1745
Received by *DANNY ETC* 8/12/16 1745

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

0986

Chain of Custody Record COC Number: **CALS08121601** **CH2MHILL** 8/12/2016 2:03:15 PM Page 3 of 4

Project Name **SSF1** Location **Santa Susana Field Lab**
 Task Order **614** Project: **3Q2016 SA/PCP & AIG GWS**
 Project Number **666267.14.Q3.FW**
 Project Manager **Jeremy Hilliard**
 Sample Manager **Jamie Beckett** (530) 570-5084
 Turnaround Time **10 Days**
 PO Number **100067103941**

Sample ID Sample Date/Time Type Matrix # Containers Preserve

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserve |
|---|---|------|------------------|--------------------------|--------------------------|
| RD68BGW01S006 | 12-Aug-16 11:30 | N | Water | | |
| 1,4-Dioxane LL | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> |
| Nitrobenzene, 1,3-Dinitrobenzene | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Fluoride, Nitrate | Field Filtered: <input type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Ammonia | Field Filtered: <input type="checkbox"/> | 1 | H2SO4, pH<2, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| NDMA - LL | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| incl. Phthalates | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Perchlorate - HOLD | Field Filtered: <input checked="" type="checkbox"/> | 1 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Report Carbon Ranges incl. EFH C8-C30 Total | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| VOCs full list | Field Filtered: <input type="checkbox"/> | 3 | HCL pH<2.4C | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Total Containers: | 18 |

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by _____ Date/Time 8/12/16
 Sampled by _____ Date/Time 8/12/16
 Relinquished by _____ Date/Time 8/12/16 1445
 Received by _____ Date/Time 8/12/16 1445
 Relinquished by _____ Date/Time 8/12/16 1445
 Received by _____ Date/Time 8/12/16 1445

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: CalScience
 Lab Phone: (949) 870-8766

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:
 Sample Custody
 and
 Michele Castro

0986

Chain of Custody Record COC Number: CALS08121601 CH2MHILL 8/12/2016 2:03:16 PM Page 4 of 4

Project Name SSFL Location Santa Susana Field Lab
Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

Table with columns for Sample ID, Date/Time, Type, Matrix, # Containers, Preserv, and various test results (pH, Fluoride, VOCs) with checkboxes and handwritten marks.

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by Signatures Date/Time
Sampled by Shelby Dawson 8/12/16
Relinquished by Tuzsa Csokoske 8/12/16
Received by Tuzsa Csokoske 8/12/16
Relinquished by Tuzsa Csokoske 8/12/16
Received by Danvige ER 8/12/16

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: CalScience
Lab Phone: (949) 870-8766

Special Instructions:
ATTN: Sample Custody and Michele Castro
Report Copy to Jon Freed (208) 660-4929



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CH2M HILL

DATE: 08/12/2016

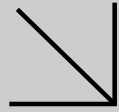
TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): 3.4 °C (w/ CF): 3.4 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: 659

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: 659
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: 1017

| SAMPLE CONDITION: | Yes | No | N/A |
|--|-------------------------------------|--------------------------|-------------------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOA⁶ VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB
 125PBz^{na} 250AGB 250CGB 250CGBs 250PB 250PBn 500AGB 500AGJ 500AGJs
 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____
 Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag
 Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 802/1017
 s = H₂SO₄, u = ultra-pure, z^{na} = Zn (CH₃CO₂)₂ + NaOH Reviewed by: 1053/659



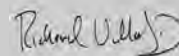

WORK ORDER NUMBER: 16-08-1070
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 08/25/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-08-1070

| | | |
|---|--|----|
| 1 | Work Order Narrative. | 3 |
| 2 | Sample Summary. | 4 |
| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
| 5 | Subcontract Narrative. | 9 |
| 6 | 16-07-1070 EPA 8315 Formaldehyde and EPA 8315(M) Hydrazines. | 10 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/13/16. They were assigned to Work Order 16-08-1070.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-08-1070 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 08/13/16 10:00 |
| | Number of Containers: 8 |

Attn: Jeremy Hilliard

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|---------|
| RD68AGW01S006 | 16-08-1070-1 | 08/12/16 10:30 | 4 | Aqueous |
| RD68BGW01S006 | 16-08-1070-2 | 08/12/16 11:30 | 4 | Aqueous |

Glossary of Terms and Qualifiers

Work Order: 16-08-1070

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

11053 | 694730 6525289-90 16-08-1070

Chain of Custody Record COC Number: **CALS08121602** **CH2MHILL** 8/12/2016 2:04:16 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|-------------------|------------------|-----------------|-------------------------------------|--------------|---------|
| RD68AGW01S006 | 12-Aug-16 10:30 | N | Water | | |
| Formaldehyde | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| 1,1-DMH, UDMH | | Field Filtered: | <input checked="" type="checkbox"/> | 2 | 4°C |
| Total Containers: | | | | 4 | |
| RD68BGW01S006 | 12-Aug-16 11:30 | N | Water | | |
| Formaldehyde | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| 1,1-DMH, UDMH | | Field Filtered: | <input checked="" type="checkbox"/> | 2 | 4°C |
| Total Containers: | | | | 4 | |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | |
|--|--|--|
| Approved by _____ Date/Time 8/12/16 Sampled by _____ Date/Time 8/12/16 Relinquished by _____ Date/Time 8/12/16 5:00 Received by _____ Date/Time 8/12/16 Relinquished by _____ Date/Time 8/12/16 Received by _____ Date/Time 8/12/16 | Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="radio"/> Yes / <input type="radio"/> No Airbill No.: Lab Name: Lancaster Laboratories Lab Phone: (318) 618-8889 | Special Instructions: CH582 PO: 100067101891 CH614 PO: 100067103941 Report Copy to Jon Freed (208) 660-4929 |
| ATTN: Sample Custody and Kay Hower | | |



Lancaster Laboratories
Environmental

**Sample Administration
Receipt Documentation Log**

Doc Log ID: 158335
Group Number(s): 1694730

Client: CH2MHILL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 08/13/2016 10:00
Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | No | Sample Date/Times match COC: | Yes |
| Samples Chilled: | Yes | VOA Vial Headspace \geq 6mm: | N/A |
| Paperwork Enclosed: | Yes | Total Trip Blank Qty: | 0 |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Melvin Sanchez (8943) at 10:45 on 08/13/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

| <u>Cooler #</u> | <u>Thermometer ID</u> | <u>Corrected Temp</u> | <u>Therm. Type</u> | <u>Ice Type</u> | <u>Ice Present?</u> | <u>Ice Container</u> | <u>Elevated Temp?</u> |
|-----------------|-----------------------|-----------------------|--------------------|-----------------|---------------------|----------------------|-----------------------|
| 1 | 32170023 | 5.4 | IR | Wet | Y | Loose/Bag | N |

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SAMPLE RECEIPT CHECKLIST

COOLER ____ OF ____

CLIENT: _____

DATE: 08 / ____ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact No Present N/A Checked by: _____
 Sample(s) Present and Intact Present but Not Intact No Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB
 125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s
 500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: _____

s = H₂SO₄, u = ultra-pure, z_{na} = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: _____

FOR INVOICE ONLY

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One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Eurofins Lancaster Laboratories - Lancaster,PA NELAP 10276CA
EPA 8315 - Formaldehyde, EPA 8315(M) - Hydrazines



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Eurofins Calscience, Inc
7440 Lincoln Way
Garden Grove CA 92841-1432

Report Date: August 25, 2016

Project: 16-08-1070

Submittal Date: 08/13/2016
Group Number: 1694730
SDG: CSF18
PO Number: 16-08-1070
State of Sample Origin: CA

Client Sample Description

RD68AGW01S006 Water
RD68BGW01S006 Water

Lancaster Labs

(LL) #

8525289
8525290

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To Eurofins Calscience
Electronic Copy To Eurofins Calscience

Attn: Terri Chang
Attn: Richard Villafania

Respectfully Submitted,

Kay Hower

(510) 672-3979

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11053 1694730 6525289-90

Chain of Custody Record COC Number: **CALS08121602** **CH2MHILL** 8/12/2016 2:04:16 PM Page 1 of 1

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3Q2016 SA/PCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|----------------------|------------------|-----------------|--------|--------------------------|----------|
| RD68AGW01S006 | 12-Aug-16 10:30 | N | Water | | |
| Formaldehyde | | Field Filtered: | | 2 | 4°C |
| 1,1-DMH, UDMH | | Field Filtered: | | 2 | 4°C |
| | | | | Total Containers: | 4 |
| RD68BGW01S006 | 12-Aug-16 11:30 | N | Water | | |
| Formaldehyde | | Field Filtered: | | 2 | 4°C |
| 1,1-DMH, UDMH | | Field Filtered: | | 2 | 4°C |
| | | | | Total Containers: | 4 |

SW8315A
SW8315

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | |
|--|---|-----------------------------|--|--|
| Approved by <i>[Signature]</i> | Signatures <i>[Signature]</i> | Date/Time 8/12/16 | Shipping Details Method of Shipment: FedEx | Special Instructions: CH582 PO: 100067101891 CH614 PO: 100067103941 |
| Sampled by <i>[Signature]</i> | <i>[Signature]</i> | 8/12/16 | On Ice: <input checked="" type="radio"/> Yes / no | ATTN: Sample Custody and Kay Hower |
| Relinquished by <i>[Signature]</i> | <i>[Signature]</i> | 8/12/16 5:00 | Airbill No: | Report Copy to Jon Freed (208) 660-4929 |
| Received by <i>[Signature]</i> | <i>[Signature]</i> | 8/13/16 | Lab Name: Lancaster Laboratories | |
| Relinquished by <i>[Signature]</i> | <i>[Signature]</i> | | Lab Phone: (318) 618-8889 | |
| Received by <i>[Signature]</i> | <i>[Signature]</i> | | | |



Client: CH2MHILL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 08/13/2016 10:00
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

| | | | |
|--------------------------------------|-----|-------------------------------------|-----|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | No | Sample Date/Times match COC: | Yes |
| Samples Chilled: | Yes | VOA Vial Headspace ≥ 6mm: | N/A |
| Paperwork Enclosed: | Yes | Total Trip Blank Qty: | 0 |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

Unpacked by Melvin Sanchez (8943) at 10:45 on 08/13/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|----------|----------------|----------------|-------------|----------|--------------|---------------|----------------|
| 1 | 32170023 | 5.4 | IR | Wet | Y | Loose/Bag | N |

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| µg | microgram(s) | mg | milligram(s) |
| mL | milliliter(s) | L | liter(s) |
| m³ | cubic meter(s) | µL | microliter(s) |
| | | pg/L | picogram/liter |
| < | less than | | |
| > | greater than | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

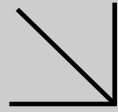
Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

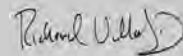

WORK ORDER NUMBER: 16-09-0740
The difference is service


AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: CH2M HILL

Client Project Name: 3Q2016 SA/PCP & AIG GWS /
666267.14.Q3.FW

Attention: Jeremy Hilliard
4121 Carmichael Rd
Montgomery, AL 36106-2801



 Approved for release on 09/12/2016 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW
Work Order Number: 16-09-0740

| | | |
|---|---|----|
| 1 | Work Order Narrative. | 3 |
| 2 | Sample Summary. | 4 |
| 3 | Glossary of Terms and Qualifiers. | 5 |
| 4 | Chain-of-Custody/Sample Receipt Form. | 6 |
| 5 | Subcontract Narrative. | 10 |
| 6 | 16-09-0740 Radiologicals. | 11 |

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/13/16. They were assigned to Work Order 16-09-0740.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

| | |
|---------------------------|---|
| Client: CH2M HILL | Work Order: 16-09-0740 |
| 4121 Carmichael Rd | Project Name: 3Q2016 SA/PCP & AIG GWS / 666267.14.Q3.FW |
| Montgomery, AL 36106-2801 | PO Number: |
| | Date/Time Received: 08/13/16 08:30 |
| | Number of Containers: 2 |

Attn: Jamie Beckett

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|-----------------------|--------------|--------------------------|----------------------|--------|
| SP29BGW01D003 | 16-09-0740-1 | 08/12/16 09:30 | 1 | Solid |
| SP29BGW01S003 | 16-09-0740-2 | 08/12/16 09:30 | 1 | Solid |

Glossary of Terms and Qualifiers

Work Order: 16-09-0740

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|---|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| CI | See case narrative. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |
| | Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time. |
| | A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations. |

Chain of Custody Record COC Number: **CALS08121603**

CH2MHILL

8/12/2016 2:05:10 PM

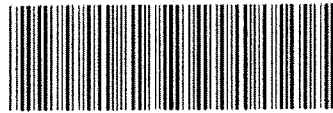
Page 1 of 2

Project Name SSFL Location Santa Susana Field Lab
 Task Order 614 Project: 3C2016 SAMPCP & AIG GWS
 Project Number 666267.14.Q3.FW
 Project Manager Jeremy Hilliard Sample
 Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10Days
 PO Number 100067103941

16-09-0740

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|--------|--------------|----------|
| SP29BGW01D003 | 12-Aug-16 9:30 | N | Water | | |
| Gamma Spec, lot - same as 160-13607-1 | | Field Filtered: | | 1 | HNO3, 4C |
| Gamma Spec, diss - same as 160-13607-1 | | Field Filtered: | | 1 | HNO3, 4C |
| Gross Alpha/Beta, Gross Alpha/Beta-decanted | | Field Filtered: | | 1 | HNO3, 4C |
| Isotopic uranium | | Field Filtered: | | 1 | HNO3, 4C |
| Sr-89/90 | | Field Filtered: | | 1 | HNO3, 4C |
| Tritium | | Field Filtered: | | 2 | 4C |
| Total Containers: | | | | | 7 |



160-18629 Chain of Custody

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by _____ Date/Time 8/12/16
 Sampled by *Stacy Dawson* 8/12/16
 Relinquished by _____ 8/12/16
 Received by *Jill Beckett* 8/13/16 0830
 Relinquished by _____
 Received by _____

Shipping Details

Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: Test America - St. Louis
 Lab Phone: (314) 298-8566

Special Instructions:

CH582 PO: 100067101891
 CH614 PO 100067103941
Report Copy to
 Jon Freed
 (208) 660-4929

ATTN:

Sample Custody
 and
 Mike Franks

0740

Chain of Custody Record COC Number: **CALS08121603** **CH2MHILL** 8/12/2016 2:05:10 PM Page 2 of 2

Project Name SSFL Location Santa Susana Field Lab
 Task Order 582 Project: 3Q2016 SAMP/CP & AIG GWS
 Project Number 654377.82.LB
 Project Manager Jeremy Hilliard
 Sample Manager Jamie Beckett (530) 570-5084
 Turnaround Time 10 Days
 PO Number 100067103941

Sample ID Sample Date/Time Type Matrix # Containers Preserv

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|------------------|-----------------|-------------------------------------|--------------|-----------|
| SP29BGW01S003 | 12-Aug-16 9:30 | N | Water | | |
| Gamma Spec, tot - same as 160-13607-1 | | Field Filtered: | | 1 | HNO3, 4°C |
| Gamma Spec, diss - same as 160-13607-1 | | Field Filtered: | <input checked="" type="checkbox"/> | 1 | HNO3, 4°C |
| Gross Alpha/Beta, Gross Alpha/Beta-decanted | | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C |
| Isotopic uranium | | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C |
| Sr-89/90 | | Field Filtered: | <input type="checkbox"/> | 1 | HNO3, 4°C |
| Tritium | | Field Filtered: | <input type="checkbox"/> | 2 | 4°C |
| Total Containers: | | | | | 7 |

HASL300
 E906.0
 E905.0
 E901.1F
 E901.1
 E900.0

MS = Matrix Spike SD = Matrix Spike Duplicate

Approved by *[Signature]* Date/Time 8/12/16
 Sampled by *[Signature]* Date/Time 8/12/16
 Relinquished by *[Signature]* Date/Time 8/12/16
 Received by *[Signature]* Airbill No: R1316058
 Relinquished by
 Received by

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Lab Name: Test America - St. Louis
 Lab Phone: (314) 298-8566

ATTN: Sample Custody and Mike Franks
 Report Copy to Jon Freed (208) 660-4929

Special Instructions:
 CH582 PO: 100067101891
 CH614 PO 100067103941

Sample Login Acknowledgement

Job 160-18629-1

| | |
|--|---|
| Client Job Description: NASA SSFL Purchase Order #: 1000067103941 Work Order #: Project Manager: Chenise Y Lambert-Sykes Job Due Date: 9/13/2016 Job TAT: 20 Days Max Deliverable Level: II Earliest Deliverable Due: 9/13/2016 | Report To: CH2M Hill Constructors, Inc. Mark Fesler 2525 Air Park Redding, CA 96001 Bill To: Eurofins Calscience, Inc Richard Villafania 7440 Lincoln Way Garden Grove, CA 92841 |
|--|---|

0740

Login 160-18629

| | |
|--|---|
| Sample Receipt: 8/13/2016 8:30:00 AM | Number of Coolers: 1 |
| Method of Delivery: FedEx Saturday Delivery | Cooler Temperature(s) (C°): 2.5; |

| Lab Sample # | Client Sample ID | Date Sampled | Matrix | Rpt Basis | Dry / Wet ** |
|--------------------|---|-----------------------------|--------------|-----------|--------------|
| Method | Method Description / Work Location | | | | |
| 160-18629-1 | SP29BGW01D003 | 8/12/2016 9:30:00 AM | Water | | |
| 900.0 | Gross Alpha/Beta (GFPC) - decanted / In-Lab | | | Total | Wet |
| 900.0 | Gross Alpha/Beta (GFPC) / In-Lab | | | Total | Wet |
| 901.1_Cs | Cesium 137 & Other Gamma Emitters (GS) / In-Lab | | | Dissolved | Wet |
| 901.1_Cs | Cesium 137 & Other Gamma Emitters (GS) / In-Lab | | | Total | Wet |
| 905_TSR | Strontium-89/90 (GFPC) / In-Lab | | | Total | Wet |
| 906.0 | Tritium (LSC) / In-Lab | | | Total | Wet |
| A01R_U | Isotopic Uranium (Alpha Spectrometry) / In-Lab | | | Total | Wet |
| 160-18629-2 | SP29BGW01S003 | 8/12/2016 9:30:00 AM | Water | | |
| 900.0 | Gross Alpha/Beta (GFPC) - decanted / In-Lab | | | Total | Wet |
| 900.0 | Gross Alpha/Beta (GFPC) / In-Lab | | | Total | Wet |
| 901.1_Cs | Cesium 137 & Other Gamma Emitters (GS) / In-Lab | | | Dissolved | Wet |
| 901.1_Cs | Cesium 137 & Other Gamma Emitters (GS) / In-Lab | | | Total | Wet |
| 905_TSR | Strontium-89/90 (GFPC) / In-Lab | | | Total | Wet |
| 906.0 | Tritium (LSC) / In-Lab | | | Total | Wet |
| A01R_U | Isotopic Uranium (Alpha Spectrometry) / In-Lab | | | Total | Wet |

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* Method on-hold

** Wet/Dry indicates whether the reported results will be corrected for moisture content, and based on sample Wet weight or Dry weight.

SAMPLE RECEIPT CHECKLIST

COOLER ___ OF ___

CLIENT: CHAMHILL

DATE: 09 / ___ / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____ °C (w/ CF): _____ °C; Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: Air Filter Checked by: _____

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: _____

Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: _____

SAMPLE CONDITION:

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Chain-of-Custody (COC) document(s) received with samples | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers | | | |
| <input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time | | | |
| Sampler's name indicated on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and in good condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sufficient volume/mass for analyses requested | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Samples received within holding time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples for certain analyses received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper preservation chemical(s) noted on COC and/or sample container | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unpreserved aqueous sample(s) received for certain analyses | | | |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals | | | |
| Container(s) for certain analysis free of headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500) | | | |
| <input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach) | | | |
| Tedlar™ bag(s) free of condensation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Submittal

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB

125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB 250PB_n 500AGB 500AGJ 500AGJ_s

500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (____): _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: _____

s = H₂SO₄, **u** = ultra-pure, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH Reviewed by: _____

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Subcontractor Analysis Report

Work Order: 16-09-0740

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. TestAmerica - Earth City,MO
Radiochemistry

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

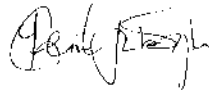
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-18629-1
Client Project/Site: NASA SSFL

For:
CH2M Hill Constructors, Inc.
2525 Air Park
Redding, California 96001

Attn: Mark Fesler



Authorized for release by:
9/12/2016 3:54:35 PM

Chenise Lambert-Sykes, Project Manager I
(314)298-8566
chenise.lambert-sykes@testamericainc.com



LINKS

Review your project results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: CH2M Hill Constructors, Inc.
Project/Site: NASA SSFL

TestAmerica Job ID: 160-18629-1

Job ID: 160-18629-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: CH2M Hill Constructors, Inc.

Project: NASA SSFL

Report Number: 160-18629-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 08/13/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.5 C.

Receipt Exceptions

The following sample was received with insufficient preservation: SP29BGW01D003 (160-18629-1). Nitric acid preservative was added by the laboratory for the bottle marked 901.1 Filtered, and the pH was adjusted to < 2 SU.

The following sample was received with insufficient preservation: SP29BGW01S003 (160-18629-2). Nitric acid preservative was added by the laboratory to the following bottles: 901.1, 905.0, and 901.1 Filtered, and the pH was adjusted to < 2 SU.

GROSS ALPHA AND GROSS BETA RADIOACTIVITY

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Gross Alpha and Gross Beta Radioactivity in accordance with USEPA Method 900.0. The samples were prepared on 08/31/2016 and analyzed on 09/03/2016.

Prep Batch: 267451

The gross alpha detection goal (3.00 pCi/L) was not met for the following samples due to a reduction of the sample size attributed to high



Client: CH2M Hill Constructors, Inc.
Project/Site: NASA SSFL

TestAmerica Job ID: 160-18629-1

Job ID: 160-18629-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

residual mass: SP29BGW01D003 (160-18629-1), SP29BGW01S003 (160-18629-2), (160-18561-B-1-A) and (160-18561-B-1-G DU). In addition, samples 280-86797-B-1-A and 160-18855-B-1-A did not meet the beta detection goal (4.00 pCi/L). Analytical results are reported with the detection limit achieved.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GAMMA SPECTROSCOPY (CESIUM)-DISSOLVED

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Gamma Spectroscopy (Cesium) -dissolved in accordance with EPA 901.1. The samples were prepared on 08/18/2016 and analyzed on 08/19/2016.

Prep Batch: 265503

The reporting limit for cesium-137 (20.0 pCi/L) was not met. This is caused by the elevated Compton background due to elevated activity of radium-226 daughters (lead-214, bismuth-214). The data is reported with the MDC achieved. SP29BGW01S003 (160-18629-2) and (160-18629-E-1-B DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared and analyzed on 08/18/2016.

Prep Batch: 265505

The reporting limit for cesium-137 (20.0 pCi/L) was not met. This is caused by the elevated Compton background due to elevated activity of radium-226 daughters (lead-214, bismuth-214). The data is reported with the MDC achieved. SP29BGW01S003 (160-18629-2) and (160-18629-B-1-B DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

STRONTIUM-90 (GFPC)

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Strontium-90 (GFPC) in accordance with EPA Method 905. The samples were prepared on 09/09/2016 and analyzed on 09/10/2016.

Prep Batch: 268964

Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 160-268964. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision: SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TRITIUM, TOTAL (LSC)

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Tritium, Total (LSC) in accordance with USEPA 906.0. The samples were prepared on 09/07/2016 and analyzed on 09/08/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)

Samples SP29BGW01D003 (160-18629-1) and SP29BGW01S003 (160-18629-2) were analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 09/01/2016 and analyzed on 09/08/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



160-18629 Chain of Custody

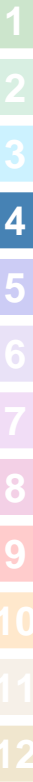
Chain of Custody Record COC Number: **CALS08121603** **CH2MHILL** 8/12/2016 2:05:10 PM Page 1 of 2

Project Name SSFL **Location** Santa Susana Field Lab
Task Order 614 **Project** 3Q2016 SA/PCP & AIG GWS
Project Number 666267.14.Q3.FW
Project Manager Jeremy Hilliard Sample
Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|---|------|--------|--------------|--------------------------|
| SP29BGW01D003 | 12-Aug-16 9:30 | N | Water | | |
| Gamma Spec, tot. - same as 160-13607-1 | Field Filtered: <input type="checkbox"/> | | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Gamma Spec, diss - same as 160-13607-1 | Field Filtered: <input checked="" type="checkbox"/> | | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Gross Alpha/Beta, Gross Alpha/Beta-decanted | Field Filtered: <input type="checkbox"/> | | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Isotopic uranium | Field Filtered: <input type="checkbox"/> | | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Sr-89/90 | Field Filtered: <input type="checkbox"/> | | 1 | HNO3, 4°C | <input type="checkbox"/> |
| Tritium | Field Filtered: <input type="checkbox"/> | | 2 | 4°C | <input type="checkbox"/> |
| Total Containers: | | | | | 7 |

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | | | |
|---|-----------------------|--|---|--|---|
| Approved by Sampled by Relinquished by Received by Relinquished by Received by | Signatures | Date/Time 8/12/16 8/12/16 8/12/16 1700 8-13-16 0830 | Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: Test America - St. Louis Lab Phone: (314) 298-8566 | ATTN: Sample Custody and Mike Franks | Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 Report Copy to Jon Freed (208) 660-4929 |
|---|-----------------------|--|---|--|---|



Project Name SSFL **Location** Santa Susana Field Lab
Task Order 582 **Project:** 3Q2016 SA/PCP & AIG GWS
Project Number 654377.82.LB
Project Manager Jeremy Hilliard
Sample Manager Jamie Beckett (530) 570-5084
Turnaround Time 10 Days
PO Number 100067103941

| Sample ID | Sample Date/Time | Type | Matrix | # Containers | Preserv |
|---|---|------|-----------|--------------------------|--------------------------|
| SP29BGW01S003 | 12-Aug-16 9:30 | N | Water | | |
| Gamma Spec, tot - same as 160-13607-1 | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Gamma Spec, diss - same as 160-13607-1 | Field Filtered: <input checked="" type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Gross Alpha/Beta, Gross Alpha/Beta-decanted | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Isotopic uranium | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Sr-89/90 | Field Filtered: <input type="checkbox"/> | 1 | HNO3, 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Tritium | Field Filtered: <input type="checkbox"/> | 2 | 4°C | <input type="checkbox"/> | <input type="checkbox"/> |
| Total Containers: | | | | | 7 |

E900.0
 E901.1
 E901.1F
 E905.0
 E906.0
 HASL300

MS = Matrix Spike SD = Matrix Spike Duplicate

| | | | |
|---|--|--|---|
| Approved by [Signature] Sampled by [Signature] Relinquished by [Signature] Received by [Signature] Relinquished by [Signature] Received by [Signature] | Signatures Date/Time 8/12/16 8/12/16 8/12/16 1530 8/13/16 0830 | Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: Test America - St. Louis Lab Phone: (314) 298-8566 | Special Instructions: CH582 PO: 100067101891 CH614 PO 100067103941 Report Copy to Jon Freed (208) 660-4929 |
| | | ATTN: Sample Custody and Mike Franks | |



Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 160-18629-1

Login Number: 18629**List Source: TestAmerica St. Louis****List Number: 1****Creator: Clarke, Jill C**

| Question | Answer | Comment |
|---|--------|-------------------------------------|
| Radioactivity wasn't checked or is \leq background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | Refer to Job Narrative for details. |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

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Client: CH2M Hill Constructors, Inc.
 Project/Site: NASA SSFL

TestAmerica Job ID: 160-18629-1

Qualifiers

Rad

| Qualifier | Qualifier Description |
|-----------|--|
| G | The Sample MDC is greater than the requested RL. |
| U | Result is less than the sample detection limit. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| α | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |



Method Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: NASA SSFL

TestAmerica Job ID: 160-18629-1

| Method | Method Description | Protocol | Laboratory |
|--------|--|----------|------------|
| 900.0 | Gross Alpha and Gross Beta Radioactivity | EPA | TAL SL |
| 901.1 | Cesium 137 & Other Gamma Emitters (GS) | EPA | TAL SL |
| 905.0 | Total Beta Strontium (GFPC) | DOE | TAL SL |
| 906.0 | Tritium, Total (LSC) | EPA | TAL SL |
| A-01-R | Isotopic Uranium (Alpha Spectrometry) | DOE | TAL SL |

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Attachment B
Data Validation Reports

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ATTACHMENT B

Data Validation Reports

Data validation reports presented in this attachment were generated using a Microsoft Access-based validation tool created by CH2M HILL. The reports provide a detailed summary of the data validation findings, as well as the final analytical results for each sample, including any data qualification flags that may have been applied. The qualification flag is followed by an annotated validation reason code for applying the flag. Below is a table that lists the validation reason code, a brief description of the reason code, and the corresponding Santa Susana Field Laboratory (SSFL) qualification code.

| Validation Reason Code | Description | SSFL Qualification Code |
|------------------------|--|-------------------------|
| >ICLinearRange | Result greater than linear calibration range | C |
| AB<RL | Ambient blank concentration less than RL | F |
| AB>MDL | Ambient blank concentration greater than the MDL | F |
| AB>RL | Ambient blank concentration greater than the RL | F |
| CCB<RL | Continuing calibration blank concentration less than RL | B |
| CCB>RL | Continuing calibration blank concentration exceeds RL | B |
| CCV<LCL | Continuing calibration recovery less than lower control limit | C |
| CCV<RF | SPCC exceeds RF > 0.300 criteria | R |
| CCV>UCL | Continuing calibration recovery greater than upper control limit | C |
| CF>RPD | Confirmation Precision Exceeded | *DVR |
| Coelution | Compounds were reported combined on one column | *DVR |
| EB<RL | Equipment blank concentration less than the RL | F |
| EB>MDL | Equipment blank concentration greater than the MDL | F |
| EB>RL | Equipment blank concentration greater than the RL | F |
| EMPC | Estimated Maximum Possible Concentration | *DVR |
| exclude | Data not used; another value is appropriate or data was not requested | D |
| FB<RL | Field blank concentration less than RL | F |
| FB>RL | Field blank concentration greater than the RL | F |
| FD>RPD | Field duplicate exceeds RPD criteria | *DVR |
| HTa>UCL | Analysis holding time exceeded | H |
| HTp>UCL | Preparation/extraction holding time exceeded | H |
| IC RRF | Initial calibration relative response factor below LCL | R |
| IC%RSD | Initial calibration RSD exceeded | C |
| ICB<RL | Initial calibration blank concentration less than the RL | B |
| ICVS<LCL | Second source verification std. recovery less than lower control limit | C |

| Validation Reason Code | Description | SSFL Qualification Code |
|------------------------|---|-------------------------|
| ICVS>UCL | Second source verification std. recovery greater than upper control limit | C |
| ImproperPres | Sample improperly preserved or handled prior to analysis | *DVR |
| InvalidLabFlag | Remove lab UN Flag | (No flag) |
| IS<LCL | Internal standard response less than lower control limit | I |
| IS>UCL | Internal standard response greater than upper control limit | I |
| Lab Dup RPD | Lab duplicate exceeds RPD criteria | E |
| LB<RL | Laboratory blank contamination less than the RL | B |
| LB>MDL | Laboratory blank contamination greater than the MDL | B |
| LB>RL | Laboratory blank contamination greater than the RL | B |
| LCS<LCL | LCS recovery less than lower control limit | L |
| LCS>UCL | LCS recovery greater than upper control limit | L |
| LCSRPD | LCS RPD criteria exceeded | L |
| MS<LCL | Matrix spike recovery less than lower limit | Q |
| MS>UCL | Matrix spike recovery greater than upper limit | Q |
| MSRPD | Matrix spike RPD criteria exceedance | Q |
| NoLCS | No LCS in the analytical batch | L |
| PostSpike<LCL | Post spike recovery less than the lower control limit | P |
| PostSpike>UCL | Post spike recovery greater than the upper control limit | P |
| RE | Re-extraction and/or re-analysis | D |
| RemoveBFlag | Lab B flag removed - analyte not detected in sample | \$ |
| SD<LCL | Matrix spike duplicate recovery criteria less than lower limit | Q |
| SD>UCL | Matrix spike duplicate recovery criteria greater than upper limit | Q |
| SerIDil>UCL | Serial Dilution %D greater than the upper control limit | A |
| Sur<LCL | Surrogate recovery less than lower limit | S |
| Sur>UCL | Surrogate recovery greater than upper limit | S |
| TB<RL | Trip blank concentration less than RL | T |
| TB>RL | Trip blank concentration greater than the RL | T |
| TEMP>8C | Temperature Blank>8C | *DVR |
| TIC | Tentatively identified compound | (No flag) |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method 4500-NH3F

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR19GW01S016 | N | 1 Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | LR | 1 Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016MS | MS | 1 | | |
| ND135GW01D011 | FD | 1 Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1 Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | LR | 1 Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011MS | MS | 1 | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike All MS acceptance criteria were met. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR19GW01S016 | | | | | | |
|-----------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| AMMONIA-N | 0.06 | U | U | 0.06 | 0.1 | MG/L | | |

| Field ID | | ND135GW01D011 | | | | | | |
|-----------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| AMMONIA-N | 0.152 | | | 0.06 | 0.1 | MG/L | | |

| Field ID | | ND135GW01S011 | | | | | | |
|-----------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| AMMONIA-N | 0.115 | | | 0.06 | 0.1 | MG/L | | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method E300.0

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | LR | 40 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | N | 40 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | LR | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016MS | MS | 40 | | | |
| HAR19GW01S016SD | SD | 40 | | | |
| HAR19GW01S016SD | SD | 1 | | | |
| ND135GW01D011 | FD | 25 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01D011 | FD | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | LR | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | LR | 40 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 40 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011MS | MS | 1 | | | |
| ND135GW01S011MS | MS | 40 | | | |
| ND135GW01S011SD | SD | 40 | | | |
| ND135GW01S011SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR19GW01S016 | | | | | |
|-----------|--------|---------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| CHLORIDE | 91.6 | | | 4 | 8 | MG/L | |
| FLUORIDE | 0.425 | J | J | 0.05 | 0.5 | MG/L | |
| NITRATE-N | 0.337 | J | J | 0.05 | 0.5 | MG/L | |
| NITRITE-N | 0.05 | U | U | 0.05 | 0.1 | MG/L | |
| SULFATE | 139 | | | 10 | 20 | MG/L | |

| Field ID | | ND135GW01D011 | | | | | |
|-----------|--------|---------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| CHLORIDE | 85.1 | | | 2.5 | 5 | MG/L | |
| FLUORIDE | 0.164 | J | J | 0.05 | 0.5 | MG/L | |
| NITRATE-N | 0.0652 | J | J | 0.05 | 0.5 | MG/L | |
| NITRITE-N | 0.05 | U | U | 0.05 | 0.1 | MG/L | |
| SULFATE | 109 | | | 6.25 | 12.5 | MG/L | |

| Field ID | | ND135GW01S011 | | | | | |
|-----------|--------|---------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| CHLORIDE | 89.8 | | | 4 | 8 | MG/L | |
| FLUORIDE | 0.176 | J | J | 0.05 | 0.5 | MG/L | |
| NITRATE-N | 0.0681 | J | J | 0.05 | 0.5 | MG/L | |
| NITRITE-N | 0.05 | U | U | 0.05 | 0.1 | MG/L | |
| SULFATE | 114 | | | 10 | 20 | MG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method SW8015B

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2459Q001 | TB | 1 | | | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | N | 1.1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016MS | MS | 1.18 | | | |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1.22 | | | |
| HAR19GW01S016SD | SD | 1 | | | |
| ND135GW01D011 | FD | 1.05 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01D011 | FD | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1.11 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011MS | MS | 1.1 | | | |
| ND135GW01S011MS | MS | 1 | | | |
| ND135GW01S011SD | SD | 1.08 | | | |
| ND135GW01S011SD | SD | 1 | | | |

1. Case Narrative Items of Interest

The following items were noted: TB<RL

2. Blank Summary

Field Blanks

These analytes had Blank detects: GASOLINE RANGE ORGANICS (C5-C12) (TB).

Method Blanks

No Method Blank detects were found.

| <u>Blank Type</u> | <u>Blank ID</u> | <u>Analyte</u> | <u>Result</u> | <u>ReportLimit</u> | <u>LabFlag</u> | <u>Units</u> | <u>SDG</u> |
|-------------------|-----------------|-------------------|---------------|--------------------|----------------|--------------|------------|
| TB | CAQW2459Q001 | GASOLINE RANGE OR | 0.012 | 0.05 | J | MG/L | 16G302 |

3. Spikes and Duplicates

Field Duplicates

All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Blanks: These analytes had Blank detects: GASOLINE RANGE ORGANICS (C5-C12) (TB).
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR19GW01S016 | | | | | | |
|---------------------------------|--------|---------------|----------|-------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| DIESEL RANGE ORGANICS (C12-C14) | 0.52 | U | U | 0.055 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C15-C20) | 0.52 | U | U | 0.055 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C21-C30) | 0.52 | U | U | 0.055 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C11) | 0.52 | U | U | 0.055 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C30) | 0.52 | U | J | 0.055 | 0.52 | MG/L | <RL (U) | |
| ASOLINE RANGE ORGANICS (C5-C1) | 0.05 | U | J | 0.01 | 0.05 | MG/L | TB<RL (U) | |

| Field ID | | ND135GW01D011 | | | | | | |
|---------------------------------|--------------|---------------|----------|-------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| DIESEL RANGE ORGANICS (C12-C14) | 0.49 | U | U | 0.052 | 0.49 | MG/L | | |
| DIESEL RANGE ORGANICS (C15-C20) | 0.41 | J | J | 0.052 | 0.49 | MG/L | | |
| DIESEL RANGE ORGANICS (C21-C30) | 0.077 | J | J | 0.052 | 0.49 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C11) | 0.17 | J | J | 0.052 | 0.49 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C30) | 0.56 | | | 0.052 | 0.49 | MG/L | | |
| ASOLINE RANGE ORGANICS (C5-C1) | 0.075 | | | 0.01 | 0.05 | MG/L | TB>MDL (None) | |

| Field ID | | ND135GW01S011 | | | | | | |
|---------------------------------|--------------|---------------|----------|-------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| DIESEL RANGE ORGANICS (C12-C14) | 0.52 | U | U | 0.056 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C15-C20) | 0.37 | J | J | 0.056 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C21-C30) | 0.11 | J | J | 0.056 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C11) | 0.14 | J | J | 0.056 | 0.52 | MG/L | | |
| DIESEL RANGE ORGANICS (C8-C30) | 0.54 | | | 0.056 | 0.52 | MG/L | | |
| ASOLINE RANGE ORGANICS (C5-C1) | 0.071 | | | 0.01 | 0.05 | MG/L | TB>MDL (None) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-----------------|
| TB<RL | Trip blank concentration less than the reporting limit | Blank |
| <RL | Result less than the reporting limit | RL |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method SW8260B

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 10/7/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2459Q001 | TB | 1 | | | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |
| ND135GW01D011 | FD | 25 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01D011 | FD | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011MS | MS | 1 | | | |
| ND135GW01S011 | N | 25 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011SD | SD | 1 | | | |

1. Case Narrative Items of Interest

The following items were noted: 2Cleve; FD>RPD; LCS<LCL; MS<LCL; MS>UCL; MSRPD; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks These analytes had Method Blank detects: METHYLENE CHLORIDE. No flagging applied.

| <u>Blank Type</u> | <u>Blank ID</u> | <u>Analyte</u> | <u>Result</u> | <u>ReportLimit</u> | <u>LabFlag</u> | <u>Units</u> | <u>SDG</u> |
|-------------------|-----------------|-------------------|---------------|--------------------|----------------|--------------|------------|
| LB | MBLK3W | METHYLENE CHLORID | 0.58 | 1 | J | UG/L | 16G302 |

3. Spikes and Duplicates

Field Duplicates These samples were out of control: TOLUENE (ND135GW01S011, Difference > RL X 2: 2.5 vs 2).

| <u>Matrix</u> | <u>Sample ID</u> | <u>Analyte</u> | <u>Result</u> | <u>Field Duplicate Qualifier*</u> | <u>Criteria</u> |
|---------------|------------------|----------------|---------------|-----------------------------------|-----------------|
| WATER | <u>TOLUENE</u> | | | | |
| | ND135GW01D011 | | 4.1 UG/L | J | FD>RPD |
| | ND135GW01S011 | | 6.6 UG/L | J | FD>RPD |

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 2-CHLOROETHYL VINYL ETHER (MS - HAR19GW01S016MS), 2-CHLOROETHYL VINYL ETHER (MS - ND135GW01S011MS), CIS-1,2-DICHLOROETHENE (MS - ND135GW01S011MS), ISOPROPANOL (MS - HAR19GW01S016MS), TRICHLOROETHENE (MS - ND135GW01S011MS), VINYL CHLORIDE (MS - ND135GW01S011MS). These SD's were out of control: 2-CHLOROETHYL VINYL ETHER (SD - HAR19GW01S016SD), 2-CHLOROETHYL VINYL ETHER (SD - ND135GW01S011SD), CIS-1,2-DICHLOROETHENE (SD - ND135GW01S011SD), TRICHLOROETHENE (SD - ND135GW01S011SD), VINYL CHLORIDE (SD - ND135GW01S011SD). For cis-1,2-DCE, TCE, and vinyl chloride, the native sample concentrations were greater than 4 times the spike level; no flagging applied to these analytes. Recovery for 2-chloroethylvinyl ether was less than 10%; results were rejected. These MS/SD RPD's were out of control: ISOBUTANOL (ND135GW01S011), ISOPROPANOL (HAR19GW01S016).

| <u>Matrix</u> | <u>Sample ID</u> | <u>LR Type</u> | <u>Analyte</u> | <u>Result</u> | <u>MS/MSD Qualifier*</u> | <u>Criteria</u> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-CHLOROETHYL VINYL ETHER</u> | | | |
| | HAR19GW01S016 | | | 1 UG/L | R | MS<LCL |
| | HAR19GW01S016 | | | 1 UG/L | R | SD<LCL |
| | ND135GW01S011 | | | 1 UG/L | R | MS<LCL |
| | ND135GW01S011 | | | 1 UG/L | R | SD<LCL |
| WATER | | | <u>CIS-1,2-DICHLOROETHENE</u> | | | |
| | ND135GW01S011 | | | 570 UG/L | None | MS<LCL |
| | ND135GW01S011 | | | 570 UG/L | None | SD<LCL |
| WATER | | | <u>ISOBUTANOL</u> | | | |
| | ND135GW01S011 | | | 20 UG/L | none | MSRPD |
| WATER | | | <u>ISOPROPANOL</u> | | | |
| | HAR19GW01S016 | | | 61 UG/L | J | MS>UCL |
| | HAR19GW01S016 | | | 61 UG/L | J | MSRPD |
| WATER | | | <u>TRICHLOROETHENE</u> | | | |
| | ND135GW01S011 | | | 220 UG/L | None | MS>UCL |
| | ND135GW01S011 | | | 220 UG/L | None | SD>UCL |
| WATER | | | <u>VINYL CHLORIDE</u> | | | |
| | ND135GW01S011 | | | 48 UG/L | None | MS<LCL |
| | ND135GW01S011 | | | 48 UG/L | None | SD<LCL |

4. Laboratory Control Sample These LCS analytes were out of control: 2-HEXANONE (BD), ACROLEIN (BS). All acceptance criteria were met.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|----------------|-----------------|-------------------|-------------------|
| WATER | BD | LCD3W | 2-HEXANONE | 121 | 70 | 120 |
| WATER | BS | LCS1W | ACROLEIN | 69 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: These samples were out of control: TOLUENE (ND135GW01S011, Difference > RL X 2: 2.5 vs 2).

Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND135GW01D011, ND135GW01S011.

Method Blanks: These analytes had Method Blank detects: METHYLENE CHLORIDE.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Matrix Spike: These MS's were out of control: 2-CHLOROETHYL VINYL ETHER (MS - HAR19GW01S016MS), 2-CHLOROETHYL VINYL ETHER (MS - ND135GW01S011MS), CIS-1,2-DICHLOROETHENE (MS - ND135GW01S011MS), ISOPROPANOL (MS - HAR19GW01S016MS), TRICHLOROETHENE (MS - ND135GW01S011MS), VINYL CHLORIDE (MS - ND135GW01S011MS). These SD's were out of control: 2-CHLOROETHYL VINYL ETHER (SD - HAR19GW01S016SD), 2-CHLOROETHYL VINYL ETHER (SD - ND135GW01S011SD), CIS-1,2-DICHLOROETHENE (SD - ND135GW01S011SD), TRICHLOROETHENE (SD - ND135GW01S011SD), VINYL CHLORIDE (SD - ND135GW01S011SD). These MS/SD RPD's were out of control: ISOBUTANOL (ND135GW01S011), ISOPROPANOL (HAR19GW01S016). VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest

These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND135GW01D011, ND135GW01S011. Samples were re-analyzed on a diluted basis due to concentration of target analytes.

COC Review

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

***When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).**

| Field ID | HAR19GW01S016 | | | | | | | |
|-------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-TETRACHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,1,1-TRICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,1,2,2-TETRACHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| -TRICHLORO-1,2,2-TRIFLUOROETH | 0.3 | U | U | 0.3 | 1 | UG/L | | |
| 1,1,2-TRICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,1-DICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,1-DICHLOROETHENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,1-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,2,3-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | | |
| 1,2,3-TRICHLOROPROPANE | 0.5 | U | U | 0.5 | 2 | UG/L | | |
| 1,2,4-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | | |
| 1,2,4-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | | |
| 1,2-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,2-DICHLOROETHANE | 0.2 | U | U | 0.2 | 0.5 | UG/L | | |
| 1,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,3,5-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | | |
| 1,3-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 1,3-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 2 | UG/L | | |
| 1,4-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 2,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| -CHLORO-1,1,1-TRIFLUOROETHANI | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 2-CHLOROETHYL VINYL ETHER | 1 | R | U | 1 | 2 | UG/L | 2Cleve (R) | |
| | 1 | R | U | 1 | 2 | UG/L | MS<LCL (R) | |
| | 1 | R | U | 1 | 2 | UG/L | SD<LCL (R) | |
| 2-CHLOROTOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| 2-HEXANONE | 5 | U | U | 5 | 10 | UG/L | | |
| 4-CHLOROTOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| ACETONE | 5 | U | U | 5 | 10 | UG/L | | |
| ACETONITRILE | 10 | U | U | 10 | 20 | UG/L | | |
| ACROLEIN | 5 | UJ | U | 5 | 20 | UG/L | LCS<LCL (UJ) | |
| ACRYLONITRILE | 5 | U | U | 5 | 20 | UG/L | | |
| ALLYL CHLORIDE | 0.5 | U | U | 0.5 | 2 | UG/L | | |
| BENZENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | | |
| BROMOBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| BROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| BROMODICHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| BROMOFORM | 0.3 | U | U | 0.3 | 1 | UG/L | | |
| BROMOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | | |
| CARBON DISULFIDE | 0.2 | U | U | 0.2 | 1 | UG/L | | |
| CARBON TETRACHLORIDE | 0.2 | U | U | 0.2 | 0.5 | UG/L | | |

Validated Form I

| Field ID | HAR19GW01S016 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| CHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| CHLOROETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| CHLOROFORM | 0.2 | U | U | 0.2 | 1 | UG/L | |
| CHLOROMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| CHLOROPRENE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| CHLOROTRIFLUOROETHYLENE | 2.3 | | | 0.2 | 1 | UG/L | |
| CIS-1,2-DICHLOROETHENE | 49 | | | 0.2 | 1 | UG/L | |
| CIS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| DIBROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| DIBROMOMETHANE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| DICHLORODIFLUOROMETHANE | 0.6 | J | J | 0.3 | 1 | UG/L | |
| ETHYL METHACRYLATE | 0.5 | U | U | 0.5 | 3 | UG/L | |
| ETHYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| HEXACHLOROBUTADIENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| IODOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| ISOBUTANOL | 20 | U | U | 20 | 40 | UG/L | |
| ISOPROPANOL | 61 | J | | 20 | 40 | UG/L | MS>UCL (J) |
| | 61 | J | | 20 | 40 | UG/L | MSRPD (J) |
| ISOPROPYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| METHACRYLONITRILE | 5 | U | U | 5 | 10 | UG/L | |
| METHYL ETHYL KETONE | 5 | U | U | 5 | 10 | UG/L | |
| METHYL ISOBUTYL KETONE (MIBK) | 2.1 | U | U | 2.1 | 10 | UG/L | |
| METHYL METHACRYLATE | 0.5 | U | U | 0.5 | 4 | UG/L | |
| METHYLENE CHLORIDE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| ETHYL-TERT-BUTYL-ETHER (MTBE) | 0.2 | U | U | 0.2 | 1 | UG/L | |
| M-XYLENE & P-XYLENE | 0.4 | U | U | 0.4 | 1 | UG/L | |
| N-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| N-PROPYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| O-XYLENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| PENTACHLOROETHANE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| P-ISOPROPYLTOLUENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| PROPIONITRILE | 10 | U | U | 10 | 20 | UG/L | |
| SEC-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| STYRENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| TERT-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| TETRACHLOROETHENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| TOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| TRANS-1,2-DICHLOROETHENE | 31 | | | 0.2 | 1 | UG/L | |
| TRANS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| TRANS-1,4-DICHLORO-2-BUTENE | 1 | U | U | 1 | 2 | UG/L | |
| TRICHLOROETHENE | 49 | | | 0.2 | 1 | UG/L | |
| CHLOROFLUOROMETHANE (FREON) | 0.3 | U | U | 0.3 | 1 | UG/L | |
| VINYL ACETATE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| VINYL CHLORIDE | 2.5 | | | 0.2 | 0.5 | UG/L | |

| Field ID | ND135GW01D011 | | | | | | |
|---------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-TETRACHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |

| Field ID | ND135GW01D011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1,1-TRICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1,2,2-TETRACHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| -TRICHLORO-1,2,2-TRIFLUOROETH | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,1,2-TRICHLOROETHANE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 1,1-DICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1-DICHLOROETHENE | 1.1 | | | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,2,3-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,2,3-TRICHLOROPROPANE | 0.5 | U | U | 0.5 | 2 | UG/L | |
| 1,2,4-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,2,4-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,2-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,2-DICHLOROETHANE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| 1,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,3,5-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,3-DICHLOROBENZENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 1,3-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,4-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 2,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| -CHLORO-1,1,1-TRIFLUOROETHANI | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 2-CHLOROETHYL VINYL ETHER | 1 | R | U | 1 | 2 | UG/L | 2Cleve (R) |
| | 25 | exclude | U | 25 | 50 | UG/L | RE (exclude) |
| | 25 | exclude | U | 25 | 50 | UG/L | 2Cleve (R) |
| 2-CHLOROTOLUENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 2-HEXANONE | 120 | exclude | U | 120 | 250 | UG/L | LCS>UCL (none) |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| | 5 | U | U | 5 | 10 | UG/L | |
| 4-CHLOROTOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |

Validated Form I

| Field ID | ND135GW01D011 | | | | | | |
|-------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| ACETONE | 8.6 | J | J | 5 | 10 | UG/L | |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| ACETONITRILE | 10 | U | U | 10 | 20 | UG/L | |
| | 250 | exclude | U | 250 | 500 | UG/L | RE (exclude) |
| ACROLEIN | 5 | UJ | U | 5 | 20 | UG/L | LCS<LCL (UJ) |
| | 120 | exclude | U | 120 | 500 | UG/L | RE (exclude) |
| ACRYLONITRILE | 120 | exclude | U | 120 | 500 | UG/L | RE (exclude) |
| | 5 | U | U | 5 | 20 | UG/L | |
| ALLYL CHLORIDE | 0.5 | U | U | 0.5 | 2 | UG/L | |
| | 12 | exclude | U | 12 | 50 | UG/L | RE (exclude) |
| BENZENE | 1.2 | | | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| BROMOBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMODICHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMOFORM | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| BROMOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| CARBON DISULFIDE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CARBON TETRACHLORIDE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| CHLOROENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CHLOROETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| CHLOROFORM | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CHLOROMETHANE | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| | 0.3 | U | U | 0.3 | 1 | UG/L | |
| CHLOROPRENE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| CHLOROTRIFLUOROETHYLENE | 1.8 | | | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CIS-1,2-DICHLOROETHENE | 420 | exclude | E | 0.2 | 1 | UG/L | RE (exclude) |
| | 560 | | | 5 | 25 | UG/L | |
| CIS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| DIBROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| DIBROMOMETHANE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| DICHLORODIFLUOROMETHANE | 0.49 | J | J | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| ETHYL METHACRYLATE | 0.5 | U | U | 0.5 | 3 | UG/L | |
| | 12 | exclude | U | 12 | 75 | UG/L | RE (exclude) |

Validated Form I

| Field ID | ND135GW01D011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| ETHYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| HEXACHLOROBUTADIENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| IODOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| ISOBUTANOL | 20 | U | U | 20 | 40 | UG/L | |
| | 500 | exclude | U | 500 | 1000 | UG/L | RE (exclude) |
| ISOPROPANOL | 500 | exclude | U | 500 | 1000 | UG/L | RE (exclude) |
| | 60 | | | 20 | 40 | UG/L | |
| ISOPROPYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| METHACRYLONITRILE | 5 | U | U | 5 | 10 | UG/L | |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| METHYL ETHYL KETONE | 5 | U | U | 5 | 10 | UG/L | |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| METHYL ISOBUTYL KETONE (MIBK) | 2.1 | U | U | 2.1 | 10 | UG/L | |
| | 52 | exclude | U | 52 | 250 | UG/L | RE (exclude) |
| METHYL METHACRYLATE | 0.5 | U | U | 0.5 | 4 | UG/L | |
| | 12 | exclude | U | 12 | 100 | UG/L | RE (exclude) |
| METHYLENE CHLORIDE | 12 | exclude | U | 12 | 25 | UG/L | LB<RL (none) |
| | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| ETHYL-TERT-BUTYL-ETHER (MTBE) | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| M-XYLENE & P-XYLENE | 0.4 | U | U | 0.4 | 1 | UG/L | |
| | 10 | exclude | U | 10 | 25 | UG/L | RE (exclude) |
| N-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| N-PROPYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| O-XYLENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| PENTACHLOROETHANE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| P-ISOPROPYLTOLUENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| PROPIONITRILE | 250 | exclude | U | 250 | 500 | UG/L | RE (exclude) |
| | 10 | U | U | 10 | 20 | UG/L | |
| SEC-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| STYRENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| TERT-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| TETRACHLOROETHENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| TOLUENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 4.1 | J | | 0.2 | 1 | UG/L | FD>RPD (J) |
| TRANS-1,2-DICHLOROETHENE | 20 | exclude | J | 5 | 25 | UG/L | RE (exclude) |

Validated Form I

| Field ID | ND135GW01D011 | | | | | | |
|-----------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 20 | | | 0.2 | 1 | UG/L | |
| TRANS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| TRANS-1,4-DICHLORO-2-BUTENE | 1 | U | U | 1 | 2 | UG/L | |
| | 25 | exclude | U | 25 | 50 | UG/L | RE (exclude) |
| TRICHLOROETHENE | 230 | | | 5 | 25 | UG/L | |
| | 250 | exclude | E | 0.2 | 1 | UG/L | RE (exclude) |
| CHLOROFLUOROMETHANE (FREON | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| VINYL ACETATE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| VINYL CHLORIDE | 37 | | | 0.2 | 0.5 | UG/L | |
| | 38 | exclude | | 5 | 12 | UG/L | RE (exclude) |

| Field ID | ND135GW01S011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-TETRACHLOROETHANE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 1,1,1-TRICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1,2,2-TETRACHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| -TRICHLORO-1,2,2-TRIFLUOROETH | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,1,2-TRICHLOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,1-DICHLOROETHANE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 1,1-DICHLOROETHENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 1.1 | | | 0.2 | 1 | UG/L | |
| 1,1-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,2,3-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,2,3-TRICHLOROPROPANE | 0.5 | U | U | 0.5 | 2 | UG/L | |
| 1,2,4-TRICHLOROBENZENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| 1,2,4-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,2-DICHLOROBENZENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| 1,2-DICHLOROETHANE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| 1,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,3,5-TRIMETHYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,3-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |

Validated Form I

| Field ID | ND135GW01S011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 1,3-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| 1,4-DICHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 2,2-DICHLOROPROPANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| -CHLORO-1,1,1-TRIFLUOROETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 2-CHLOROETHYL VINYL ETHER | 1 | R | U | 1 | 2 | UG/L | 2Cleve (R) |
| | 1 | R | U | 1 | 2 | UG/L | MS<LCL (R) |
| | 1 | R | U | 1 | 2 | UG/L | SD<LCL (R) |
| | 25 | exclude | U | 25 | 50 | UG/L | RE (exclude) |
| | 25 | exclude | U | 25 | 50 | UG/L | 2Cleve (R) |
| 2-CHLOROTOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| 2-HEXANONE | 120 | exclude | U | 120 | 250 | UG/L | LCS>UCL (none) |
| | 5 | U | U | 5 | 10 | UG/L | LCS>UCL (none) |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| 4-CHLOROTOLUENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| ACETONE | 5 | U | U | 5 | 10 | UG/L | |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| ACETONITRILE | 10 | U | U | 10 | 20 | UG/L | |
| | 250 | exclude | U | 250 | 500 | UG/L | RE (exclude) |
| ACROLEIN | 5 | U | U | 5 | 20 | UG/L | |
| | 120 | exclude | U | 120 | 500 | UG/L | RE (exclude) |
| ACRYLONITRILE | 5 | U | U | 5 | 20 | UG/L | |
| | 120 | exclude | U | 120 | 500 | UG/L | RE (exclude) |
| ALLYL CHLORIDE | 0.5 | U | U | 0.5 | 2 | UG/L | |
| | 12 | exclude | U | 12 | 50 | UG/L | RE (exclude) |
| BENZENE | 1.2 | | | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| BROMOBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMODICHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| BROMOFORM | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| BROMOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| CARBON DISULFIDE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| CARBON TETRACHLORIDE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| CHLOROBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CHLOROETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |

Validated Form I

| Field ID | ND135GW01S011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| CHLOROFORM | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CHLOROMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| CHLOROPRENE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| CHLOROTRIFLUOROETHYLENE | 1.6 | | | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| CIS-1,2-DICHLOROETHENE | 430 | exclude | E | 0.2 | 1 | UG/L | RE (exclude) |
| | 570 | | | 5 | 25 | UG/L | MS<LCL (None) |
| | 570 | | | 5 | 25 | UG/L | SD<LCL (None) |
| CIS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| DIBROMOCHLOROMETHANE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| DIBROMOMETHANE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| DICHLORODIFLUOROMETHANE | 0.44 | J | J | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| ETHYL METHACRYLATE | 0.5 | U | U | 0.5 | 3 | UG/L | |
| | 12 | exclude | U | 12 | 75 | UG/L | RE (exclude) |
| ETHYLBENZENE | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| HEXACHLOROBUTADIENE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| IODOMETHANE | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| ISOBUTANOL | 20 | U | U | 20 | 40 | UG/L | MSRPD (none) |
| | 500 | exclude | U | 500 | 1000 | UG/L | RE (exclude) |
| ISOPROPANOL | 29 | J | J | 20 | 40 | UG/L | |
| | 500 | exclude | U | 500 | 1000 | UG/L | RE (exclude) |
| ISOPROPYLBENZENE | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 2 | UG/L | |
| METHACRYLONITRILE | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| | 5 | U | U | 5 | 10 | UG/L | |
| METHYL ETHYL KETONE | 5 | U | U | 5 | 10 | UG/L | |
| | 120 | exclude | U | 120 | 250 | UG/L | RE (exclude) |
| METHYL ISOBUTYL KETONE (MIBK) | 2.1 | U | U | 2.1 | 10 | UG/L | |
| | 52 | exclude | U | 52 | 250 | UG/L | RE (exclude) |
| METHYL METHACRYLATE | 0.5 | U | U | 0.5 | 4 | UG/L | |
| | 12 | exclude | U | 12 | 100 | UG/L | RE (exclude) |
| METHYLENE CHLORIDE | 0.5 | U | U | 0.5 | 1 | UG/L | LB<RL (none) |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| | 12 | exclude | U | 12 | 25 | UG/L | LB<RL (none) |
| ETHYL-TERT-BUTYL-ETHER (MTBE) | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| | 0.2 | U | U | 0.2 | 1 | UG/L | |
| M-XYLENE & P-XYLENE | 0.4 | U | U | 0.4 | 1 | UG/L | |
| | 10 | exclude | U | 10 | 25 | UG/L | RE (exclude) |
| N-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |

| Field ID | ND135GW01S011 | | | | | | |
|-----------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| N-PROPYLBENZENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| O-XYLENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| PENTACHLOROETHANE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| P-ISOPROPYLTOLUENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| PROPIONITRILE | 10 | U | U | 10 | 20 | UG/L | |
| | 250 | exclude | U | 250 | 500 | UG/L | RE (exclude) |
| SEC-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| STYRENE | 0.2 | U | U | 0.2 | 2 | UG/L | |
| | 5 | exclude | U | 5 | 50 | UG/L | RE (exclude) |
| TERT-BUTYLBENZENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| TETRACHLOROETHENE | 0.2 | U | U | 0.2 | 1 | UG/L | |
| | 5 | exclude | U | 5 | 25 | UG/L | RE (exclude) |
| TOLUENE | 6.6 | exclude | J | 5 | 25 | UG/L | RE (exclude) |
| | 6.6 | J | | 0.2 | 1 | UG/L | FD>RPD (J) |
| TRANS-1,2-DICHLOROETHENE | 22 | | | 0.2 | 1 | UG/L | |
| | 21 | exclude | J | 5 | 25 | UG/L | RE (exclude) |
| TRANS-1,3-DICHLOROPROPENE | 0.2 | U | U | 0.2 | 0.5 | UG/L | |
| | 5 | exclude | U | 5 | 12 | UG/L | RE (exclude) |
| TRANS-1,4-DICHLORO-2-BUTENE | 1 | U | U | 1 | 2 | UG/L | |
| | 25 | exclude | U | 25 | 50 | UG/L | RE (exclude) |
| TRICHLOROETHENE | 220 | | | 5 | 25 | UG/L | MS>UCL (None) |
| | 220 | | | 5 | 25 | UG/L | SD>UCL (None) |
| | 250 | exclude | E | 0.2 | 1 | UG/L | RE (exclude) |
| CHLOROFLUOROMETHANE (FREON | 0.3 | U | U | 0.3 | 1 | UG/L | |
| | 7.5 | exclude | U | 7.5 | 25 | UG/L | RE (exclude) |
| VINYL ACETATE | 0.5 | U | U | 0.5 | 1 | UG/L | |
| | 12 | exclude | U | 12 | 25 | UG/L | RE (exclude) |
| VINYL CHLORIDE | 48 | | | 0.2 | 0.5 | UG/L | SD<LCL (None) |
| | 46 | exclude | | 5 | 12 | UG/L | RE (exclude) |
| | 48 | | | 0.2 | 0.5 | UG/L | MS<LCL (None) |

Validated Form I

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|-------------------------|
| LB<RL | Laboratory blank contamination less than the reporting limit | Blank |
| FD>RPD | Field duplicate exceeds RPD criteria | FieldDuplicate |
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| MSRPD | Matrix spike RPD criteria exceedance | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method SW8270C

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1.19 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016MS | MS | 1.09 | | | |
| HAR19GW01S016SD | SD | 0.95 | | | |
| ND135GW01D011 | FD | 1.08 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N | 1.01 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011MS | MS | 1.03 | | | |
| ND135GW01S011SD | SD | 1.05 | | | |

1. Case Narrative Items of Interest

The following items were noted: LCS<LCL; MS<LCL; SD<LCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: BENZIDINE (MS - HAR19GW01S016MS), BENZIDINE (MS - ND135GW01S011MS), HEXACHLOROCYCLOPENTADIENE (MS - HAR19GW01S016MS), HEXACHLOROCYCLOPENTADIENE (MS - ND135GW01S011MS), N-NITROSODIMETHYLAMINE (NDMA) (MS - ND135GW01S011MS), PYRIDINE (MS - ND135GW01S011MS). These SD's were out of control: BENZIDINE (SD - ND135GW01S011SD), HEXACHLOROCYCLOPENTADIENE (SD - HAR19GW01S016SD), HEXACHLOROCYCLOPENTADIENE (SD - ND135GW01S011SD). All RPD

acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|-------------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>BENZIDINE</u> | | | |
| | HAR19GW01S016 | | | 59 UG/L | UJ | MS<LCL |
| | ND135GW01S011 | | | 50 UG/L | UJ | MS<LCL |
| | ND135GW01S011 | | | 50 UG/L | UJ | SD<LCL |
| WATER | | | <u>HEXACHLOROCYCLOPENTADIENE</u> | | | |
| | HAR19GW01S016 | | | 12 UG/L | UJ | MS<LCL |
| | HAR19GW01S016 | | | 12 UG/L | UJ | SD<LCL |
| | ND135GW01S011 | | | 10 UG/L | UJ | MS<LCL |
| | ND135GW01S011 | | | 10 UG/L | UJ | SD<LCL |
| WATER | | | <u>N-NITROSODIMETHYLAMINE (NDM)</u> | | | |
| | ND135GW01S011 | | | 10 UG/L | UJ | MS<LCL |
| WATER | | | <u>PYRIDINE</u> | | | |
| | ND135GW01S011 | | | 40 UG/L | UJ | MS<LCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2,4-DIMETHYLPHENOL (BD), BIS(2-CHLOROISOPROPYL)ETHER (BD), HEXACHLOROBUTADIENE (BD), HEXACHLOROCYCLOPENTADIENE (BD), HEXACHLOROCYCLOPENTADIENE (BS), ISOPHORONE (BD), NITROBENZENE (BD), N-NITROSODIMETHYLAMINE (NDMA) (BD), PYRIDINE (BD). These LCS RPD analytes were out of control: 1,3-DINITROBENZENE (BS), 1-METHYL NAPHTHALENE (BS), 2,4,5-TRICHLOROPHENOL (BS), 2,4,6-TRICHLOROPHENOL (BS), 2-CHLORONAPHTHALENE (BS), 2-NITROANILINE (BS), ACENAPHTHYLENE (BS), DIMETHYL PHTHALATE (BS), PYRENE (BS).

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------|-----------------|-------------------|-------------------|
| WATER | BD | LCD1W | 2,4-DIMETHYLPHENOL | 67 | 70 | 120 |
| WATER | BD | LCD1W | BIS(2-CHLOROISOPROP | 69 | 70 | 120 |
| WATER | BD | LCD1W | HEXACHLOROBUTADIEN | 68 | 70 | 120 |
| WATER | BD | LCD1W | HEXACHLOROCYCLOPE | 57 | 70 | 120 |
| WATER | BD | LCD1W | ISOPHORONE | 64 | 70 | 120 |
| WATER | BD | LCD1W | NITROBENZENE | 67 | 70 | 120 |
| WATER | BD | LCD1W | N-NITROSODIMETHYLA | 63 | 70 | 120 |
| WATER | BD | LCD1W | PYRIDINE | 65 | 70 | 120 |
| WATER | BS | LCS1W | HEXACHLOROCYCLOPE | 69 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: These LCS analytes were out of control: 2,4-DIMETHYLPHENOL (BD), BIS(2-CHLOROISOPROPYL)ETHER (BD), HEXACHLOROBUTADIENE (BD), HEXACHLOROCYCLOPENTADIENE (BD), HEXACHLOROCYCLOPENTADIENE (BS), ISOPHORONE (BD), NITROBENZENE (BD), N-NITROSODIMETHYLAMINE (NDMA) (BD), PYRIDINE (BD). These LCS RPD analytes were out of control: 1,3-DINITROBENZENE (BS), 1-METHYL NAPHTHALENE (BS), 2,4,5-TRICHLOROPHENOL (BS), 2,4,6-TRICHLOROPHENOL (BS), 2-CHLORONAPHTHALENE (BS), 2-NITROANILINE (BS), ACENAPHTHYLENE (BS), DIMETHYL PHTHALATE (BS), PYRENE (BS).
VDMS4.32

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | | |
|-----------------------------|---------------|------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,2,4-TRICHLOROBENZENE | 12 | U | U | 6 | 12 | UG/L | | |
| 1,2-DICHLOROBENZENE | 12 | U | U | 6 | 12 | UG/L | | |
| 1,2-DIPHENYLHYDRAZINE | 12 | U | U | 6 | 12 | UG/L | | |
| 1,3-DICHLOROBENZENE | 12 | U | U | 6 | 12 | UG/L | | |
| 1,3-DINITROBENZENE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| 1,4-DICHLOROBENZENE | 12 | U | U | 6 | 12 | UG/L | | |
| 1-METHYL NAPHTHALENE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| 2,3,4,6-TETRACHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 2,4,5-TRICHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| 2,4,6-TRICHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| 2,4-DICHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 2,4-DIMETHYLPHENOL | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) | |
| 2,4-DINITROPHENOL | 24 | U | U | 6 | 24 | UG/L | | |
| 2,4-DINITROTOLUENE | 12 | U | U | 6 | 12 | UG/L | | |
| 2,6-DICHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 2,6-DINITROTOLUENE | 12 | U | U | 6 | 12 | UG/L | | |
| 2-CHLORONAPHTHALENE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| 2-CHLOROPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 2-METHYLNAPHTHALENE | 12 | U | U | 6 | 12 | UG/L | | |
| 2-METHYLPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 2-NITROANILINE | 24 | U | U | 6 | 24 | UG/L | LCSRPD (none) | |
| 2-NITROPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 3,3'-DICHLOROBENZIDINE | 12 | U | U | 6 | 12 | UG/L | | |
| 3,5-DIMETHYLPHENOL | 24 | U | U | 6 | 24 | UG/L | | |
| 3-NITROANILINE | 12 | U | U | 6 | 12 | UG/L | | |
| 4,6-DINITRO-2-METHYLPHENOL | 24 | U | U | 6 | 24 | UG/L | | |
| 4-BROMOPHENYL PHENYL ETHER | 12 | U | U | 6 | 12 | UG/L | | |
| 4-CHLORO-3-METHYLPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 4-CHLOROANILINE | 12 | U | U | 6 | 12 | UG/L | | |
| 4-CHLOROPHENYL PHENYL ETHER | 12 | U | U | 6 | 12 | UG/L | | |
| 4-METHYLPHENOL | 12 | U | U | 6 | 12 | UG/L | | |
| 4-NITROANILINE | 12 | U | U | 6 | 12 | UG/L | | |
| 4-NITROPHENOL | 24 | U | U | 6 | 24 | UG/L | | |
| ACENAPHTHENE | 12 | U | U | 6 | 12 | UG/L | | |
| ACENAPHTHYLENE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) | |
| ANILINE | 24 | U | U | 12 | 24 | UG/L | | |
| ANTHRACENE | 12 | U | U | 6 | 12 | UG/L | | |
| BENZIDINE | 59 | UJ | U | 24 | 59 | UG/L | MS<LCL (UJ) | |
| BENZO(A)ANTHRACENE | 12 | U | U | 6 | 12 | UG/L | | |
| BENZO(A)PYRENE | 12 | U | U | 6 | 12 | UG/L | | |

Validated Form I

| Field ID | HAR19GW01S016 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| BENZO(B)FLUORANTHENE | 12 | U | U | 6 | 12 | UG/L | |
| BENZO(GHI)PERYLENE | 12 | U | U | 6 | 12 | UG/L | |
| BENZO(K)FLUORANTHENE | 12 | U | U | 6 | 12 | UG/L | |
| BENZOIC ACID | 48 | U | U | 24 | 48 | UG/L | |
| BENZYL ALCOHOL | 12 | U | U | 6 | 12 | UG/L | |
| BIS(2-CHLOROETHOXY)METHANE | 12 | U | U | 6 | 12 | UG/L | |
| BIS(2-CHLOROETHYL)ETHER | 12 | U | U | 6 | 12 | UG/L | |
| BIS(2-CHLOROISOPROPYL)ETHER | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| BIS(2-ETHYLHEXYL)PHTHALATE | 12 | U | U | 6 | 12 | UG/L | |
| BUTYL BENZYL PHTHALATE | 12 | U | U | 6 | 12 | UG/L | |
| CARBAZOLE | 12 | U | U | 6 | 12 | UG/L | |
| CHRYSENE | 12 | U | U | 6 | 12 | UG/L | |
| DIBENZO(A,H)ANTHRACENE | 12 | U | U | 6 | 12 | UG/L | |
| DIBENZOFURAN | 12 | U | U | 6 | 12 | UG/L | |
| DIETHYL PHTHALATE | 12 | U | U | 6 | 12 | UG/L | |
| DIMETHYL PHTHALATE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) |
| DI-N-BUTYL PHTHALATE | 12 | U | U | 6 | 12 | UG/L | |
| DI-N-OCTYL PHTHALATE | 12 | U | U | 6 | 12 | UG/L | |
| FLUORANTHENE | 12 | U | U | 6 | 12 | UG/L | |
| FLUORENE | 12 | U | U | 6 | 12 | UG/L | |
| HEXACHLOROENZENE | 12 | U | U | 6 | 12 | UG/L | |
| HEXACHLOROBUTADIENE | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| HEXACHLOROCYCLOPENTADIENE | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| | 12 | UJ | U | 6 | 12 | UG/L | MS<LCL (UJ) |
| | 12 | UJ | U | 6 | 12 | UG/L | SD<LCL (UJ) |
| HEXACHLOROETHANE | 12 | U | U | 6 | 12 | UG/L | |
| INDENO(1,2,3-CD)PYRENE | 12 | U | U | 6 | 12 | UG/L | |
| ISOPHORONE | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| NAPHTHALENE | 12 | U | U | 6 | 12 | UG/L | |
| NITROBENZENE | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| -NITROSODIMETHYLAMINE (NDM) | 12 | UJ | U | 6 | 12 | UG/L | LCS<LCL (UJ) |
| NITROSODI-N-PROPYLAMINE (NDP) | 12 | U | U | 6 | 12 | UG/L | |
| N-NITROSODIPHENYLAMINE | 12 | U | U | 6 | 12 | UG/L | |
| PENTACHLOROPHENOL (PCP) | 24 | U | U | 6 | 24 | UG/L | |
| PHENANTHRENE | 12 | U | U | 6 | 12 | UG/L | |
| PHENOL | 12 | U | U | 6 | 12 | UG/L | |
| PYRENE | 12 | U | U | 6 | 12 | UG/L | LCSRPD (none) |
| PYRIDINE | 48 | UJ | U | 24 | 48 | UG/L | LCS<LCL (UJ) |

| Field ID | ND135GW01D011 | | | | | | |
|-----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,2,4-TRICHLOROENZENE | 11 | U | U | 5.4 | 11 | UG/L | |
| 1,2-DICHLOROENZENE | 11 | U | U | 5.4 | 11 | UG/L | |
| 1,2-DIPHENYLHYDRAZINE | 11 | U | U | 5.4 | 11 | UG/L | |
| 1,3-DICHLOROENZENE | 11 | U | U | 5.4 | 11 | UG/L | |
| 1,3-DINITROENZENE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) |
| 1,4-DICHLOROENZENE | 11 | U | U | 5.4 | 11 | UG/L | |

Validated Form I

| Field ID | ND135GW01D011 | | | | | | | |
|-----------------------------|---------------|------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1-METHYL NAPHTHALENE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |
| 2,3,4,6-TETRACHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2,4,5-TRICHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |
| 2,4,6-TRICHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |
| 2,4-DICHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2,4-DIMETHYLPHENOL | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) | |
| 2,4-DINITROPHENOL | 22 | U | U | 5.4 | 22 | UG/L | | |
| 2,4-DINITROTOLUENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2,6-DICHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2,6-DINITROTOLUENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2-CHLORONAPHTHALENE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |
| 2-CHLOROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2-METHYLNAPHTHALENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2-METHYLPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 2-NITROANILINE | 22 | U | U | 5.4 | 22 | UG/L | LCSRPD (none) | |
| 2-NITROPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 3,3'-DICHLOROBENZIDINE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 3,5-DIMETHYLPHENOL | 22 | U | U | 5.4 | 22 | UG/L | | |
| 3-NITROANILINE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4,6-DINITRO-2-METHYLPHENOL | 22 | U | U | 5.4 | 22 | UG/L | | |
| 4-BROMOPHENYL PHENYL ETHER | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-CHLORO-3-METHYLPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-CHLOROANILINE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-CHLOROPHENYL PHENYL ETHER | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-METHYLPHENOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-NITROANILINE | 11 | U | U | 5.4 | 11 | UG/L | | |
| 4-NITROPHENOL | 22 | U | U | 5.4 | 22 | UG/L | | |
| ACENAPHTHENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| ACENAPHTHYLENE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |
| ANILINE | 22 | U | U | 11 | 22 | UG/L | | |
| ANTHRACENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZIDINE | 54 | U | U | 22 | 54 | UG/L | | |
| BENZO(A)ANTHRACENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZO(A)PYRENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZO(B)FLUORANTHENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZO(GHI)PERYLENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZO(K)FLUORANTHENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BENZOIC ACID | 43 | U | U | 22 | 43 | UG/L | | |
| BENZYL ALCOHOL | 11 | U | U | 5.4 | 11 | UG/L | | |
| BIS(2-CHLOROETHOXY)METHANE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BIS(2-CHLOROETHYL)ETHER | 11 | U | U | 5.4 | 11 | UG/L | | |
| BIS(2-CHLOROISOPROPYL)ETHER | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | | |
| BUTYL BENZYL PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | | |
| CARBAZOLE | 11 | U | U | 5.4 | 11 | UG/L | | |
| CHRYSENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | U | 5.4 | 11 | UG/L | | |
| DIBENZOFURAN | 11 | U | U | 5.4 | 11 | UG/L | | |
| DIETHYL PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | | |
| DIMETHYL PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) | |

| Field ID | ND135GW01D011 | | | | | | |
|---|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| DI-N-BUTYL PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | |
| DI-N-OCTYL PHTHALATE | 11 | U | U | 5.4 | 11 | UG/L | |
| FLUORANTHENE | 11 | U | U | 5.4 | 11 | UG/L | |
| FLUORENE | 11 | U | U | 5.4 | 11 | UG/L | |
| HEXACHLOROENZENE | 11 | U | U | 5.4 | 11 | UG/L | |
| HEXACHLOROBUTADIENE | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| HEXACHLOROCYCLOPENTADIENE | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| HEXACHLOROETHANE | 11 | U | U | 5.4 | 11 | UG/L | |
| INDENO(1,2,3-CD)PYRENE | 11 | U | U | 5.4 | 11 | UG/L | |
| ISOPHORONE | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| NAPHTHALENE | 11 | U | U | 5.4 | 11 | UG/L | |
| NITROBENZENE | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| -NITROSODIMETHYLAMINE (NDM ₂) | 11 | UJ | U | 5.4 | 11 | UG/L | LCS<LCL (UJ) |
| NITROSODI-N-PROPYLAMINE (NDP) | 11 | U | U | 5.4 | 11 | UG/L | |
| N-NITROSODIPHENYLAMINE | 11 | U | U | 5.4 | 11 | UG/L | |
| PENTACHLOROPHENOL (PCP) | 22 | U | U | 5.4 | 22 | UG/L | |
| PHENANTHRENE | 11 | U | U | 5.4 | 11 | UG/L | |
| PHENOL | 11 | U | U | 5.4 | 11 | UG/L | |
| PYRENE | 11 | U | U | 5.4 | 11 | UG/L | LCSRPD (none) |
| PYRIDINE | 43 | UJ | U | 22 | 43 | UG/L | LCS<LCL (UJ) |

| Field ID | ND135GW01S011 | | | | | | |
|---------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,2,4-TRICHLOROENZENE | 10 | U | U | 5 | 10 | UG/L | |
| 1,2-DICHLOROENZENE | 10 | U | U | 5 | 10 | UG/L | |
| 1,2-DIPHENYLHYDRAZINE | 10 | U | U | 5 | 10 | UG/L | |
| 1,3-DICHLOROENZENE | 10 | U | U | 5 | 10 | UG/L | |
| 1,3-DINITROBENZENE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| 1,4-DICHLOROENZENE | 10 | U | U | 5 | 10 | UG/L | |
| 1-METHYL NAPHTHALENE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| 2,3,4,6-TETRACHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 2,4,5-TRICHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| 2,4,6-TRICHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| 2,4-DICHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 2,4-DIMETHYLPHENOL | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| 2,4-DINITROPHENOL | 20 | U | U | 5 | 20 | UG/L | |
| 2,4-DINITROTOLUENE | 10 | U | U | 5 | 10 | UG/L | |
| 2,6-DICHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 2,6-DINITROTOLUENE | 10 | U | U | 5 | 10 | UG/L | |
| 2-CHLORONAPHTHALENE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| 2-CHLOROPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 2-METHYLNAPHTHALENE | 10 | U | U | 5 | 10 | UG/L | |
| 2-METHYLPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 2-NITROANILINE | 20 | U | U | 5 | 20 | UG/L | LCSRPD (none) |
| 2-NITROPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 3,3'-DICHLOROBENZIDINE | 10 | U | U | 5 | 10 | UG/L | |
| 3,5-DIMETHYLPHENOL | 20 | U | U | 5 | 20 | UG/L | |

| Field ID | ND135GW01S011 | | | | | | ValidationReason (Flag) |
|-----------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 3-NITROANILINE | 10 | U | U | 5 | 10 | UG/L | |
| 4,6-DINITRO-2-METHYLPHENOL | 20 | U | U | 5 | 20 | UG/L | |
| 4-BROMOPHENYL PHENYL ETHER | 10 | U | U | 5 | 10 | UG/L | |
| 4-CHLORO-3-METHYLPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 4-CHLOROANILINE | 10 | U | U | 5 | 10 | UG/L | |
| 4-CHLOROPHENYL PHENYL ETHER | 10 | U | U | 5 | 10 | UG/L | |
| 4-METHYLPHENOL | 10 | U | U | 5 | 10 | UG/L | |
| 4-NITROANILINE | 10 | U | U | 5 | 10 | UG/L | |
| 4-NITROPHENOL | 20 | U | U | 5 | 20 | UG/L | |
| ACENAPHTHENE | 10 | U | U | 5 | 10 | UG/L | |
| ACENAPHTHYLENE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| ANILINE | 20 | U | U | 10 | 20 | UG/L | |
| ANTHRACENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZIDINE | 50 | UJ | U | 20 | 50 | UG/L | MS<LCL (UJ) |
| | 50 | UJ | U | 20 | 50 | UG/L | SD<LCL (UJ) |
| BENZO(A)ANTHRACENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZO(A)PYRENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZO(B)FLUORANTHENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZO(GHI)PERYLENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZO(K)FLUORANTHENE | 10 | U | U | 5 | 10 | UG/L | |
| BENZOIC ACID | 40 | U | U | 20 | 40 | UG/L | |
| BENZYL ALCOHOL | 10 | U | U | 5 | 10 | UG/L | |
| BIS(2-CHLOROETHOXY)METHANE | 10 | U | U | 5 | 10 | UG/L | |
| BIS(2-CHLOROETHYL)ETHER | 10 | U | U | 5 | 10 | UG/L | |
| BIS(2-CHLOROISOPROPYL)ETHER | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| BIS(2-ETHYLHEXYL)PHTHALATE | 10 | U | U | 5 | 10 | UG/L | |
| BUTYL BENZYL PHTHALATE | 10 | U | U | 5 | 10 | UG/L | |
| CARBAZOLE | 10 | U | U | 5 | 10 | UG/L | |
| CHRYSENE | 10 | U | U | 5 | 10 | UG/L | |
| DIBENZO(A,H)ANTHRACENE | 10 | U | U | 5 | 10 | UG/L | |
| DIBENZOFURAN | 10 | U | U | 5 | 10 | UG/L | |
| DIETHYL PHTHALATE | 10 | U | U | 5 | 10 | UG/L | |
| DIMETHYL PHTHALATE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| DI-N-BUTYL PHTHALATE | 10 | U | U | 5 | 10 | UG/L | |
| DI-N-OCTYL PHTHALATE | 10 | U | U | 5 | 10 | UG/L | |
| FLUORANTHENE | 10 | U | U | 5 | 10 | UG/L | |
| FLUORENE | 10 | U | U | 5 | 10 | UG/L | |
| HEXACHLOROENZENE | 10 | U | U | 5 | 10 | UG/L | |
| HEXACHLOROBUTADIENE | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| HEXACHLOROCYCLOPENTADIENE | 10 | UJ | U | 5 | 10 | UG/L | SD<LCL (UJ) |
| | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| | 10 | UJ | U | 5 | 10 | UG/L | MS<LCL (UJ) |
| HEXACHLOROETHANE | 10 | U | U | 5 | 10 | UG/L | |
| INDENO(1,2,3-CD)PYRENE | 10 | U | U | 5 | 10 | UG/L | |
| ISOPHORONE | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| NAPHTHALENE | 10 | U | U | 5 | 10 | UG/L | |
| NITROBENZENE | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| -NITROSODIMETHYLAMINE (NDM) | 10 | UJ | U | 5 | 10 | UG/L | LCS<LCL (UJ) |
| | 10 | UJ | U | 5 | 10 | UG/L | MS<LCL (UJ) |

Validated Form I

| Field ID | ND135GW01S011 | | | | | | |
|-------------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| NITROSODI-N-PROPYLAMINE (NDP) | 10 | U | U | 5 | 10 | UG/L | |
| N-NITROSODIPHENYLAMINE | 10 | U | U | 5 | 10 | UG/L | |
| PENTACHLOROPHENOL (PCP) | 20 | U | U | 5 | 20 | UG/L | |
| PHENANTHRENE | 10 | U | U | 5 | 10 | UG/L | |
| PHENOL | 10 | U | U | 5 | 10 | UG/L | |
| PYRENE | 10 | U | U | 5 | 10 | UG/L | LCSRPD (none) |
| PYRIDINE | 40 | UJ | U | 20 | 40 | UG/L | MS<LCL (UJ) |
| | 40 | UJ | U | 20 | 40 | UG/L | LCS<LCL (UJ) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|--|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCSRPD | LCS RPD criteria exceeded | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16G302

Method SW9040

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR19GW01S016 | N 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| HAR19GW01S016 | LR 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01D011 | FD 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | N 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |
| ND135GW01S011 | LR 1 | Missing Association DP | Missing Association DP | 26071602 / CAQW2459Q001 / 16G302 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | |
|----------|---------------|------------|----------|-----|-----|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| PH | 7.41 | | | 0.1 | 0.1 | PH UNITS | |

| Field ID | ND135GW01D011 | | | | | | |
|----------|---------------|------------|----------|-----|-----|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| PH | 7.06 | | | 0.1 | 0.1 | PH UNITS | |

| Field ID | ND135GW01S011 | | | | | | |
|----------|---------------|------------|----------|-----|-----|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| PH | 7.09 | | | 0.1 | 0.1 | PH UNITS | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070773

Method E300.0

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR20GW01S006 | N | 10 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006MS | MS | 1 | | | |
| HAR20GW01S006SD | SD | 1 | | | |
| RD49AGW01S005 | N | 10 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR20GW01S006 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 37 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.36 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 520 | | =D | 2.7 | 10 | MG/L | InvalidLabFlag (=) |

| Field ID | | RD49AGW01S005 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 50 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.28 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 600 | | =D | 2.7 | 10 | MG/L | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070773

Method E1625C

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR20GW01S006 | N 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR20GW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | RD49AGW01S005 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 13 | | | 2.9 | 9.6 | NG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070773

Method SW8015B

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | | | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 20 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 20 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

The following items were noted: Sur<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates These surrogates were out of control: 1,4-Bromofluorobenzene (HAR20GW01S006), 1,4-Bromofluorobenzene (RD49AGW01S005). Flagging for C4-C12 (TPH as Gas) only.

| <u>Field ID</u> | <u>LabsampleID</u> | <u>UpperLimit</u> | <u>LowerLimit</u> | <u>Result</u> | <u>Surrogate</u> |
|-----------------|--------------------|-------------------|-------------------|---------------|------------------------|
| HAR20GW01S006 | 160707732 | 150 | 50 | 48 | 1,4-Bromofluorobenzene |
| RD49AGW01S005 | 160707733 | 150 | 50 | 48 | 1,4-Bromofluorobenzene |

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: These surrogates were out of control: 1,4-Bromofluorobenzene (HAR20GW01S006), 1,4-Bromofluorobenzene (RD49AGW01S005).
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR20GW01S006 | | | | | | |
|----------------------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 21 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C15-C20 | 490 | | | 8 | 50 | UG/L | | |
| C21-C30 | 280 | | | 8 | 50 | UG/L | | |
| C30-C40 (TPH as Oil) | 34 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C4-C12 (TPH as Gas) | 50 | UJ | U | 48 | 50 | UG/L | Sur<LCL (UJ) | |
| C7 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C30 | 790 | | | 8 | 50 | UG/L | | |

| Field ID | | RD49AGW01S005 | | | | | | |
|----------------------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 1000 | | | 8 | 50 | UG/L | | |
| C15-C20 | 2000 | | | 8 | 50 | UG/L | | |
| C21-C30 | 140 | | | 8 | 50 | UG/L | | |
| C30-C40 (TPH as Oil) | 26 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C4-C12 (TPH as Gas) | 130 | J | =b | 48 | 50 | UG/L | Sur<LCL (J) | |
| C7 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C30 | 3200 | | | 8 | 50 | UG/L | | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| Sur<LCL | Surrogate recovery less than the lower control limit | SurrogateRecovery |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070773

Method SW8260B

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | | | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006MS | MS | 1 | | | |
| HAR20GW01S006SD | SD | 1 | | | |
| RD49AGW01S005 | N | 10 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

The following items were noted: 2CLEVE; MS<LSL; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - HAR20GW01S006MS), Pentachloroethane (MS - HAR20GW01S006MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - HAR20GW01S006SD), Pentachloroethane (SD - HAR20GW01S006SD). All RPD acceptance criteria were met. For high recoveries and sample results ND, no flagging applied to those analytes.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|-----------|---------|---------------------------|--------|-------------------|----------|
| WATER | | | 2-Chloroethyl Vinyl Ether | | | |

| | | | | |
|-------|--------------------------|----------|------|--------|
| WATER | HAR20GW01S006 | 16 UG/L | R | MS<LCL |
| | HAR20GW01S006 | 16 UG/L | R | SD<LCL |
| | <u>Pentachloroethane</u> | | | |
| | HAR20GW01S006 | 1.5 UG/L | none | MS>UCL |
| | HAR20GW01S006 | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample These LCS analytes were out of control: t-1,3-Dichloropropene (BS). Since recovery high and sample result ND, no flagging applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246232BS | t-1,3-Dichloropropene | 127 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: RD49AGW01S005.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: RD49AGW01S005. Sample re-analyzed on a diluted basis due to concentration of target analyte.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR20GW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | | |
| c-1,2-Dichloroethene | 44 | | | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |

Validated Form I

| Field ID | HAR20GW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 12 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 12 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.6 | | | 0.3 | 0.5 | UG/L | |

| Field ID | RD49AGW01S005 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 2.3 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |

Validated Form I

| Field ID | RD49AGW01S005 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.2 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 1700 | | =D | 4.8 | 50 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 60 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LC>UCL (none) |

Validated Form I

| Field ID | RD49AGW01S005 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.39 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 2 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 3.4 | | | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070773

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: _____ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | | | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 5 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| RD49AGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR20GW01S006 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 2.1 | | | 0.35 | 1 | UG/L | |

| Field ID | | RD49AGW01S005 | | | | | |
|-------------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 1.8 | U | U | 1.8 | 5 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method 4500-NH3F

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|----------------|-------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.083 | | | 0.0086 | 0.05 | MG/L | |

| Field ID | HAR20GW01S006 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.06 | | | 0.0086 | 0.05 | MG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method E300.0

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR07GWS008 | N | 1 Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|----------------|-------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.31 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method E314

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008MS | MS | 1 | | | |
| HAR07GWS008SD | SD | 1 | | | |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|-------------|-------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | HAR20GW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method E1625C

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR07GWS008 | N | 1 Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|------------------------|-------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 19 | | | 3 | 10 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW8015B

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 20 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008MS | MS | 1 | | | |
| HAR07GWS008SD | SD | 1 | | | |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | | |
|----------------------|-------------|------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | | |
| C4-C12 (TPH as Gas) | 200 | | =b | 48 | 50 | UG/L | InvalidLabFlag (=) | |
| C7 | 8 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 17 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C8-C30 | 17 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW8260B

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 50 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008 | N | 10 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample These LCS analytes were out of control: Bromomethane (BS), c-1,3-Dichloropropene (BS), Pentachloroethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246231BS | Pentachloroethane | 68 | 70 | 120 |
| WATER | BS | 09916246231BS | t-1,3-Dichloropropene | 127 | 70 | 120 |
| WATER | BS | 09916246233BS | Bromomethane | 68 | 70 | 120 |
| WATER | BS | 09916246233BS | c-1,3-Dichloropropene | 123 | 70 | 120 |
| WATER | BS | 09916246233BS | t-1,3-Dichloropropene | 140 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: HAR07GWS008.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS), c-1,3-Dichloropropene (BS), Pentachloroethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: HAR07GWS008. Sample was re-analyzed on a diluted basis due to concentration of target analytes

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | ValidationReason (Flag) |
|---------------------------------------|-------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,1,1,2-Tetrachloroethane | 4 | U | U | 4 | 50 | UG/L | |
| 1,1,1-Trichloroethane | 3 | U | U | 3 | 100 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 4.1 | U | U | 4.1 | 100 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 4.5 | U | U | 4.5 | 250 | UG/L | |
| 1,1,2-Trichloroethane | 3.8 | U | U | 3.8 | 100 | UG/L | |
| 1,1-Dichloroethane | 2.8 | U | U | 2.8 | 100 | UG/L | |
| 1,1-Dichloroethene | 9.7 | J | =J | 4.3 | 250 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 4.6 | U | U | 4.6 | 100 | UG/L | |
| 1,2,3-Trichlorobenzene | 5.1 | U | U | 5.1 | 250 | UG/L | |
| 1,2,3-Trichloropropane | 6.4 | U | U | 6.4 | 50 | UG/L | |
| 1,2,4-Trichlorobenzene | 5 | U | U | 5 | 250 | UG/L | |
| 1,2,4-Trimethylbenzene | 3.6 | U | U | 3.6 | 100 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 12 | U | U | 12 | 250 | UG/L | |
| 1,2-Dibromoethane | 3.6 | U | U | 3.6 | 100 | UG/L | |
| 1,2-Dichlorobenzene | 4.6 | U | U | 4.6 | 100 | UG/L | |
| 1,2-Dichloroethane | 2.4 | U | U | 2.4 | 50 | UG/L | |
| 1,2-Dichloropropane | 4.2 | U | U | 4.2 | 100 | UG/L | |
| 1,3,5-Trimethylbenzene | 2.8 | U | U | 2.8 | 100 | UG/L | |
| 1,3-Dichlorobenzene | 4 | U | U | 4 | 100 | UG/L | |
| 1,3-Dichloropropane | 3 | U | U | 3 | 100 | UG/L | |
| 1,4-Dichlorobenzene | 4.3 | U | U | 4.3 | 100 | UG/L | |
| 2,2-Dichloropropane | 3.6 | U | U | 3.6 | 50 | UG/L | |
| 2-Butanone | 22 | U | U | 22 | 500 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 21 | U | U | 21 | 250 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 160 | R | U | 160 | 250 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 2.4 | U | U | 2.4 | 250 | UG/L | |
| 2-Hexanone | 21 | U | U | 21 | 500 | UG/L | |
| 4-Chlorotoluene | 1.3 | U | U | 1.3 | 250 | UG/L | |
| 4-Methyl-2-Pentanone | 44 | U | U | 44 | 250 | UG/L | |
| Acetone | 60 | U | U | 60 | 500 | UG/L | |
| Benzene | 1.4 | U | U | 1.4 | 100 | UG/L | |
| Bromobenzene | 3 | U | U | 3 | 250 | UG/L | |
| Bromochloromethane | 4.8 | U | U | 4.8 | 250 | UG/L | |
| Bromodichloromethane | 2.1 | U | U | 2.1 | 100 | UG/L | |
| Bromoform | 5 | U | U | 5 | 250 | UG/L | |
| Bromomethane | 39 | U | U | 39 | 250 | UG/L | |
| c-1,2-Dichloroethene | 2900 | | =D | 24 | 250 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 2.5 | U | U | 2.5 | 100 | UG/L | |
| Carbon Tetrachloride | 2.3 | U | U | 2.3 | 5 | UG/L | |
| Chlorobenzene | 1.7 | U | U | 1.7 | 100 | UG/L | |

| Field ID | HAR07GWS008 | | | | | | ValidationReason (Flag) |
|-----------------------------|-------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| Chloroethane | 23 | U | U | 23 | 250 | UG/L | |
| Chloroform | 4.6 | U | U | 4.6 | 100 | UG/L | |
| Chloromethane | 18 | U | U | 18 | 250 | UG/L | |
| Chlorotrifluoroethylene | 18 | U | U | 18 | 250 | UG/L | |
| Dibromochloromethane | 2.5 | U | U | 2.5 | 100 | UG/L | |
| Dibromomethane | 4.6 | U | U | 4.6 | 50 | UG/L | |
| Dichlorodifluoromethane | 4.6 | U | U | 4.6 | 250 | UG/L | |
| Ethylbenzene | 1.4 | U | U | 1.4 | 100 | UG/L | |
| Hexachloro-1,3-Butadiene | 3.2 | U | U | 3.2 | 250 | UG/L | |
| Isopropanol | 370 | U | U | 370 | 1000 | UG/L | |
| Isopropylbenzene | 5.8 | U | U | 5.8 | 100 | UG/L | |
| Methylene Chloride | 6.4 | U | U | 6.4 | 250 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 3.1 | U | U | 3.1 | 250 | UG/L | |
| n-Butylbenzene | 2.3 | U | U | 2.3 | 250 | UG/L | |
| n-Propylbenzene | 1.7 | U | U | 1.7 | 100 | UG/L | |
| o-Xylene | 2.3 | U | U | 2.3 | 100 | UG/L | |
| p/m-Xylene | 3 | U | U | 3 | 100 | UG/L | |
| Pentachloroethane | 15 | UJ | U | 15 | 100 | UG/L | LCS<LCL (UJ) |
| p-Isopropyltoluene | 1.6 | U | U | 1.6 | 100 | UG/L | |
| sec-Butylbenzene | 2.5 | U | U | 2.5 | 250 | UG/L | |
| Styrene | 1.7 | U | U | 1.7 | 100 | UG/L | |
| t-1,2-Dichloroethene | 270 | | | 3.7 | 100 | UG/L | |
| t-1,3-Dichloropropene | 2.5 | U | U | 2.5 | 100 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 2.8 | U | U | 2.8 | 250 | UG/L | |
| Tetrachloroethene | 3.9 | U | U | 3.9 | 50 | UG/L | |
| Toluene | 2.4 | U | U | 2.4 | 100 | UG/L | |
| Trichloroethene | 490 | | | 3.7 | 50 | UG/L | |
| Trichlorofluoromethane | 17 | U | U | 17 | 250 | UG/L | |
| Vinyl Chloride | 130 | | | 3 | 5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW8260B-SIM

Reviewer: bJones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 50 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2442Q001 | TB | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|------------------------|-------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,2,3-Trichloropropane | 0.12 | U | U | 0.12 | 0.25 | UG/L | |
| 1,4-Dioxane | 18 | U | U | 18 | 50 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW8270C-SIM

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR20GW01S006 | N | 1 Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR20GW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.22 | J | =J | 0.047 | 9.6 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.051 | U | U | 0.051 | 9.6 | UG/L | |
| Diethyl Phthalate | 0.051 | U | U | 0.051 | 9.6 | UG/L | |
| Dimethyl Phthalate | 0.045 | J | =J | 0.044 | 9.6 | UG/L | InvalidLabFlag (J) |
| Di-n-Butyl Phthalate | 0.19 | J | =J | 0.077 | 9.6 | UG/L | InvalidLabFlag (J) |
| Di-n-Octyl Phthalate | 0.046 | U | U | 0.046 | 9.6 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW8330A

Reviewer: bjonas7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|-----------------------|-------------|------------|----------|-------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.045 | U | U | 0.045 | 1 | UG/L | |
| 1,3-Dinitrobenzene | 0.051 | U | U | 0.051 | 1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.026 | U | U | 0.026 | 1 | UG/L | |
| 2,4-Dinitrotoluene | 0.039 | U | U | 0.039 | 1 | UG/L | |
| 2,6-Dinitrotoluene | 0.053 | U | U | 0.053 | 1 | UG/L | |
| 2-Amino-4,6-DNT | 0.061 | U | U | 0.061 | 1 | UG/L | |
| 2-Nitrotoluene | 0.04 | U | U | 0.04 | 1 | UG/L | |
| 3-Nitrotoluene | 0.047 | U | U | 0.047 | 1 | UG/L | |
| 4-Amino-2,6-DNT | 0.054 | U | U | 0.054 | 1 | UG/L | |
| 4-Nitrotoluene | 0.054 | U | U | 0.054 | 1 | UG/L | |
| HMX | 0.047 | U | U | 0.047 | 1 | UG/L | |
| Nitrobenzene | 0.056 | U | U | 0.056 | 1 | UG/L | |
| RDX | 0.06 | U | U | 0.06 | 1 | UG/L | |
| Tetryl | 0.068 | U | U | 0.068 | 1 | UG/L | |

| Field ID | HAR20GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.056 | U | U | 0.056 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.067 | U | U | 0.067 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.06 | U | U | 0.06 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| HMX | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| Nitrobenzene | 0.062 | U | U | 0.062 | 1.1 | UG/L | |
| RDX | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| Tetryl | 0.074 | U | U | 0.074 | 1.1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070774

Method SW9040C

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR07GWS008 | N 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008 | LR 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR07GWS008 | | | | | | |
|----------|-------------|------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 6.92 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---------------------------------|------------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method 4500-NH3F

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.043 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) |

| Field ID | RD05BGW01S007 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.051 | | | 0.0086 | 0.05 | MG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method E300.0

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05AGW01S006MS | MS | 1 | | | |
| RD05AGW01S006SD | SD | 1 | | | |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

***When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).**

| Field ID | | RD05AGW01S006 | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.24 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

| Field ID | | RD05BGW01S007 | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.11 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method E314

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | RD05BGW01S007 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method E1625C

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3.1 | U | U | 3.1 | 10 | NG/L | |

| Field ID | RD05BGW01S007 | | | | | | |
|------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 13 | | | 3 | 10 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method SW8015B

Reviewer: bJones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2443Q001 | TB | 1 | | | 13071601 / CAQW2443Q001 / 160708 |
| RD05AGW01S006 | N | 20 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 20 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

The following items was noted; Sur<LCL.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates These surrogates were out of control: 1,4-Bromofluorobenzene (RD05AGW01S006).

| <u>Field ID</u> | <u>LabsampleID</u> | <u>UpperLimit</u> | <u>LowerLimit</u> | <u>Result</u> | <u>Surrogate</u> |
|-----------------|--------------------|-------------------|-------------------|---------------|------------------------|
| RD05AGW01S006 | 160708582 | 150 | 50 | 48 | 1,4-Bromofluorobenzene |

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: These surrogates were out of control: 1,4-Bromofluorobenzene (RD05AGW01S006).
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 48 | UJ | U | 48 | 50 | UG/L | Sur<LCL (UJ) |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

| Field ID | RD05BGW01S007 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 14 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 48 | U | U | 48 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 14 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| Sur<LCL | Surrogate recovery less than the lower control limit | SurrogateRecovery |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method SW8260B

Reviewer: bjoness7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|--------------------------|--------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2443Q001 | TB | 1 | | | 13071601 / CAQW2443Q001 / 160708 |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| SP33CGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample

These LCS analytes were out of control: Pentachloroethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246231BS | Pentachloroethane | 68 | 70 | 120 |

WATER BS 09916246231BS t-1,3-Dichloropropene 127 70 120

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: These LCS analytes were out of control: Pentachloroethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |

| Field ID | RD05AGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | UJ | U | 1.5 | 10 | UG/L | LCS<LCL (UJ) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | RD05BGW01S007 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |

Validated Form I

| Field ID | RD05BGW01S007 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | UJ | U | 1.5 | 10 | UG/L | LCS<LCL (UJ) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |

Validated Form I

| Field ID | RD05BGW01S007 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | SP33CGW01S005 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |

| Field ID | SP33CGW01S005 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | UJ | U | 1.5 | 10 | UG/L | LCS<LCL (UJ) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method SW8260B-SIM

Reviewer: bjoness7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|--------------------------|--------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2443Q001 | TB | 1 | | | 13071601 / CAQW2443Q001 / 160708 |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD40GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| SP33CGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05AGW01S006 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | RD05BGW01S007 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | RD40GW01S007 | | | | | | |
|-------------|--------|--------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | SP33CGW01S005 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method SW8330A

Reviewer: bjones7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05AGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.049 | U | U | 0.049 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.055 | U | U | 0.055 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.028 | U | U | 0.028 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.042 | U | U | 0.042 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.057 | U | U | 0.057 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| HMX | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| Nitrobenzene | 0.061 | U | U | 0.061 | 1.1 | UG/L | |
| RDX | 0.065 | U | U | 0.065 | 1.1 | UG/L | |
| Tetryl | 0.073 | U | U | 0.073 | 1.1 | UG/L | |

| Field ID | RD05BGW01S007 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.049 | U | U | 0.049 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.055 | U | U | 0.055 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.028 | U | U | 0.028 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.042 | U | U | 0.042 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.057 | U | U | 0.057 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| HMX | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| Nitrobenzene | 0.061 | U | U | 0.061 | 1.1 | UG/L | |
| RDX | 0.065 | U | U | 0.065 | 1.1 | UG/L | |
| Tetryl | 0.073 | U | U | 0.073 | 1.1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070858

Method SW9040C

Reviewer: bjonas7

Date: 8/5/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05AGW01S006 | | | | | |
|----------|--------|---------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 6.73 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

| Field ID | | RD05BGW01S007 | | | | | |
|----------|--------|---------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 9.07 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070920

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR07GWS008 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |
| HAR07GWS008SD | SD | 1 | | | |
| HAR07GWS008MS | MS | 1 | | | |
| HAR20GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 12071601 / CAQW2442Q001 / 160707 |

1. Case Narrative Items of Interest

The following items were noted: HTp>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time

These NativeIDs exceeded holding time: HAR07GWS008, HAR20GW01S006. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

| <u>Field ID</u> | <u>LabsampleID</u> | <u>AnalysisDate</u> | <u>ExtractDate</u> | <u>Sample Date</u> | <u>Method</u> | <u>Time Actual</u> | <u>HT</u> |
|-----------------|--------------------|---------------------|--------------------|--------------------|---------------|--------------------|-----------|
| HAR07GWS008 | 8472544 | 8/6/2016 | 7/26/2016 | 7/12/2016 | 10 | 14 | |
| HAR20GW01S006 | 8472545 | 8/6/2016 | 7/26/2016 | 7/12/2016 | 10 | 14 | |

10. Confirmation N/A

11. Summary

General Comments These NativeIDs exceeded holding time: HAR07GWS008, HAR20GW01S006. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR07GWS008 | | | | | | |
|-----------------------|--------|-------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) | |
| FORMALDEHYDE | 34 | J | J | 20 | 50 | UG/L | | |

| Field ID | | HAR20GW01S006 | | | | | | |
|-----------------------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) | |
| FORMALDEHYDE | 24 | J | J | 20 | 50 | UG/L | | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--------------------------|-----------------|
| HTp>UCL | Holding time exceeded | HoldingTime |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070971

Method E300.0

Reviewer: bjoness7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|----------------------------------|
| WATER | | | | | |
| WS06GW01S002 | N | 2 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002MS | MS | 1 | | | |
| WS06GW01S002SD | SD | 1 | | | |
| WS08GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

The following items were noted; MS>UCL, SD>UCL.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: Sulfate (MS - WS06GW01S002MS). These SD's were out

of control: Sulfate (SD - WS06GW01S002SD). All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------|---------------|--------------------------|-----------------|
| WATER | | | <u>Sulfate</u> | | | |
| | WS06GW01S002 | | | 120 MG/L | J | MS>UCL |
| | WS06GW01S002 | | | 120 MG/L | J | SD>UCL |

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Surrogates: No surrogates in this SDG.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS06GW01S002 | | | | | | |
|----------------|--------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 41 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.14 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 120 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |
| | 120 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |

| Field ID | WS08GW01S002 | | | | | | |
|----------------|--------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 25 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.17 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 61 | | | 0.27 | 1 | MG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070971

Method E1625C

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|----------------------------------|
| WATER | | | | | |
| WS06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS08GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS06GW01S002 | | | | | | |
|------------------------|--------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

| Field ID | WS08GW01S002 | | | | | | |
|------------------------|--------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070971

Method SW8015B

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | | | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS08GW01S002 | N | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS08GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|---------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| EBQW2176Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

The following items were noted: Interference

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG. Interference present in samples; influence from high levels of TCE, cis-1,2-DCE in samples. No Gas pattern present. Data flagged as non-detect.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>C4-C12 (TPH as Gas)</u> | | | |
| | WS06GW01S002 | | | 89 UG/L | U | Interference |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS06GW01S002 | | | | | | |
|----------------------|--------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 16 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 89 | U | =b | 48 | 50 | UG/L | InvalidLabFlag (=) |
| | 89 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 16 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |

| Field ID | WS08GW01S002 | | | | | | |
|----------------------|--------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | U | U | 8 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| Interference | Indicates the presence of quantitative interference | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070971

Method SW8260B

Reviewer: bjoness7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------|----------|------------------------------------|---------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | | | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 5 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS08GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------|----------|------------------------------------|---------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, AB<RL, EB<RL, LCS<LCL.

2. Blank Summary

Field Blanks

These analytes had Blank detects: Acetone (AB), Acetone (EB), Isopropanol (AB), Isopropanol (EB).

Method Blanks

No Method Blank detects were found.

| Blank Type | Blank ID | Analyte | Result | ReportLimit | LabFlag | Units | SDG |
|------------|--------------|-------------|--------|-------------|---------|-------|----------|
| AB | FBQW1833Q001 | Acetone | 7.3 | 50 | =J | UG/L | 16080670 |
| AB | FBQW1833Q001 | Isopropanol | 110 | 100 | | UG/L | 16080670 |
| EB | EBQW2176Q001 | Acetone | 7.7 | 50 | =J | UG/L | 16071078 |
| EB | EBQW2176Q001 | Isopropanol | 210 | 100 | | UG/L | 16071078 |

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample These LCS analytes were out of control: Bromomethane (BS), c-1,3-Dichloropropene (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246233BS | Bromomethane | 68 | 70 | 120 |
| WATER | BS | 09916246233BS | c-1,3-Dichloropropene | 123 | 70 | 120 |
| WATER | BS | 09916246233BS | t-1,3-Dichloropropene | 140 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Blanks: These analytes had Blank detects: Acetone (AB), Acetone (EB), Isopropanol (AB), Isopropanol (EB).
Field Duplicates: No FD Associated.
Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: WS06GW01S002.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS), c-1,3-Dichloropropene (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest

These NativeIDs had dilutions or re-extractions that were flagged Exclude: WS06GW01S002. Sample was re-analyzed on a diluted basis due to concentration of target analytes.

COC Review

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS06GW01S002 | | | | | | ValidationReason (Flag) |
|---------------------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.46 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 9.2 | U | =J | 6 | 50 | UG/L | AB<RL (U) |
| | 9.2 | U | =J | 6 | 50 | UG/L | EB<RL (U) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 230 | | =D | 2.4 | 25 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |

| Field ID | WS06GW01S002 | | | | | | |
|-----------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.18 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | AB>RL (none) |
| | 37 | U | U | 37 | 100 | UG/L | EB>RL (none) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.29 | J | =J | 0.23 | 10 | UG/L | InvalidLabFlag (J) |
| p/m-Xylene | 0.53 | J | =J | 0.3 | 10 | UG/L | InvalidLabFlag (J) |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 15 | | | 0.37 | 10 | UG/L | InvalidLabFlag (=) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 1.1 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 3.9 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 7 | | | 0.3 | 0.5 | UG/L | |

| Field ID | WS08GW01S002 | | | | | | |
|---------------------------------------|--------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | WS08GW01S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 10 | U | =J | 6 | 50 | UG/L | AB<RL (U) |
| | 10 | U | =J | 6 | 50 | UG/L | EB<RL (U) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 5.4 | | | 0.48 | 5 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | AB>RL (none) |
| | 37 | U | U | 37 | 100 | UG/L | EB>RL (none) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.68 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |

Validated Form I

| Field ID | WS08GW01S002 | | | | | | |
|------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.66 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 0.71 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|--|-------------------------|
| AB<RL | Ambient blank concentration less than the reporting limit | Blank |
| AB>RL | Ambient blank concentration greater than the reporting limit | Blank |
| EB<RL | Equipment blank concentration less than the reporting limit | Blank |
| EB>RL | Equipment blank concentration greater than the reporting limit | Blank |
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16070971

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------------------|---------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | | | 14071601 / CAQW2444Q001 / 160709 |
| WS06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |
| WS08GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------------------|---------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS06GW01S002 | | | | | | |
|-------------|--------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.86 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) |

| Field ID | WS08GW01S002 | | | | | | |
|-------------|--------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method 4500-NH3F

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05CGW01S006 | | | | | |
|----------------|--------|---------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.14 | | | 0.0086 | 0.05 | MG/L | |

| Field ID | | WS04AGW01D006 | | | | | |
|----------------|--------|---------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.046 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) |

| Field ID | | WS04AGW01S006 | | | | | |
|----------------|--------|---------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.057 | | | 0.0086 | 0.05 | MG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---------------------------------|------------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method E300.0

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| RD05CGW01S006 | N 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05CGW01S006 | | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Fluoride | 0.12 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |

| Field ID | | WS04AGW01D006 | | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Fluoride | 0.13 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |

| Field ID | | WS04AGW01S006 | | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Fluoride | 0.14 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method E314

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| RD05CGW01S006MS | MS | 1 | | | |
| RD05CGW01S006SD | SD | 1 | | | |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method E1625C

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| SP882GGW01S005 | N | 1 | Missing Association PP | Missing Association PP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05CGW01S006 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | | SP882GGW01S005 | | | | | |
|------------------------|--------|----------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3 | U | U | 3 | 10 | NG/L | |

| Field ID | | WS04AGW01D006 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

| Field ID | | WS04AGW01S006 | | | | | |
|------------------------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3 | U | U | 3 | 10 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW8015B

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 20 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| RD05CGW01S006MS | MS | 1 | | | |
| RD05CGW01S006SD | SD | 1 | | | |
| WS04AGW01D006 | FD | 20 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 20 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|-----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 48 | U | U | 48 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW8260B

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|------------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| SP882GGW01S005 | N | 1 | Missing Association PP | Missing Association PP | 14071601 / CAQW2444Q001 / 160709 |
| SP882GGW01S005MS | MS | 1 | | | |
| SP882GGW01S005SD | SD | 1 | | | |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------|------------------------|-----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | Missing Association PP | Missing Association PP | 14071601 / CAQW2444Q001 / 1607097 |
| CAQW2444Q001 | TB | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL; MS<LCL; SD<LCL.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - SP882GGW01S005MS), Pentachloroethane (MS - SP882GGW01S005MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - SP882GGW01S005SD), Pentachloroethane (SD - SP882GGW01S005SD). For high recoveries and sample results reported as ND, no flagging was applied. All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | SP882GGW01S005 | | | 16 UG/L | R | MS<LCL |
| | SP882GGW01S005 | | | 16 UG/L | R | SD<LCL |
| WATER | | | <u>Pentachloroethane</u> | | | |
| | SP882GGW01S005 | | | 1.5 UG/L | none | MS>UCL |
| | SP882GGW01S005 | | | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: Bromomethane (BS), c-1,3-Dichloropropene (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246233BS | Bromomethane | 68 | 70 | 120 |
| WATER | BS | 09916246233BS | c-1,3-Dichloropropene | 123 | 70 | 120 |
| WATER | BS | 09916246233BS | t-1,3-Dichloropropene | 140 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS), c-1,3-

Dichloropropene (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | | |

| Field ID | RD05CGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | SP882GGW01S005 | | | | | | |
|---------------------------------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |

| Field ID | SP882GGW01S005 | | | | | | ValidationReason (Flag) |
|--------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |

Validated Form I

| Field ID | SP882GGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.37 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |

Validated Form I

| Field ID | WS04AGW01S006 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |

Validated Form I

| Field ID | WS04AGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| SP882GGW01S005 | N | 1 | Missing Association PP | Missing Association PP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|-----------------------------------|
| WATER | | | | | |
| CAQW2444Q001 | TB | 1 | Missing Association PP | Missing Association PP | 14071601 / CAQW2444Q001 / 1607097 |
| CAQW2444Q001 | TB | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 1607097 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05CGW01S006 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | SP882GGW01S005 | | | | | | |
|-------------|--------|----------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | WS04AGW01D006 | | | | | | |
|-------------|-------------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.59 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) | |

| Field ID | | WS04AGW01S006 | | | | | | |
|-------------|-------------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.61 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW8270C-SIM

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | WS04AGW01D006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.11 | J | =J | 0.047 | 9.6 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.077 | J | =J | 0.051 | 9.6 | UG/L | InvalidLabFlag (J) |
| Diethyl Phthalate | 0.051 | U | U | 0.051 | 9.6 | UG/L | |
| Dimethyl Phthalate | 0.044 | U | U | 0.044 | 9.6 | UG/L | |
| Di-n-Butyl Phthalate | 0.077 | U | U | 0.077 | 9.6 | UG/L | |
| Di-n-Octyl Phthalate | 0.046 | U | U | 0.046 | 9.6 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.093 | J | =J | 0.046 | 9.4 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.072 | J | =J | 0.05 | 9.4 | UG/L | InvalidLabFlag (J) |
| Diethyl Phthalate | 0.05 | U | U | 0.05 | 9.4 | UG/L | |
| Dimethyl Phthalate | 0.043 | U | U | 0.043 | 9.4 | UG/L | |
| Di-n-Butyl Phthalate | 0.076 | U | U | 0.076 | 9.4 | UG/L | |
| Di-n-Octyl Phthalate | 0.045 | U | U | 0.045 | 9.4 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW8330A

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| RD05CGW01S006 | N 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.046 | U | U | 0.046 | 1 | UG/L | |
| 1,3-Dinitrobenzene | 0.052 | U | U | 0.052 | 1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.027 | U | U | 0.027 | 1 | UG/L | |
| 2,4-Dinitrotoluene | 0.04 | U | U | 0.04 | 1 | UG/L | |
| 2,6-Dinitrotoluene | 0.054 | U | U | 0.054 | 1 | UG/L | |
| 2-Amino-4,6-DNT | 0.062 | U | U | 0.062 | 1 | UG/L | |
| 2-Nitrotoluene | 0.041 | U | U | 0.041 | 1 | UG/L | |
| 3-Nitrotoluene | 0.048 | U | U | 0.048 | 1 | UG/L | |
| 4-Amino-2,6-DNT | 0.055 | U | U | 0.055 | 1 | UG/L | |
| 4-Nitrotoluene | 0.055 | U | U | 0.055 | 1 | UG/L | |
| HMX | 0.048 | U | U | 0.048 | 1 | UG/L | |
| Nitrobenzene | 0.057 | U | U | 0.057 | 1 | UG/L | |
| RDX | 0.061 | U | U | 0.061 | 1 | UG/L | |
| Tetryl | 0.069 | U | U | 0.069 | 1 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.057 | U | U | 0.057 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.068 | U | U | 0.068 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.045 | U | U | 0.045 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.061 | U | U | 0.061 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.06 | U | U | 0.06 | 1.1 | UG/L | |
| HMX | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| Nitrobenzene | 0.063 | U | U | 0.063 | 1.1 | UG/L | |
| RDX | 0.067 | U | U | 0.067 | 1.1 | UG/L | |
| Tetryl | 0.076 | U | U | 0.076 | 1.1 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.047 | U | U | 0.047 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.053 | U | U | 0.053 | 1.1 | UG/L | |

Validated Form I

| Field ID | WS04AGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 2,4,6-Trinitrotoluene | 0.027 | U | U | 0.027 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.041 | U | U | 0.041 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.055 | U | U | 0.055 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.064 | U | U | 0.064 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.042 | U | U | 0.042 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.049 | U | U | 0.049 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.056 | U | U | 0.056 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.056 | U | U | 0.056 | 1.1 | UG/L | |
| HMX | 0.048 | U | U | 0.048 | 1.1 | UG/L | |
| Nitrobenzene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| RDX | 0.063 | U | U | 0.063 | 1.1 | UG/L | |
| Tetryl | 0.07 | U | U | 0.07 | 1.1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16070972

Method SW9040C

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-------------------------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER RD05CGW01S006 | N | 1 Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | |
|----------|---------------|------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 7.27 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071078

Method E300.0

Reviewer: bjoness7

Date: 8/23/2016

Matrix: WATER

Reviewed: _____ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------------------|------------------------------------|----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006MS | MS | 1 | | | |
| HAR05GW01S006SD | SD | 1 | | | |
| HAR06GW01S002 | N | 5 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| HAR06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 5 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------------------|------------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2174Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR05GW01S006 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 19 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.22 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 45 | | | 0.27 | 1 | MG/L | | |

| Field ID | | HAR06GW01S002 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 0.52 | U | U | 0.52 | 1 | MG/L | | |
| Fluoride | 0.32 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 270 | | =D | 1.3 | 5 | MG/L | InvalidLabFlag (=) | |

| Field ID | | RD47GW01S003 | | | | | | |
|----------------|------------|--------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 40 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.2 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 320 | | =D | 1.3 | 5 | MG/L | InvalidLabFlag (=) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071078

Method E1625C

Reviewer: bjonas7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|------------------------------------|----------------------------------|
| WATER | | | | | |
| EBQW2176Q001 | EB | 1 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------------------|------------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2174Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | HAR06GW01S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

| Field ID | RD47GW01S003 | | | | | | |
|------------------------|--------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3 | U | U | 3 | 10 | NG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071078

Method SW8015B

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: _____ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------------------|------------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2445Q001 | TB | 1 | | | 15071601 / CAQW2445Q001 / 160710 |
| EBQW2176Q001 | EB | 20 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| EBQW2176Q001 | EB | 1 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 20 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR06GW01S002 | N | 20 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| HAR06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------------------|------------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2174Q001 | EB | 20 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| EBQW2174Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 20 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 20 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | U | U | 8 | 50 | UG/L | |

| Field ID | HAR06GW01S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | U | U | 8 | 50 | UG/L | |

| Field ID | RD47GW01S003 | | | | | | |
|----------------------|--------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 11 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 9.7 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 21 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---------------------------------|------------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071078

Method SW8260B

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: _____ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------------------|------------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2445Q001 | TB | 1 | | | 15071601 / CAQW2445Q001 / 160710 |
| EBQW2176Q001 | EB | 1 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006MS | MS | 1 | | | |
| HAR05GW01S006SD | SD | 1 | | | |
| HAR06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------|----------|------------------------------------|------------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2174Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks

These analytes had Blank detects: Acetone (AB), Acetone (EB), Isopropanol (AB), Isopropanol (EB). No flagging applied

Method Blanks

No Method Blank detects were found.

| <u>Blank Type</u> | <u>Blank ID</u> | <u>Analyte</u> | <u>Result</u> | <u>ReportLimit</u> | <u>LabFlag</u> | <u>Units</u> | <u>SDG</u> |
|-------------------|-----------------|----------------|---------------|--------------------|----------------|--------------|------------|
| AB | FBQW1833Q001 | Acetone | 7.3 | 50 | =J | UG/L | 16080670 |
| AB | FBQW1833Q001 | Isopropanol | 110 | 100 | | UG/L | 16080670 |
| EB | EBQW2176Q001 | Acetone | 7.7 | 50 | =J | UG/L | 16071078 |
| EB | EBQW2176Q001 | Isopropanol | 210 | 100 | | UG/L | 16071078 |

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - HAR05GW01S006MS).
 These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - HAR05GW01S006SD).
 All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | HAR05GW01S006 | | | 16 UG/L | UJ | MS<LCL |
| | HAR05GW01S006 | | | 16 UG/L | UJ | SD<LCL |

4. Laboratory Control Sample These LCS analytes were out of control: Bromomethane (BS). No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|----------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246234BS | Bromomethane | 60 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Blanks: These analytes had Blank detects: Acetone (AB), Acetone (EB), Isopropanol (AB), Isopropanol (EB).
 Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS). No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | SD<LCL (UJ) | |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (UJ) | |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |

Validated Form I

| Field ID | HAR05GW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 75 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | HAR06GW01S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 1.5 | J | =J | 0.28 | 10 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloroethene | 16 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | HAR06GW01S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | AB<RL (none) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 3.9 | J | =J | 0.48 | 5 | UG/L | InvalidLabFlag (J) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | AB>RL (none) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.48 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |

Validated Form I

| Field ID | HAR06GW01S002 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.35 | J | =J | 0.3 | 0.5 | UG/L | InvalidLabFlag (J) |

| Field ID | RD47GW01S003 | | | | | | |
|---------------------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | EB<RL (none) |
| | 6 | U | U | 6 | 50 | UG/L | AB<RL (none) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |

| Field ID | RD47GW01S003 | | | | | | ValidationReason (Flag) |
|-----------------------------|--------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | AB>RL (none) |
| | 37 | U | U | 37 | 100 | UG/L | EB>RL (none) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-------------------------|
| AB<RL | Ambient blank concentration less than the reporting limit | Blank |
| AB>RL | Ambient blank concentration greater than the reporting limit | Blank |
| EB<RL | Equipment blank concentration less than the reporting limit | Blank |
| EB>RL | Equipment blank concentration greater than the reporting limit | Blank |
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071078

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/23/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------|----------|------------------------------------|------------------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2445Q001 | TB | 1 | | | 15071601 / CAQW2445Q001 / 160710 |
| EBQW2176Q001 | EB | 1 | | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR06GW01S002 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 160710 |
| RD47GW01S003 | N | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------|----------|------------------------------------|------------------------------------|-----------------------------------|
| WATER | | | | | |
| EBQW2174Q001 | EB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 15071601 / EBQW2176Q001 / 042NG | 15071601 / CAQW2445Q001 / 1607107 |
| FBQW1833Q001 | AB | 1 | 09081601 / FBQW1833Q001 / 16080670 | 09081601 / EBQW2174Q001 / 16080670 | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR05GW01S006 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | HAR06GW01S002 | | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 1.7 | | | 0.35 | 1 | UG/L | | |

| Field ID | | RD47GW01S003 | | | | | | |
|-------------|--------|--------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method 4500-NH3F

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR05GW01S006 | N | 1 Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.025 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method E314

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR05GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006MS | MS | 1 | | | |
| HAR05GW01S006SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method E1625C

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| SP882BGW01S004 | N | 1 Missing Association PP | Missing Association PP | 15071601 / CAQW2445Q001 / 160710 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP882BGW01S004 | | | | | | |
|------------------------|----------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method SW8260B

Reviewer: bjoness7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------------------------|-------------------------------|------------------------|------------------------|----------------------------------|
| WATER SP882BGW01S004 | N 1 | Missing Association PP | Missing Association PP | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|------------------------------|-------------------------------|------------------------|------------------------|-----------------------------------|
| WATER CAQW2445Q001 | TB 1 | Missing Association PP | Missing Association PP | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample

These LCS analytes were out of control: Bromomethane (BS). No spike dupes in this SDG.

Matrix QAQC Type Field ID Analyte Recovery LowerLimit UpperLimit

WATER BS 09916246234BS Bromomethane 60 70 120

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS). No spike dupes in this SDG.
VDMS4.32. Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP882BGW01S004 | | | | | | | |
|---------------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | | |

| Field ID | SP882BGW01S004 | | | | | | ValidationReason (Flag) |
|-----------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------------------------|-------------------------------|------------------------|------------------------|----------------------------------|
| WATER SP882BGW01S004 | N 1 | Missing Association PP | Missing Association PP | 15071601 / CAQW2445Q001 / 160710 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|------------------------------|-------------------------------|------------------------|------------------------|-----------------------------------|
| WATER CAQW2445Q001 | TB 1 | Missing Association PP | Missing Association PP | 15071601 / CAQW2445Q001 / 1607107 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

- 5. Surrogates** All acceptance criteria were met.

- 6. Tuning and Mass Calibration** Tuning and Mass Calibration were not examined by AutoDV.

- 7. Internal Standard** Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

- Initial Calibration** Initial Calibration was not examined by AutoDV.
- Continuing Calibration** Continuing Calibration was not examined by AutoDV.

- 9. Holding Time** All acceptance criteria were met.

- 10. Confirmation** None for this SDG.

11. Summary

- General Comments**
 - Field Duplicates: No FD Associated.
 - Form I Review: No samples were excluded for dilutions or re-extractions.
 - Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 - Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 - Initial Calibration: Initial Calibration was not examined by AutoDV.
 - Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 - VDMS4.32

- Data Package Completeness** Package was complete for level V validation.

- Forms Review/ Items of Interest** No samples were excluded for dilutions or re-extractions.

- COC Review** No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP882BGW01S004 | | | | | | |
|-------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method SW8330A

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR05GW01S006 | N | 1 Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.049 | U | U | 0.049 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.055 | U | U | 0.055 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.028 | U | U | 0.028 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.042 | U | U | 0.042 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.057 | U | U | 0.057 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| HMX | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| Nitrobenzene | 0.061 | U | U | 0.061 | 1.1 | UG/L | |
| RDX | 0.065 | U | U | 0.065 | 1.1 | UG/L | |
| Tetryl | 0.073 | U | U | 0.073 | 1.1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071080

Method SW9040C

Reviewer: bjonas7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR05GW01S006 | N 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |
| HAR05GW01S006 | LR 1 | Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|----------|---------------|------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 7.04 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071194

Method E300.0

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR21GW01S006 | N | 10 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005MS | MS | 1 | | | |
| WS09GW01S005SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR21GW01S006 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 0.52 | U | U | 0.52 | 1 | MG/L | | |
| Fluoride | 0.33 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 420 | | =D | 2.7 | 10 | MG/L | InvalidLabFlag (=) | |

| Field ID | | HAR23GW01S006 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 25 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.33 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.4 | | | 0.053 | 0.1 | MG/L | | |
| Sulfate | 93 | | | 0.27 | 1 | MG/L | | |

| Field ID | | ND136GW01S002 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 52 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.19 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 88 | | | 0.27 | 1 | MG/L | | |

| Field ID | | ND136GW02S002 | | | | | | |
|----------------|-------------|---------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 46 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.14 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 93 | | | 0.27 | 1 | MG/L | | |

| Field ID | | WS09GW01S005 | | | | | | |
|----------------|-------------|--------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Chloride | 34 | | | 0.52 | 1 | MG/L | | |
| Fluoride | 0.14 | | | 0.027 | 0.1 | MG/L | | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | | |
| Sulfate | 64 | | | 0.27 | 1 | MG/L | | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071194

Method E1625C

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 17 | | | 3 | 10 | NG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 7.8 | J | =J | 2.9 | 9.8 | NG/L | InvalidLabFlag (J) |

| Field ID | ND136GW01S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 20 | | | 2.9 | 9.8 | NG/L | |

| Field ID | ND136GW02S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 36 | | | 3 | 10 | NG/L | |

| Field ID | WS09GW01S005 | | | | | | |
|------------------------|--------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071194

Method SW8015B

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2446Q001 | TB | 1 | | | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006 | N | 20 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 20 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 20 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 10 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 20 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 10 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 20 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 10 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

The following items were noted: Interference

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG. Interference present in samples; influence from high levels of TCE, cis-1,2-DCE in samples. No Gas pattern present. Data flagged as non-detect.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|---------------------|---------------|--------------------------|-----------------|
| WATER | | | C4-C12 (TPH as Gas) | | | |
| | ND136GW01S002 | | | 3900 UG/L | U | Interference |
| | ND136GW02S002 | | | 3500 UG/L | U | Interference |
| | WS09GW01S005 | | | 2600 UG/L | U | Interference |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | | | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 53 | | =b | 48 | 50 | UG/L | InvalidLabFlag (=) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | | | 8 | 50 | UG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | U | U | 8 | 50 | UG/L | |

| Field ID | ND136GW01S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 17 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C15-C20 | 270 | | | 8 | 50 | UG/L | |
| C21-C30 | 49 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 3900 | U | =b | 480 | 500 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 810 | | | 8 | 50 | UG/L | |
| C8-C30 | 1100 | | | 8 | 50 | UG/L | |

| Field ID | ND136GW02S002 | | | | | | |
|----------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 15 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |

Validated Form I

| Field ID | | ND136GW02S002 | | | | | |
|----------------------|-------------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C15-C20 | 1800 | | | 8 | 50 | UG/L | |
| C21-C30 | 210 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 3500 | U | =b | 480 | 500 | UG/L | Interference (U) |
| C7 | 13 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C11 | 570 | | | 8 | 50 | UG/L | |
| C8-C30 | 2600 | | | 8 | 50 | UG/L | |

| Field ID | | WS09GW01S005 | | | | | |
|----------------------|-------------|--------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 11 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C21-C30 | 17 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 2600 | U | =b | 480 | 500 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 1200 | | | 8 | 50 | UG/L | |
| C8-C30 | 1300 | | | 8 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| Interference | Indicates the presence of quantitative interference | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071194

Method SW8260B

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2446Q001 | TB | 1 | | | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006MS | MS | 1 | | | |
| HAR21GW01S006SD | SD | 1 | | | |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 100 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 100 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 250 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 100 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

The following items were noted: 2CLEVE; LCS<LCL; MS<LCL, SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - HAR21GW01S006MS),

c-1,2-Dichloroethene (MS - HAR21GW01S006MS), Pentachloroethane (MS - HAR21GW01S006MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - HAR21GW01S006SD), c-1,2-Dichloroethene (SD - HAR21GW01S006SD), Pentachloroethane (SD - HAR21GW01S006SD). For high recoveries and sample results ND, no flagging applied to those analytes. All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | HAR21GW01S006 | | | 16 UG/L | R | MS<LCL |
| | HAR21GW01S006 | | | 16 UG/L | R | SD<LCL |
| WATER | | | <u>c-1,2-Dichloroethene</u> | | | |
| | HAR21GW01S006 | | | 150 UG/L | J | MS<LCL |
| | HAR21GW01S006 | | | 150 UG/L | J | SD<LCL |
| WATER | | | <u>Pentachloroethane</u> | | | |
| | HAR21GW01S006 | | | 1.5 UG/L | none | MS>UCL |
| | HAR21GW01S006 | | | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results ND, no flagging applied to those analytes. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246235BS | Bromomethane | 62 | 70 | 120 |
| WATER | BS | 09916246235BS | t-1,3-Dichloropropene | 125 | 70 | 120 |
| WATER | BS | 09916246236BS | 2-Chloroethyl Vinyl Ether | 69 | 70 | 120 |
| WATER | BS | 09916246236BS | Bromomethane | 64 | 70 | 120 |
| WATER | BS | 09916246236BS | t-1,3-Dichloropropene | 124 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: WS09GW01S005.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG. VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: WS09GW01S005. Sample was re-analyzed on a diluted basis due to concentration of target analytes.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 150 | J | | 0.48 | 5 | UG/L | MS<LCL (J) | |
| | 150 | J | | 0.48 | 5 | UG/L | SD<LCL (J) | |

Validated Form I

| Field ID | HAR21GW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 12 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.46 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 48 | | | 0.3 | 0.5 | UG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | HAR23GW01S006 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |

Validated Form I

| Field ID | HAR23GW01S006 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 1.1 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | ND136GW01S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 40 | U | U | 40 | 500 | UG/L | |
| 1,1,1-Trichloroethane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 41 | U | U | 41 | 1000 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 45 | U | U | 45 | 2500 | UG/L | |
| 1,1,2-Trichloroethane | 38 | U | U | 38 | 1000 | UG/L | |
| 1,1-Dichloroethane | 28 | U | U | 28 | 1000 | UG/L | |
| 1,1-Dichloroethene | 60 | J | =J | 43 | 2500 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2,3-Trichlorobenzene | 51 | U | U | 51 | 2500 | UG/L | |
| 1,2,3-Trichloropropane | 64 | U | U | 64 | 500 | UG/L | |
| 1,2,4-Trichlorobenzene | 50 | U | U | 50 | 2500 | UG/L | |
| 1,2,4-Trimethylbenzene | 36 | U | U | 36 | 1000 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 120 | U | U | 120 | 2500 | UG/L | |
| 1,2-Dibromoethane | 36 | U | U | 36 | 1000 | UG/L | |
| 1,2-Dichlorobenzene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2-Dichloroethane | 24 | U | U | 24 | 500 | UG/L | |
| 1,2-Dichloropropane | 42 | U | U | 42 | 1000 | UG/L | |
| 1,3,5-Trimethylbenzene | 28 | U | U | 28 | 1000 | UG/L | |
| 1,3-Dichlorobenzene | 40 | U | U | 40 | 1000 | UG/L | |
| 1,3-Dichloropropane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,4-Dichlorobenzene | 43 | U | U | 43 | 1000 | UG/L | |
| 2,2-Dichloropropane | 36 | U | U | 36 | 500 | UG/L | |
| 2-Butanone | 220 | U | U | 220 | 5000 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 210 | U | U | 210 | 2500 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 1600 | R | U | 1600 | 2500 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 24 | U | U | 24 | 2500 | UG/L | |
| 2-Hexanone | 210 | U | U | 210 | 5000 | UG/L | |
| 4-Chlorotoluene | 13 | U | U | 13 | 2500 | UG/L | |
| 4-Methyl-2-Pentanone | 440 | U | U | 440 | 2500 | UG/L | |
| Acetone | 600 | U | U | 600 | 5000 | UG/L | |
| Benzene | 14 | U | U | 14 | 1000 | UG/L | |
| Bromobenzene | 30 | U | U | 30 | 2500 | UG/L | |
| Bromochloromethane | 48 | U | U | 48 | 2500 | UG/L | |
| Bromodichloromethane | 21 | U | U | 21 | 1000 | UG/L | |
| Bromoform | 50 | U | U | 50 | 2500 | UG/L | |
| Bromomethane | 390 | UJ | U | 390 | 2500 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 16000 | | | 48 | 500 | UG/L | |
| c-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | |

| Field ID | ND136GW01S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Carbon Tetrachloride | 23 | U | U | 23 | 50 | UG/L | |
| Chlorobenzene | 17 | U | U | 17 | 1000 | UG/L | |
| Chloroethane | 230 | U | U | 230 | 2500 | UG/L | |
| Chloroform | 46 | U | U | 46 | 1000 | UG/L | |
| Chloromethane | 180 | U | U | 180 | 2500 | UG/L | |
| Chlorotrifluoroethylene | 180 | U | U | 180 | 2500 | UG/L | |
| Dibromochloromethane | 25 | U | U | 25 | 1000 | UG/L | |
| Dibromomethane | 46 | U | U | 46 | 500 | UG/L | |
| Dichlorodifluoromethane | 46 | U | U | 46 | 2500 | UG/L | |
| Ethylbenzene | 14 | U | U | 14 | 1000 | UG/L | |
| Hexachloro-1,3-Butadiene | 32 | U | U | 32 | 2500 | UG/L | |
| Isopropanol | 3700 | U | U | 3700 | 10000 | UG/L | |
| Isopropylbenzene | 58 | U | U | 58 | 1000 | UG/L | |
| Methylene Chloride | 64 | U | U | 64 | 2500 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 31 | U | U | 31 | 2500 | UG/L | |
| n-Butylbenzene | 23 | U | U | 23 | 2500 | UG/L | |
| n-Propylbenzene | 17 | U | U | 17 | 1000 | UG/L | |
| o-Xylene | 23 | U | U | 23 | 1000 | UG/L | |
| p/m-Xylene | 30 | U | U | 30 | 1000 | UG/L | |
| Pentachloroethane | 150 | U | U | 150 | 1000 | UG/L | |
| p-Isopropyltoluene | 16 | U | U | 16 | 1000 | UG/L | |
| sec-Butylbenzene | 25 | U | U | 25 | 2500 | UG/L | |
| Styrene | 17 | U | U | 17 | 1000 | UG/L | |
| t-1,2-Dichloroethene | 370 | J | =J | 37 | 1000 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 28 | U | U | 28 | 2500 | UG/L | |
| Tetrachloroethene | 39 | U | U | 39 | 500 | UG/L | |
| Toluene | 77 | J | =J | 24 | 1000 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 11000 | | | 37 | 500 | UG/L | |
| Trichlorofluoromethane | 170 | U | U | 170 | 2500 | UG/L | |
| Vinyl Chloride | 580 | | | 30 | 50 | UG/L | |

| Field ID | ND136GW02S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 40 | U | U | 40 | 500 | UG/L | |
| 1,1,1-Trichloroethane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 41 | U | U | 41 | 1000 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 45 | U | U | 45 | 2500 | UG/L | |
| 1,1,2-Trichloroethane | 38 | U | U | 38 | 1000 | UG/L | |
| 1,1-Dichloroethane | 28 | U | U | 28 | 1000 | UG/L | |
| 1,1-Dichloroethene | 43 | U | U | 43 | 2500 | UG/L | |
| 1,1-Dichloropropene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2,3-Trichlorobenzene | 51 | U | U | 51 | 2500 | UG/L | |
| 1,2,3-Trichloropropane | 64 | U | U | 64 | 500 | UG/L | |
| 1,2,4-Trichlorobenzene | 50 | U | U | 50 | 2500 | UG/L | |
| 1,2,4-Trimethylbenzene | 36 | U | U | 36 | 1000 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 120 | U | U | 120 | 2500 | UG/L | |
| 1,2-Dibromoethane | 36 | U | U | 36 | 1000 | UG/L | |

Validated Form I

| Field ID | ND136GW02S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichlorobenzene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2-Dichloroethane | 24 | U | U | 24 | 500 | UG/L | |
| 1,2-Dichloropropane | 42 | U | U | 42 | 1000 | UG/L | |
| 1,3,5-Trimethylbenzene | 28 | U | U | 28 | 1000 | UG/L | |
| 1,3-Dichlorobenzene | 40 | U | U | 40 | 1000 | UG/L | |
| 1,3-Dichloropropane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,4-Dichlorobenzene | 43 | U | U | 43 | 1000 | UG/L | |
| 2,2-Dichloropropane | 36 | U | U | 36 | 500 | UG/L | |
| 2-Butanone | 220 | U | U | 220 | 5000 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 210 | U | U | 210 | 2500 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 1600 | R | U | 1600 | 2500 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 24 | U | U | 24 | 2500 | UG/L | |
| 2-Hexanone | 210 | U | U | 210 | 5000 | UG/L | |
| 4-Chlorotoluene | 13 | U | U | 13 | 2500 | UG/L | |
| 4-Methyl-2-Pentanone | 440 | U | U | 440 | 2500 | UG/L | |
| Acetone | 600 | U | U | 600 | 5000 | UG/L | |
| Benzene | 14 | U | U | 14 | 1000 | UG/L | |
| Bromobenzene | 30 | U | U | 30 | 2500 | UG/L | |
| Bromochloromethane | 48 | U | U | 48 | 2500 | UG/L | |
| Bromodichloromethane | 21 | U | U | 21 | 1000 | UG/L | |
| Bromoform | 50 | U | U | 50 | 2500 | UG/L | |
| Bromomethane | 390 | UJ | U | 390 | 2500 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 15000 | | | 48 | 500 | UG/L | |
| c-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | |
| Carbon Tetrachloride | 23 | U | U | 23 | 50 | UG/L | |
| Chlorobenzene | 17 | U | U | 17 | 1000 | UG/L | |
| Chloroethane | 230 | U | U | 230 | 2500 | UG/L | |
| Chloroform | 46 | U | U | 46 | 1000 | UG/L | |
| Chloromethane | 180 | U | U | 180 | 2500 | UG/L | |
| Chlorotrifluoroethylene | 180 | U | U | 180 | 2500 | UG/L | |
| Dibromochloromethane | 25 | U | U | 25 | 1000 | UG/L | |
| Dibromomethane | 46 | U | U | 46 | 500 | UG/L | |
| Dichlorodifluoromethane | 46 | U | U | 46 | 2500 | UG/L | |
| Ethylbenzene | 14 | U | U | 14 | 1000 | UG/L | |
| Hexachloro-1,3-Butadiene | 32 | U | U | 32 | 2500 | UG/L | |
| Isopropanol | 3700 | U | U | 3700 | 10000 | UG/L | |
| Isopropylbenzene | 58 | U | U | 58 | 1000 | UG/L | |
| Methylene Chloride | 64 | U | U | 64 | 2500 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 31 | U | U | 31 | 2500 | UG/L | |
| n-Butylbenzene | 23 | U | U | 23 | 2500 | UG/L | |
| n-Propylbenzene | 17 | U | U | 17 | 1000 | UG/L | |
| o-Xylene | 23 | U | U | 23 | 1000 | UG/L | |
| p/m-Xylene | 30 | U | U | 30 | 1000 | UG/L | |
| Pentachloroethane | 150 | U | U | 150 | 1000 | UG/L | |
| p-Isopropyltoluene | 16 | U | U | 16 | 1000 | UG/L | |
| sec-Butylbenzene | 25 | U | U | 25 | 2500 | UG/L | |
| Styrene | 17 | U | U | 17 | 1000 | UG/L | |
| t-1,2-Dichloroethene | 170 | J | =J | 37 | 1000 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 28 | U | U | 28 | 2500 | UG/L | |

Validated Form I

| Field ID | ND136GW02S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 39 | U | U | 39 | 500 | UG/L | |
| Toluene | 310 | J | =J | 24 | 1000 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 5000 | | | 37 | 500 | UG/L | |
| Trichlorofluoromethane | 170 | U | U | 170 | 2500 | UG/L | |
| Vinyl Chloride | 4600 | | | 30 | 50 | UG/L | |

| Field ID | WS09GW01S005 | | | | | | |
|---------------------------------------|--------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 40 | U | U | 40 | 500 | UG/L | |
| 1,1,1-Trichloroethane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 41 | U | U | 41 | 1000 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 45 | U | U | 45 | 2500 | UG/L | |
| 1,1,2-Trichloroethane | 38 | U | U | 38 | 1000 | UG/L | |
| 1,1-Dichloroethane | 28 | U | U | 28 | 1000 | UG/L | |
| 1,1-Dichloroethene | 43 | U | U | 43 | 2500 | UG/L | |
| 1,1-Dichloropropene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2,3-Trichlorobenzene | 51 | U | U | 51 | 2500 | UG/L | |
| 1,2,3-Trichloropropane | 64 | U | U | 64 | 500 | UG/L | |
| 1,2,4-Trichlorobenzene | 50 | U | U | 50 | 2500 | UG/L | |
| 1,2,4-Trimethylbenzene | 36 | U | U | 36 | 1000 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 120 | U | U | 120 | 2500 | UG/L | |
| 1,2-Dibromoethane | 36 | U | U | 36 | 1000 | UG/L | |
| 1,2-Dichlorobenzene | 46 | U | U | 46 | 1000 | UG/L | |
| 1,2-Dichloroethane | 24 | U | U | 24 | 500 | UG/L | |
| 1,2-Dichloropropane | 42 | U | U | 42 | 1000 | UG/L | |
| 1,3,5-Trimethylbenzene | 28 | U | U | 28 | 1000 | UG/L | |
| 1,3-Dichlorobenzene | 40 | U | U | 40 | 1000 | UG/L | |
| 1,3-Dichloropropane | 30 | U | U | 30 | 1000 | UG/L | |
| 1,4-Dichlorobenzene | 43 | U | U | 43 | 1000 | UG/L | |
| 2,2-Dichloropropane | 36 | U | U | 36 | 500 | UG/L | |
| 2-Butanone | 220 | U | U | 220 | 5000 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 210 | U | U | 210 | 2500 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 1600 | R | U | 1600 | 2500 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 24 | U | U | 24 | 2500 | UG/L | |
| 2-Hexanone | 210 | U | U | 210 | 5000 | UG/L | |
| 4-Chlorotoluene | 13 | U | U | 13 | 2500 | UG/L | |
| 4-Methyl-2-Pentanone | 440 | U | U | 440 | 2500 | UG/L | |
| Acetone | 600 | U | U | 600 | 5000 | UG/L | |
| Benzene | 14 | U | U | 14 | 1000 | UG/L | |
| Bromobenzene | 30 | U | U | 30 | 2500 | UG/L | |
| Bromochloromethane | 48 | U | U | 48 | 2500 | UG/L | |
| Bromodichloromethane | 21 | U | U | 21 | 1000 | UG/L | |
| Bromoform | 50 | U | U | 50 | 2500 | UG/L | |
| Bromomethane | 390 | UJ | U | 390 | 2500 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 2200 | | | 48 | 500 | UG/L | |
| c-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | |
| Carbon Tetrachloride | 23 | U | U | 23 | 50 | UG/L | |
| Chlorobenzene | 17 | U | U | 17 | 1000 | UG/L | |

Validated Form I

| Field ID | WS09GW01S005 | | | | | | |
|-----------------------------|--------------|------------|----------|------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloroethane | 230 | U | U | 230 | 2500 | UG/L | |
| Chloroform | 46 | U | U | 46 | 1000 | UG/L | |
| Chloromethane | 180 | U | U | 180 | 2500 | UG/L | |
| Chlorotrifluoroethylene | 180 | U | U | 180 | 2500 | UG/L | |
| Dibromochloromethane | 25 | U | U | 25 | 1000 | UG/L | |
| Dibromomethane | 46 | U | U | 46 | 500 | UG/L | |
| Dichlorodifluoromethane | 46 | U | U | 46 | 2500 | UG/L | |
| Ethylbenzene | 14 | U | U | 14 | 1000 | UG/L | |
| Hexachloro-1,3-Butadiene | 32 | U | U | 32 | 2500 | UG/L | |
| Isopropanol | 3700 | U | U | 3700 | 10000 | UG/L | |
| Isopropylbenzene | 58 | U | U | 58 | 1000 | UG/L | |
| Methylene Chloride | 64 | U | U | 64 | 2500 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 31 | U | U | 31 | 2500 | UG/L | |
| n-Butylbenzene | 23 | U | U | 23 | 2500 | UG/L | |
| n-Propylbenzene | 17 | U | U | 17 | 1000 | UG/L | |
| o-Xylene | 23 | U | U | 23 | 1000 | UG/L | |
| p/m-Xylene | 30 | U | U | 30 | 1000 | UG/L | |
| Pentachloroethane | 150 | U | U | 150 | 1000 | UG/L | |
| p-Isopropyltoluene | 16 | U | U | 16 | 1000 | UG/L | |
| sec-Butylbenzene | 25 | U | U | 25 | 2500 | UG/L | |
| Styrene | 17 | U | U | 17 | 1000 | UG/L | |
| t-1,2-Dichloroethene | 67 | J | =J | 37 | 1000 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 25 | U | U | 25 | 1000 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 28 | U | U | 28 | 2500 | UG/L | |
| Tetrachloroethene | 39 | U | U | 39 | 500 | UG/L | |
| Toluene | 24 | U | U | 24 | 1000 | UG/L | |
| Trichloroethene | 25000 | | =D | 92 | 1200 | UG/L | InvalidLabFlag (=) |
| Trichlorofluoromethane | 170 | U | U | 170 | 2500 | UG/L | |
| Vinyl Chloride | 30 | U | U | 30 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071194

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2446Q001 | TB | 1 | | | 18071601 / CAQW2446Q001 / 160711 |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1000 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 250 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| ND136GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 2500 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| WS09GW01S005 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR21GW01S006 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 1.2 | | | 0.35 | 1 | UG/L | |

| Field ID | | HAR23GW01S006 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.54 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) |

| Field ID | | ND136GW01S002 | | | | | |
|-------------|--------|---------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 350 | U | U | 350 | 1000 | UG/L | |

| Field ID | | ND136GW02S002 | | | | | |
|-------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 88 | U | U | 88 | 250 | UG/L | |

| Field ID | | WS09GW01S005 | | | | | |
|-------------|--------|--------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 880 | U | U | 880 | 2500 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071195

Method 4500-NH3F

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR21GW01S006 | N 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.059 | | | 0.0086 | 0.05 | MG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.03 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071195

Method E314

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006MS | MS | 1 | | | |
| HAR23GW01S006SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071195

Method SW8270C-SIM

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR21GW01S006 | N | 1 Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.12 | J | =J | 0.046 | 9.4 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.061 | J | =J | 0.05 | 9.4 | UG/L | InvalidLabFlag (J) |
| Diethyl Phthalate | 0.05 | U | U | 0.05 | 9.4 | UG/L | |
| Dimethyl Phthalate | 0.043 | U | U | 0.043 | 9.4 | UG/L | |
| Di-n-Butyl Phthalate | 0.076 | U | U | 0.076 | 9.4 | UG/L | |
| Di-n-Octyl Phthalate | 0.045 | U | U | 0.045 | 9.4 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071195

Method SW8330A

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.055 | U | U | 0.055 | 1.2 | UG/L | |
| 1,3-Dinitrobenzene | 0.062 | U | U | 0.062 | 1.2 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.032 | U | U | 0.032 | 1.2 | UG/L | |
| 2,4-Dinitrotoluene | 0.048 | U | U | 0.048 | 1.2 | UG/L | |
| 2,6-Dinitrotoluene | 0.064 | U | U | 0.064 | 1.2 | UG/L | |
| 2-Amino-4,6-DNT | 0.075 | U | U | 0.075 | 1.2 | UG/L | |
| 2-Nitrotoluene | 0.049 | U | U | 0.049 | 1.2 | UG/L | |
| 3-Nitrotoluene | 0.057 | U | U | 0.057 | 1.2 | UG/L | |
| 4-Amino-2,6-DNT | 0.066 | U | U | 0.066 | 1.2 | UG/L | |
| 4-Nitrotoluene | 0.066 | U | U | 0.066 | 1.2 | UG/L | |
| HMX | 0.057 | U | U | 0.057 | 1.2 | UG/L | |
| Nitrobenzene | 0.069 | U | U | 0.069 | 1.2 | UG/L | |
| RDX | 0.073 | U | U | 0.073 | 1.2 | UG/L | |
| Tetryl | 0.082 | U | U | 0.082 | 1.2 | UG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.056 | U | U | 0.056 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.067 | U | U | 0.067 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.06 | U | U | 0.06 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| HMX | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| Nitrobenzene | 0.062 | U | U | 0.062 | 1.1 | UG/L | |
| RDX | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| Tetryl | 0.074 | U | U | 0.074 | 1.1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071195

Method SW9040C

Reviewer: bjones7

Date: 8/8/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR23GW01S006 | N 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | LR 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR23GW01S006 | | | | | | |
|----------|---------------|------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 6.98 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071295

Method E300.0

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR11GW01S007 | N | 5 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 2 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 2 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 2 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR11GW01S007 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 63 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.45 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 320 | | =D | 1.3 | 5 | MG/L | InvalidLabFlag (=) |

| Field ID | | ND136GW03S003 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 50 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.34 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 120 | | =D | 0.54 | 2 | MG/L | InvalidLabFlag (=) |

| Field ID | | ND136GW04S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 44 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.27 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 140 | | =D | 0.54 | 2 | MG/L | InvalidLabFlag (=) |

| Field ID | | RD49CGW01S006 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 39 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.18 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 100 | | =D | 0.54 | 2 | MG/L | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071295

Method E1625C

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR11GW01S007 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | ND136GW03S003 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 58 | | | 2.9 | 9.6 | NG/L | |

| Field ID | ND136GW04S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 75 | | | 2.9 | 9.6 | NG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071295

Method SW8015B

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2447Q001 | TB | 1 | | | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 20 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 20 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 20 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 20 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

The following items were noted: Interference

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|-----------|---------|---------------------|--------|-------------------|----------|
| WATER | | | C4-C12 (TPH as Gas) | | | |

| | | | |
|---------------|-----------|---|--------------|
| ND136GW03S003 | 2500 UG/L | U | Interference |
| ND136GW04S002 | 110 UG/L | U | Interference |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions. Interference present in samples; influence from high levels of TCE, cis-1,2-DCE in samples. No Gas pattern present. Data flagged as non-detect.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR11GW01S007 | | | | | | |
|----------------------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 28 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C15-C20 | 300 | | | 8 | 50 | UG/L | | |
| C21-C30 | 130 | | | 8 | 50 | UG/L | | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | | |
| C7 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C30 | 460 | | | 8 | 50 | UG/L | | |

| Field ID | | ND136GW03S003 | | | | | | |
|----------------------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 8.3 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C15-C20 | 830 | | | 8 | 50 | UG/L | | |
| C21-C30 | 150 | | | 8 | 50 | UG/L | | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | | |
| C4-C12 (TPH as Gas) | 2500 | U | =b | 48 | 50 | UG/L | Interference (U) | |
| C7 | 36 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C8-C11 | 47 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C8-C30 | 1000 | | | 8 | 50 | UG/L | | |

| Field ID | | ND136GW04S002 | | | | | | |
|----------------------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | | |
| C15-C20 | 420 | | | 8 | 50 | UG/L | | |
| C21-C30 | 12 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | | |
| C4-C12 (TPH as Gas) | 110 | U | =b | 48 | 50 | UG/L | Interference (U) | |
| C7 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 40 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C8-C30 | 470 | | | 8 | 50 | UG/L | | |

| Field ID | | RD49CGW01S006 | | | | | | |
|----------|--------|---------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | | |

Validated Form I

| Field ID | RD49CGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 69 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 9 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 78 | | | 8 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| Interference | Indicates the presence of quantitative interference | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071295

Method SW8260B

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2447Q001 | TB | 1 | | | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 100 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 10 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

The following items were noted: 2Cleve; LCS<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample

These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), *t*-1,3-Dichloropropene (BS). For high recoveries and sample results ND, no flagging applied to those analytes. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246236BS | 2-Chloroethyl Vinyl Ether | 69 | 70 | 120 |
| WATER | BS | 09916246236BS | Bromomethane | 64 | 70 | 120 |
| WATER | BS | 09916246236BS | t-1,3-Dichloropropene | 124 | 70 | 120 |
| WATER | BS | 09916246237BS | 2-Chloroethyl Vinyl Ether | 63 | 70 | 120 |
| WATER | BS | 09916246237BS | Bromomethane | 61 | 70 | 120 |
| WATER | BS | 09916246237BS | t-1,3-Dichloropropene | 125 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND136GW03S003.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND136GW03S003. Sample re-analyzed on a diluted basis due to concentration of target analytes

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR11GW01S007 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|----------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 31 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 5.6 | | | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | | |

| Field ID | HAR11GW01S007 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 170 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | ND136GW03S003 | | | | | | |
|---------------------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 4 | U | U | 4 | 50 | UG/L | |
| 1,1,1-Trichloroethane | 3 | U | U | 3 | 100 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 4.1 | U | U | 4.1 | 100 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 4.5 | U | U | 4.5 | 250 | UG/L | |
| 1,1,2-Trichloroethane | 3.8 | U | U | 3.8 | 100 | UG/L | |
| 1,1-Dichloroethane | 2.8 | U | U | 2.8 | 100 | UG/L | |
| 1,1-Dichloroethene | 25 | J | =J | 4.3 | 250 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 4.6 | U | U | 4.6 | 100 | UG/L | |
| 1,2,3-Trichlorobenzene | 5.1 | U | U | 5.1 | 250 | UG/L | |
| 1,2,3-Trichloropropane | 6.4 | U | U | 6.4 | 50 | UG/L | |
| 1,2,4-Trichlorobenzene | 5 | U | U | 5 | 250 | UG/L | |
| 1,2,4-Trimethylbenzene | 3.6 | U | U | 3.6 | 100 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 12 | U | U | 12 | 250 | UG/L | |
| 1,2-Dibromoethane | 3.6 | U | U | 3.6 | 100 | UG/L | |
| 1,2-Dichlorobenzene | 4.6 | U | U | 4.6 | 100 | UG/L | |

Validated Form I

| Field ID | ND136GW03S003 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|-----|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloroethane | 2.4 | U | U | 2.4 | 50 | UG/L | |
| 1,2-Dichloropropane | 4.2 | U | U | 4.2 | 100 | UG/L | |
| 1,3,5-Trimethylbenzene | 2.8 | U | U | 2.8 | 100 | UG/L | |
| 1,3-Dichlorobenzene | 4 | U | U | 4 | 100 | UG/L | |
| 1,3-Dichloropropane | 3 | U | U | 3 | 100 | UG/L | |
| 1,4-Dichlorobenzene | 4.3 | U | U | 4.3 | 100 | UG/L | |
| 2,2-Dichloropropane | 3.6 | U | U | 3.6 | 50 | UG/L | |
| 2-Butanone | 22 | U | U | 22 | 500 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 21 | U | U | 21 | 250 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 160 | R | U | 160 | 250 | UG/L | LCS<LCL (UJ) |
| | 160 | R | U | 160 | 250 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 2.4 | U | U | 2.4 | 250 | UG/L | |
| 2-Hexanone | 21 | U | U | 21 | 500 | UG/L | |
| 4-Chlorotoluene | 1.3 | U | U | 1.3 | 250 | UG/L | |
| 4-Methyl-2-Pentanone | 44 | U | U | 44 | 250 | UG/L | |
| Acetone | 60 | U | U | 60 | 500 | UG/L | |
| Benzene | 1.4 | U | U | 1.4 | 100 | UG/L | |
| Bromobenzene | 3 | U | U | 3 | 250 | UG/L | |
| Bromochloromethane | 4.8 | U | U | 4.8 | 250 | UG/L | |
| Bromodichloromethane | 2.1 | U | U | 2.1 | 100 | UG/L | |
| Bromoform | 5 | U | U | 5 | 250 | UG/L | |
| Bromomethane | 39 | UJ | U | 39 | 250 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 8900 | | =D | 48 | 500 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 2.5 | U | U | 2.5 | 100 | UG/L | |
| Carbon Tetrachloride | 2.3 | U | U | 2.3 | 5 | UG/L | |
| Chlorobenzene | 1.7 | U | U | 1.7 | 100 | UG/L | |
| Chloroethane | 23 | U | U | 23 | 250 | UG/L | |
| Chloroform | 4.6 | U | U | 4.6 | 100 | UG/L | |
| Chloromethane | 18 | U | U | 18 | 250 | UG/L | |
| Chlorotrifluoroethylene | 18 | U | U | 18 | 250 | UG/L | |
| Dibromochloromethane | 2.5 | U | U | 2.5 | 100 | UG/L | |
| Dibromomethane | 4.6 | U | U | 4.6 | 50 | UG/L | |
| Dichlorodifluoromethane | 4.6 | U | U | 4.6 | 250 | UG/L | |
| Ethylbenzene | 1.4 | U | U | 1.4 | 100 | UG/L | |
| Hexachloro-1,3-Butadiene | 3.2 | U | U | 3.2 | 250 | UG/L | |
| Isopropanol | 370 | U | U | 370 | 1000 | UG/L | |
| Isopropylbenzene | 5.8 | U | U | 5.8 | 100 | UG/L | |
| Methylene Chloride | 6.4 | U | U | 6.4 | 250 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 3.1 | U | U | 3.1 | 250 | UG/L | |
| n-Butylbenzene | 2.3 | U | U | 2.3 | 250 | UG/L | |
| n-Propylbenzene | 1.7 | U | U | 1.7 | 100 | UG/L | |
| o-Xylene | 2.3 | U | U | 2.3 | 100 | UG/L | |
| p/m-Xylene | 3 | U | U | 3 | 100 | UG/L | |
| Pentachloroethane | 15 | U | U | 15 | 100 | UG/L | |
| p-Isopropyltoluene | 1.6 | U | U | 1.6 | 100 | UG/L | |
| sec-Butylbenzene | 2.5 | U | U | 2.5 | 250 | UG/L | |
| Styrene | 1.7 | U | U | 1.7 | 100 | UG/L | |
| t-1,2-Dichloroethene | 1300 | | | 3.7 | 100 | UG/L | |
| t-1,3-Dichloropropene | 2.5 | U | U | 2.5 | 100 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 2.8 | U | U | 2.8 | 250 | UG/L | |

Validated Form I

| Field ID | ND136GW03S003 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 3.9 | U | U | 3.9 | 50 | UG/L | |
| Toluene | 98 | J | =J | 2.4 | 100 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 5100 | | =D | 37 | 500 | UG/L | InvalidLabFlag (=) |
| Trichlorofluoromethane | 17 | U | U | 17 | 250 | UG/L | |
| Vinyl Chloride | 770 | | =D | 30 | 50 | UG/L | InvalidLabFlag (=) |

| Field ID | ND136GW04S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 38 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.26 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 100 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |

| Field ID | ND136GW04S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 3.9 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 21 | | | 0.24 | 10 | UG/L | |
| Trichloroethene | 53 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 42 | | | 0.3 | 0.5 | UG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |

Validated Form I

| Field ID | RD49CGW01S006 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 34 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 2.4 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |

Validated Form I

| Field ID | RD49CGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.39 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071295

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2447Q001 | TB | 1 | | | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 500 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW03S003 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| ND136GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

- 5. Surrogates** All acceptance criteria were met.

- 6. Tuning and Mass Calibration** Tuning and Mass Calibration were not examined by AutoDV.

- 7. Internal Standard** Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

- Initial Calibration** Initial Calibration was not examined by AutoDV.
- Continuing Calibration** Continuing Calibration was not examined by AutoDV.

- 9. Holding Time** All acceptance criteria were met.

- 10. Confirmation** None for this SDG.

11. Summary

- General Comments** Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

- Data Package Completeness** Package was complete for level V validation

- Forms Review/ Items of Interest** No samples were excluded for dilutions or re-extractions.

- COC Review** No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR11GW01S007 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 2.7 | | | 0.35 | 1 | UG/L | |

| Field ID | | ND136GW03S003 | | | | | |
|-------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 180 | U | U | 180 | 500 | UG/L | |

| Field ID | | ND136GW04S002 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 19 | | | 0.35 | 1 | UG/L | |

| Field ID | | RD49CGW01S006 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.91 | J | =J | 0.35 | 1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method 4500-NH3F

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR08GW01S007 | | | | | | |
|----------------|--------|---------------|----------|--------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Ammonia (as N) | 0.0086 | U | U | 0.0086 | 0.05 | MG/L | | |

| Field ID | | HAR11GW01S007 | | | | | | |
|----------------|--------------|---------------|----------|--------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Ammonia (as N) | 0.035 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) | |

| Field ID | | RD49CGW01S006 | | | | | | |
|----------------|--------------|---------------|----------|--------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Ammonia (as N) | 0.024 | J | =J | 0.0086 | 0.05 | MG/L | InvalidLabFlag (J) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method E300.0

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007MS | MS | 1 | | | |
| HAR08GW01S007SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|----------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.13 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method E314

Reviewer: bjoness7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007MS | MS | 1 | | | |
| HAR08GW01S007SD | SD | 1 | | | |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | HAR11GW01S007 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 3.4 | | | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method E1625C

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR08GW01S007 | N | 1 Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 12 | | | 2.8 | 9.4 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW8015B

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 20 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007MS | MS | 1 | | | |
| HAR08GW01S007SD | SD | 1 | | | |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2447Q001 | TB | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 48 | U | U | 48 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW8260B

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|------------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 16071296 |
| HAR08GW01S007MS | MS | 1 | | | |
| HAR08GW01S007SD | SD | 1 | | | |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|--------------|----------|------------------------|------------------------|------------------------------------|
| WATER | | | | | |
| CAQW2447Q001 | TB | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 16071296 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL; MS<LCL; SD<LCL.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - HAR08GW01S007MS), Isopropanol (MS - HAR08GW01S007MS), Pentachloroethane (MS - HAR08GW01S007MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - HAR08GW01S007SD), Isopropanol (SD - HAR08GW01S007SD), Pentachloroethane (SD - HAR08GW01S007SD). For high recoveries and sample results reported as ND, no

flagging was applied. All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | HAR08GW01S007 | | | 16 UG/L | R | MS<LCL |
| | HAR08GW01S007 | | | 16 UG/L | R | SD<LCL |
| WATER | | | <u>Isopropanol</u> | | | |
| | HAR08GW01S007 | | | 37 UG/L | none | MS>UCL |
| | HAR08GW01S007 | | | 37 UG/L | none | SD>UCL |
| WATER | | | <u>Pentachloroethane</u> | | | |
| | HAR08GW01S007 | | | 1.5 UG/L | none | MS>UCL |
| | HAR08GW01S007 | | | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246236BS | 2-Chloroethyl Vinyl Ether | 69 | 70 | 120 |
| WATER | BS | 09916246236BS | Bromomethane | 64 | 70 | 120 |
| WATER | BS | 09916246236BS | t-1,3-Dichloropropene | 124 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 15 | | | 0.48 | 5 | UG/L | |

| Field ID | HAR08GW01S007 | | | | | | ValidationReason (Flag) |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | MS>UCL (none) |
| | 37 | U | U | 37 | 100 | UG/L | SD>UCL (none) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 1.4 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.91 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 5.3 | | | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-------------------------------|-------------------------------|--------------------------|------------------------|------------------------------------|
| WATER HAR08GW01S007 | N | 1 Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 16071296 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|------------------------------|-------------------------------|--------------------------|------------------------|------------------------------------|
| WATER CAQW2447Q001 | TB | 1 Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 16071296 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

- 5. Surrogates** All acceptance criteria were met.

- 6. Tuning and Mass Calibration** Tuning and Mass Calibration were not examined by AutoDV.

- 7. Internal Standard** Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

- Initial Calibration** Initial Calibration was not examined by AutoDV.
- Continuing Calibration** Continuing Calibration was not examined by AutoDV.

- 9. Holding Time** All acceptance criteria were met.

- 10. Confirmation** None for this SDG.

11. Summary

- General Comments**
 - Field Duplicates: No FD Associated.
 - Form I Review: No samples were excluded for dilutions or re-extractions.
 - Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 - Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 - Initial Calibration: Initial Calibration was not examined by AutoDV.
 - Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 - VDMS4.32

- Data Package Completeness** Package was complete for level V validation.

- Forms Review/ Items of Interest** No samples were excluded for dilutions or re-extractions.

- COC Review** No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.9 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW8270C-SIM

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR11GW01S007 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.11 | J | =J | 0.048 | 9.7 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.052 | U | U | 0.052 | 9.7 | UG/L | |
| Diethyl Phthalate | 0.21 | J | =J | 0.052 | 9.7 | UG/L | InvalidLabFlag (J) |
| Dimethyl Phthalate | 0.12 | J | =J | 0.045 | 9.7 | UG/L | InvalidLabFlag (J) |
| Di-n-Butyl Phthalate | 0.078 | U | U | 0.078 | 9.7 | UG/L | |
| Di-n-Octyl Phthalate | 0.047 | U | U | 0.047 | 9.7 | UG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.15 | J | =J | 0.047 | 9.6 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.12 | J | =J | 0.051 | 9.6 | UG/L | InvalidLabFlag (J) |
| Diethyl Phthalate | 0.051 | U | U | 0.051 | 9.6 | UG/L | |
| Dimethyl Phthalate | 0.044 | U | U | 0.044 | 9.6 | UG/L | |
| Di-n-Butyl Phthalate | 0.12 | J | =J | 0.077 | 9.6 | UG/L | InvalidLabFlag (J) |
| Di-n-Octyl Phthalate | 0.046 | U | U | 0.046 | 9.6 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW8330A

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.057 | U | U | 0.057 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.068 | U | U | 0.068 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.045 | U | U | 0.045 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.061 | U | U | 0.061 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.06 | U | U | 0.06 | 1.1 | UG/L | |
| HMX | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| Nitrobenzene | 0.063 | U | U | 0.063 | 1.1 | UG/L | |
| RDX | 0.067 | U | U | 0.067 | 1.1 | UG/L | |
| Tetryl | 0.076 | U | U | 0.076 | 1.1 | UG/L | |

| Field ID | HAR11GW01S007 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.05 | U | U | 0.05 | 1.1 | UG/L | |
| 1,3-Dinitrobenzene | 0.056 | U | U | 0.056 | 1.1 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | |
| 2,4-Dinitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | |
| 2,6-Dinitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | |
| 2-Amino-4,6-DNT | 0.067 | U | U | 0.067 | 1.1 | UG/L | |
| 2-Nitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | |
| 4-Amino-2,6-DNT | 0.06 | U | U | 0.06 | 1.1 | UG/L | |
| 4-Nitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | |
| HMX | 0.051 | U | U | 0.051 | 1.1 | UG/L | |
| Nitrobenzene | 0.062 | U | U | 0.062 | 1.1 | UG/L | |
| RDX | 0.066 | U | U | 0.066 | 1.1 | UG/L | |
| Tetryl | 0.074 | U | U | 0.074 | 1.1 | UG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.052 | U | U | 0.052 | 1.2 | UG/L | |
| 1,3-Dinitrobenzene | 0.058 | U | U | 0.058 | 1.2 | UG/L | |

Validated Form I

| Field ID | RD49CGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 2,4,6-Trinitrotoluene | 0.03 | U | U | 0.03 | 1.2 | UG/L | |
| 2,4-Dinitrotoluene | 0.044 | U | U | 0.044 | 1.2 | UG/L | |
| 2,6-Dinitrotoluene | 0.06 | U | U | 0.06 | 1.2 | UG/L | |
| 2-Amino-4,6-DNT | 0.07 | U | U | 0.07 | 1.2 | UG/L | |
| 2-Nitrotoluene | 0.046 | U | U | 0.046 | 1.2 | UG/L | |
| 3-Nitrotoluene | 0.053 | U | U | 0.053 | 1.2 | UG/L | |
| 4-Amino-2,6-DNT | 0.062 | U | U | 0.062 | 1.2 | UG/L | |
| 4-Nitrotoluene | 0.062 | U | U | 0.062 | 1.2 | UG/L | |
| HMX | 0.053 | U | U | 0.053 | 1.2 | UG/L | |
| Nitrobenzene | 0.064 | U | U | 0.064 | 1.2 | UG/L | |
| RDX | 0.069 | U | U | 0.069 | 1.2 | UG/L | |
| Tetryl | 0.077 | U | U | 0.077 | 1.2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071296

Method SW9040C

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007 | LR | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blanks were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample No spikes in this SDG. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Laboratory Control Sample: No spikes in this SDG. No spike dupes in this SDG.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|----------|---------------|------------|----------|------|------|----------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| pH | 6.54 | | =7c | 0.01 | 0.01 | PH UNITS | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071378

Method E300.0

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| ND133GW01S002 | N | 2 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 2 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 2 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 5 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002MS | MS | 1 | | | |
| ND133GW04S002SD | SD | 1 | | | |

1. Case Narrative Items of Interest

The following items were noted: MS>UCL; SD>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: Sulfate (MS - ND133GW04S002MS). These SD's were out of control: Sulfate (SD - ND133GW04S002SD). All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|-----------|---------|---------|--------|-------------------|----------|
|--------|-----------|---------|---------|--------|-------------------|----------|

| WATER | <u>Sulfate</u> | | | |
|---------------|----------------|---|--|--------|
| ND133GW01S002 | 170 MG/L | J | | MS>UCL |
| ND133GW01S002 | 170 MG/L | J | | SD>UCL |
| ND133GW02S002 | 150 MG/L | J | | MS>UCL |
| ND133GW02S002 | 150 MG/L | J | | SD>UCL |
| ND133GW03S002 | 130 MG/L | J | | MS>UCL |
| ND133GW03S002 | 130 MG/L | J | | SD>UCL |
| ND133GW04S002 | 190 MG/L | J | | MS>UCL |
| ND133GW04S002 | 190 MG/L | J | | SD>UCL |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | ND133GW01S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 56 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.25 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 170 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |
| | 170 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |

| Field ID | | ND133GW02S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 60 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.21 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 150 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |
| | 150 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |

| Field ID | | ND133GW03S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 47 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.22 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 130 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |
| | 130 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |

| Field ID | | ND133GW04S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 43 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.23 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 190 | J | =D | 1.3 | 5 | MG/L | SD>UCL (J) |
| | 190 | J | =D | 1.3 | 5 | MG/L | MS>UCL (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071378

Method E1625C

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: _____ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| ND133GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | ND133GW01S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 170 | | | 2.8 | 9.4 | NG/L | |

| Field ID | ND133GW02S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.8 | U | U | 2.8 | 9.4 | NG/L | |

| Field ID | ND133GW03S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 57 | | | 2.9 | 9.6 | NG/L | |

| Field ID | ND133GW04S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 6.9 | J | =J | 2.9 | 9.6 | NG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071378

Method SW8015B

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2448Q001 | TB | 1 | | | 20071601 / CAQW2448Q001 / 160713 |
| CAQW2448Q001MS | MS | 1 | | | |
| CAQW2448Q001SD | SD | 1 | | | |
| ND133GW01S002 | N | 20 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 20 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 20 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 20 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | ND133GW01S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 240 | | | 8 | 50 | UG/L | |
| C21-C30 | 25 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 23 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 290 | | | 8 | 50 | UG/L | |

| Field ID | ND133GW02S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 93 | | | 8 | 50 | UG/L | |
| C21-C30 | 8 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 100 | | | 8 | 50 | UG/L | |

| Field ID | ND133GW03S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 680 | | | 8 | 50 | UG/L | |
| C21-C30 | 84 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 44 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 11 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 780 | | | 8 | 50 | UG/L | |

| Field ID | ND133GW04S002 | | | | | | |
|----------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |

Validated Form I

| Field ID | ND133GW04S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C15-C20 | 73 | | | 8 | 50 | UG/L | |
| C21-C30 | 16 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 34 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 120 | | | 8 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---------------------------------|------------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071378

Method SW8260B

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2448Q001 | TB | 1 | | | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW01S002MS | MS | 1 | | | |
| ND133GW01S002SD | SD | 1 | | | |
| ND133GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |

1. Case Narrative Items of Interest

The following items were noted: 2CLEVE; LCS<LCL; MS<LCL; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - ND133GW01S002MS), Pentachloroethane (MS - ND133GW01S002MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - ND133GW01S002SD), Pentachloroethane (SD - ND133GW01S002SD). For high recoveries and sample results ND, no flagging applied to those analytes. All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|-----------|---------|---------------------------|--------|-------------------|----------|
| WATER | | | 2-Chloroethyl Vinyl Ether | | | |

| MATRIX | Field ID | Analyte | Concentration | Recovery | Limit |
|--------|---------------|---------------------------|---------------|----------|--------|
| WATER | ND133GW01S002 | 2-Chloroethyl Vinyl Ether | 16 UG/L | R | MS<LCL |
| | ND133GW01S002 | 2-Chloroethyl Vinyl Ether | 16 UG/L | R | SD<LCL |
| WATER | ND133GW01S002 | Pentachloroethane | 1.5 UG/L | none | MS>UCL |
| | ND133GW01S002 | Pentachloroethane | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG. Since recovery high for t-1,3-Dichloropropene and sample results were ND, no flagging applied to this analyte.

| Matrix | QAQC Type | Field ID | Analyte | Recovery | LowerLimit | UpperLimit |
|--------|-----------|---------------|---------------------------|----------|------------|------------|
| WATER | BS | 09916246237BS | 2-Chloroethyl Vinyl Ether | 63 | 70 | 120 |
| WATER | BS | 09916246237BS | Bromomethane | 61 | 70 | 120 |
| WATER | BS | 09916246237BS | t-1,3-Dichloropropene | 125 | 70 | 120 |
| WATER | BS | 09916246238BS | 2-Chloroethyl Vinyl Ether | 53 | 70 | 120 |
| WATER | BS | 09916246238BS | Bromomethane | 63 | 70 | 120 |
| WATER | BS | 09916246238BS | t-1,3-Dichloropropene | 124 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | ND133GW01S002 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 9 | | | 0.48 | 5 | UG/L | | |

Validated Form I

| Field ID | ND133GW01S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 110 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.56 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 1.9 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 4.5 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | ND133GW02S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | ND133GW02S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 55 | | | 6 | 50 | UG/L | |
| Benzene | 0.29 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 2.4 | J | =J | 0.48 | 5 | UG/L | InvalidLabFlag (J) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 97 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | ND133GW02S002 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 2.9 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 0.55 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | ND133GW03S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 70 | | | 6 | 50 | UG/L | |
| Benzene | 0.27 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |

| Field ID | ND133GW03S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,2-Dichloroethene | 38 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 73 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 1.1 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 2 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 7.3 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.1 | | | 0.3 | 0.5 | UG/L | |

| Field ID | ND133GW04S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | ND133GW04S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 71 | | | 6 | 50 | UG/L | |
| Benzene | 0.19 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 21 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | ND133GW04S002 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 1.4 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 2.1 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 8 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071378

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2448Q001 | TB | 1 | | | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW01S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW02S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |
| ND133GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 20071601 / CAQW2448Q001 / 160713 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | ND133GW01S002 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 8.6 | | | 0.35 | 1 | UG/L | |

| Field ID | | ND133GW02S002 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 28 | | | 0.35 | 1 | UG/L | |

| Field ID | | ND133GW03S002 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 37 | | | 0.35 | 1 | UG/L | |

| Field ID | | ND133GW04S002 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 39 | | | 0.35 | 1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071392

Method E1625C

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|--------------------------|--------------------------|----------------------------------|
| WATER | | | | | |
| SP881CGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP881GGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890CGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890GGW01S005 | N | 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP881CGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

| Field ID | SP881GGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

| Field ID | SP890CGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3.1 | U | U | 3.1 | 10 | NG/L | |

| Field ID | SP890GGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071392

Method SW8260B

Reviewer: bjoness7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|-----------------------|--------------------------|--------------------------|----------------------------------|
| WATER | | | | |
| SP881CGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP881GGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890CGW01S005 | N 5 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890CGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890GGW01S005 | N 10 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890GGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|--------------|-----------------------|--------------------------|--------------------------|-----------------------------------|
| WATER | | | | |
| CAQW2448Q001 | TB 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 1607137 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246237BS | 2-Chloroethyl Vinyl Ether | 63 | 70 | 120 |
| WATER | BS | 09916246237BS | Bromomethane | 61 | 70 | 120 |
| WATER | BS | 09916246237BS | t-1,3-Dichloropropene | 125 | 70 | 120 |
| WATER | BS | 09916246238BS | 2-Chloroethyl Vinyl Ether | 53 | 70 | 120 |
| WATER | BS | 09916246238BS | Bromomethane | 63 | 70 | 120 |
| WATER | BS | 09916246238BS | t-1,3-Dichloropropene | 124 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: SP890CGW01S005, SP890GGW01S005.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: SP890CGW01S005, SP890GGW01S005. Samples were re-analyzed on a diluted basis due to concentration of target analytes

COC Review

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP881CGW01S005 | | | | | | | |
|---------------------------------------|----------------|------------|----------|------|-----|-------|----------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) 2Cleve (R) | |
| | 16 | R | U | 16 | 25 | UG/L | | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 17 | | | 0.48 | 5 | UG/L | InvalidLabFlag (=) | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | | |

| Field ID | SP881CGW01S005 | | | | | | |
|-----------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 160 | | | 37 | 100 | UG/L | InvalidLabFlag (=) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 2 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.33 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.36 | J | =J | 0.3 | 0.5 | UG/L | InvalidLabFlag (J) |

| Field ID | SP881GGW01S005 | | | | | | |
|---------------------------------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |

Validated Form I

| Field ID | SP881GGW01S005 | | | | | | ValidationReason (Flag) |
|--------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 23 | | | 0.48 | 5 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 190 | | | 37 | 100 | UG/L | InvalidLabFlag (=) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 5 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |

Validated Form I

| Field ID | SP881GGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | SP890CGW01S005 | | | | | | |
|---------------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 1.4 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 400 | | =D | 2.4 | 25 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |

| Field ID | SP890CGW01S005 | | | | | | |
|-----------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 88 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 24 | | | 0.37 | 10 | UG/L | InvalidLabFlag (=) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 150 | | | 0.37 | 5 | UG/L | InvalidLabFlag (=) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.52 | | | 0.3 | 0.5 | UG/L | InvalidLabFlag (=) |

| Field ID | SP890GGW01S005 | | | | | | |
|---------------------------------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 2.9 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |

Validated Form I

| Field ID | SP890GGW01S005 | | | | | | ValidationReason (Flag) |
|--------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 650 | | =D | 4.8 | 50 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 86 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 24 | | | 0.37 | 10 | UG/L | InvalidLabFlag (=) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |

Validated Form I

| Field ID | SP890GGW01S005 | | | | | | |
|------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 340 | | =D | 3.7 | 50 | UG/L | InvalidLabFlag (=) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 3.6 | | | 0.3 | 0.5 | UG/L | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071392

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/9/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|--------------------------|----------------------------------|
| WATER | | | | |
| SP881CGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP881GGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890CGW01S005 | N 10 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890CGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890GGW01S005 | N 10 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |
| SP890GGW01S005 | N 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 160713 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|--------------------------|-----------------------------------|
| WATER | | | | |
| CAQW2448Q001 | TB 1 | Missing Association SEEP | Missing Association SEEP | 20071601 / CAQW2448Q001 / 1607137 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | SP881CGW01S005 | | | | | |
|-------------|--------|----------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.56 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) |

| Field ID | | SP881GGW01S005 | | | | | |
|-------------|--------|----------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.62 | J | =J | 0.35 | 1 | UG/L | InvalidLabFlag (J) |

| Field ID | | SP890CGW01S005 | | | | | |
|-------------|--------|----------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 3.5 | U | U | 3.5 | 10 | UG/L | |

| Field ID | | SP890GGW01S005 | | | | | |
|-------------|--------|----------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 3.5 | U | U | 3.5 | 10 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071456

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR05GW01S006 | N | 1 Missing Association DP | Missing Association DP | 15071601 / CAQW2445Q001 / 160710 |

1. Case Narrative Items of Interest

The following items were noted: HTp>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard

N/A

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

These NativeIDs exceeded holding time: HAR05GW01S006. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

| <u>Field ID</u> | <u>LabsampleID</u> | <u>AnalysisDate</u> | <u>ExtractDate</u> | <u>Sample Date</u> | <u>Method Time</u> | <u>Actual</u> | <u>HT</u> |
|-----------------|--------------------|---------------------|--------------------|--------------------|--------------------|---------------|-----------|
| HAR05GW01S006 | 8477962 | 8/6/2016 | 7/26/2016 | 7/15/2016 | 10 | | 11 |

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Holding Time: These NativeIDs exceeded holding time: HAR05GW01S006.
 VDMS4.32

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR05GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.8 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) |
| FORMALDEHYDE | 50 | U | U | 20 | 50 | UG/L | |
| HYDRAZINE | 0.2 | UJ | U | 0.06 | 0.2 | UG/L | HTp>UCL (UJ) |
| METHYLHYDRAZINE | 0.8 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--------------------------|-----------------|
| HTp>UCL | Holding time exceeded | HoldingTime |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071457

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01D006 | FD | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |
| WS04AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 14071601 / CAQW2444Q001 / 160709 |

1. Case Narrative Items of Interest

The following items were noted: HTp>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time

These NativeIDs exceeded holding time: RD05CGW01S006, WS04AGW01D006, WS04AGW01S006. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

| <u>Field ID</u> | <u>LabsampleID</u> | <u>AnalysisDate</u> | <u>ExtractDate</u> | <u>Sample Date</u> | <u>Method Time</u> | <u>Actual</u> | <u>HT</u> |
|-----------------|--------------------|---------------------|--------------------|--------------------|--------------------|---------------|-----------|
| RD05CGW01S006 | 8476280 | 8/6/2016 | 7/26/2016 | 7/14/2016 | 10 | | 12 |
| WS04AGW01D006 | 8476281 | 8/6/2016 | 7/26/2016 | 7/14/2016 | 10 | | 12 |
| WS04AGW01S006 | 8476282 | 8/6/2016 | 7/26/2016 | 7/14/2016 | 10 | | 12 |

10. Confirmation N/A

11. Summary

General Comments These NativeIDs exceeded holding time: RD05CGW01S006, WS04AGW01D006, WS04AGW01S006. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD05CGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) |
| FORMALDEHYDE | 30 | J | J | 20 | 50 | UG/L | |

| Field ID | WS04AGW01D006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) |
| FORMALDEHYDE | 100 | | | 20 | 50 | UG/L | |

| Field ID | WS04AGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) |
| FORMALDEHYDE | 120 | | | 20 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--------------------------|-----------------|
| HTp>UCL | Holding time exceeded | HoldingTime |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071458

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD05AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |
| RD05BGW01S007 | N | 1 | Missing Association DP | Missing Association DP | 13071601 / CAQW2443Q001 / 160708 |

1. Case Narrative Items of Interest

The following items were noted: HTp>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time

These NativeIDs exceeded holding time: RD05AGW01S006, RD05BGW01S007. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

| <u>Field ID</u> | <u>LabsampleID</u> | <u>AnalysisDate</u> | <u>ExtractDate</u> | <u>Sample Date</u> | <u>Method Time</u> | <u>Actual</u> | <u>HT</u> |
|-----------------|--------------------|---------------------|--------------------|--------------------|--------------------|---------------|-----------|
| RD05AGW01S006 | 8474395 | 8/6/2016 | 7/26/2016 | 7/13/2016 | 10 | | 13 |
| RD05BGW01S007 | 8474396 | 8/6/2016 | 7/26/2016 | 7/13/2016 | 10 | | 13 |

10. Confirmation N/A

11. Summary

General Comments These NativeIDs exceeded holding time: RD05AGW01S006, RD05BGW01S007. Hydrazine samples were derivatized 1 day past holding time due to instrument downtime issues. (No problems with Formaldehyde)

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD05AGW01S006 | | | | | | |
|-----------------------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) | |
| FORMALDEHYDE | 20 | U | U | 20 | 50 | UG/L | | |

| Field ID | | RD05BGW01S007 | | | | | | |
|-----------------------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | UJ | U | 0.25 | 0.8 | UG/L | HTp>UCL (UJ) | |
| FORMALDEHYDE | 32 | J | J | 20 | 50 | UG/L | | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--------------------------|-----------------|
| HTp>UCL | Holding time exceeded | HoldingTime |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071587

Method E300.0

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| C5GW04S002 | N | 2 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW04S002MS | MS | 1 | | | |
| C5GW04S002SD | SD | 1 | | | |
| C5GW05D002 | FD | 2 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05D002 | FD | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 2 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 2 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 10 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

The following items were noted: MS>UCL; SD>UCL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: Sulfate (MS - C5GW04S002MS). These SD's were out of control: Sulfate (SD - C5GW04S002SD). All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------|---------------|--------------------------|-----------------|
| WATER | | | <u>Sulfate</u> | | | |
| | C5GW04S002 | | | 150 MG/L | J | MS>UCL |
| | C5GW04S002 | | | 150 MG/L | J | SD>UCL |
| | C5GW05D002 | | | 140 MG/L | J | MS>UCL |
| | C5GW05D002 | | | 140 MG/L | J | SD>UCL |
| | C5GW05S002 | | | 140 MG/L | J | MS>UCL |
| | C5GW05S002 | | | 140 MG/L | J | SD>UCL |
| | C5GW06S002 | | | 170 MG/L | J | MS>UCL |
| | C5GW06S002 | | | 170 MG/L | J | SD>UCL |

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
 Surrogates: No surrogates in this SDG.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

**Forms Review/ Items of
Interest
COC Review**

No samples were excluded for dilutions or re-extractions.

Sample collection time per sample label for C5GW05S002

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | C5GW04S002 | | | | | |
|----------------|--------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 44 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.27 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 150 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |
| | 150 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |

| Field ID | | C5GW05D002 | | | | | |
|----------------|--------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 51 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.36 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 140 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |
| | 140 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |

| Field ID | | C5GW05S002 | | | | | |
|----------------|--------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 51 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.27 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 140 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |
| | 140 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |

| Field ID | | C5GW06S002 | | | | | |
|----------------|--------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 42 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.18 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 170 | J | =D | 0.54 | 2 | MG/L | SD>UCL (J) |
| | 170 | J | =D | 0.54 | 2 | MG/L | MS>UCL (J) |

| Field ID | | ND132GW03S002 | | | | | |
|----------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |

Validated Form I

| Field ID | | ND132GW03S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 29 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.3 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.065 | J | =J | 0.053 | 0.1 | MG/L | InvalidLabFlag (J) |
| Sulfate | 50 | | | 0.27 | 1 | MG/L | |

| Field ID | | ND132GW04S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 34 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.3 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 65 | | | 0.27 | 1 | MG/L | |

| Field ID | | ND132GW05S002 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 36 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.27 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.76 | | | 0.053 | 0.1 | MG/L | |
| Sulfate | 94 | | | 0.27 | 1 | MG/L | |

| Field ID | | ND137AGW01S002 | | | | | |
|----------------|--------|----------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 220 | | =D | 5.2 | 10 | MG/L | InvalidLabFlag (=) |
| Fluoride | 0.26 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.11 | | | 0.053 | 0.1 | MG/L | |
| Sulfate | 450 | | =D | 2.7 | 10 | MG/L | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|------------------------|
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071587

Method E1625C

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC | | ABLotValue | EBLotValue | TBLotValue |
|----------------|------|----------|------------------------|------------------------|----------------------------------|
| | Type | Dilution | | | |
| WATER | | | | | |
| C5GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05D002 | FD | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Sample collection time per sample label for C5GW05S002

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | C5GW04S002 | | | | | | |
|------------------------|------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.8 | U | U | 2.8 | 9.4 | NG/L | |

| Field ID | C5GW05D002 | | | | | | |
|------------------------|------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 35 | | | 2.9 | 9.6 | NG/L | |

| Field ID | C5GW05S002 | | | | | | |
|------------------------|------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 36 | | | 2.9 | 9.6 | NG/L | |

| Field ID | C5GW06S002 | | | | | | |
|------------------------|------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 11 | | | 2.8 | 9.4 | NG/L | |

| Field ID | ND132GW03S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | ND132GW04S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.8 | U | U | 2.8 | 9.4 | NG/L | |

| Field ID | ND132GW05S002 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 25 | | | 2.9 | 9.6 | NG/L | |

Validated Form I

| Field ID | ND137AGW01S002 | | | | | | |
|------------------------|----------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 6.6 | J | =J | 2.9 | 9.6 | NG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071587

Method SW8015B

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: _____ 8/26/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| C5GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW04S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW04S002MS | MS | 1 | | | |
| C5GW04S002SD | SD | 1 | | | |
| C5GW05D002 | FD | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05D002 | FD | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| CAQW2456Q001 | TB | 1 | | | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 20 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

The following items were noted: Interference

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>C4-C12 (TPH as Gas)</u> | | | |
| | C5GW05D002 | | | 89 UG/L | U | Interference |
| | C5GW05S002 | | | 72 UG/L | U | Interference |
| | C5GW06S002 | | | 61 UG/L | U | Interference |
| | ND132GW03S002 | | | 150 UG/L | U | Interference |
| | ND132GW05S002 | | | 180 UG/L | U | Interference |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest

Interference present in samples; influence from high levels of TCE, cis-1,2-DCE in samples. No Gas pattern present. Data flagged as non-detect.

COC Review

Sample collection time per sample label for C5GW05S002

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | C5GW04S002 | | | | | | |
|----------------------|------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 87 | | | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 12 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 99 | | | 8 | 50 | UG/L | |

| Field ID | C5GW05D002 | | | | | | |
|----------------------|-------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 910 | | | 8 | 50 | UG/L | |
| C21-C30 | 120 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 21 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C4-C12 (TPH as Gas) | 89 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 12 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 1000 | | | 8 | 50 | UG/L | |

| Field ID | C5GW05S002 | | | | | | |
|----------------------|------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 820 | | | 8 | 50 | UG/L | |
| C21-C30 | 120 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 28 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C4-C12 (TPH as Gas) | 72 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 23 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 960 | | | 8 | 50 | UG/L | |

| Field ID | C5GW06S002 | | | | | | |
|----------|------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |

Validated Form I

| Field ID | C5GW06S002 | | | | | | |
|----------------------|------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C15-C20 | 540 | | | 8 | 50 | UG/L | |
| C21-C30 | 28 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 61 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 49 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 610 | | | 8 | 50 | UG/L | |

| Field ID | ND132GW03S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 32 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 150 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 11 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 43 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |

| Field ID | ND132GW04S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 39 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 56 | | | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 48 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 88 | | | 8 | 50 | UG/L | |

| Field ID | ND132GW05S002 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 1400 | | | 8 | 50 | UG/L | |
| C21-C30 | 120 | | | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 15 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C4-C12 (TPH as Gas) | 180 | U | =b | 48 | 50 | UG/L | Interference (U) |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 28 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) |
| C8-C30 | 1600 | | | 8 | 50 | UG/L | |

Validated Form I

| Field ID | ND137AGW01S002 | | | | | | |
|----------------------|----------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 50 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 50 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | |
| C4-C12 (TPH as Gas) | 50 | U | U | 48 | 50 | UG/L | |
| C7 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 50 | U | U | 8 | 50 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| Interference | Indicates the presence of quantitative interference | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071587

Method SW8260B

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| C5GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW04S002MS | MS | 1 | | | |
| C5GW04S002SD | SD | 1 | | | |
| C5GW05D002 | FD | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| CAQW2456Q001 | TB | 1 | | | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 5 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 5 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

The following items were noted: 2CLEVE; LCS<LCL; MS<LCL, SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - C5GW04S002MS), Pentachloroethane (MS - C5GW04S002MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - C5GW04S002SD), Pentachloroethane (SD - C5GW04S002SD). For high recoveries and sample results ND, no flagging applied to those analytes. All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|----------------------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | C5GW04S002 | | | 16 UG/L | R | MS<LCL |
| | C5GW04S002 | | | 16 UG/L | R | SD<LCL |
| WATER | | | <u>Pentachloroethane</u> | | | |
| | C5GW04S002 | | | 1.5 UG/L | none | MS>UCL |
| | C5GW04S002 | | | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results ND, no flagging applied to those analytes. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246239BS | 2-Chloroethyl Vinyl Ether | 67 | 70 | 120 |
| WATER | BS | 09916246239BS | Bromomethane | 57 | 70 | 120 |
| WATER | BS | 09916246239BS | t-1,3-Dichloropropene | 122 | 70 | 120 |
| WATER | BS | 09916246240BS | 2-Chloroethyl Vinyl Ether | 53 | 70 | 120 |
| WATER | BS | 09916246240BS | Bromomethane | 66 | 70 | 120 |
| WATER | BS | 09916246240BS | t-1,3-Dichloropropene | 121 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND132GW03S002, ND132GW05S002.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG. VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: ND132GW03S002, ND132GW05S002. Samples were re-analyzed on a diluted basis due to concentration of target analytes.

COC Review Sample collection time per sample label for C5GW05S002. Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | C5GW04S002 | | | | | | ValidationReason (Flag) |
|---------------------------------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 27 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 1.1 | J | =J | 0.48 | 5 | UG/L | InvalidLabFlag (J) |

Validated Form I

| Field ID | C5GW04S002 | | | | | | |
|-----------------------------|------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 70 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | C5GW05D002 | | | | | | |
|---------------------------------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | C5GW05D002 | | | | | | ValidationReason (Flag) |
|--------------------------------|-------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.6 | J | =J | 2.2 | 50 | UG/L | InvalidLabFlag (J) |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 22 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.34 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 120 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 52 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | C5GW05D002 | | | | | | |
|------------------------|------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 3.5 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 3.4 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 1.7 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.1 | | | 0.3 | 0.5 | UG/L | |

| Field ID | C5GW05S002 | | | | | | |
|---------------------------------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.8 | J | =J | 2.2 | 50 | UG/L | InvalidLabFlag (J) |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 23 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.33 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |

| Field ID | C5GW05S002 | | | | | | |
|-----------------------------|------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,2-Dichloroethene | 110 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 69 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 3.2 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 3 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 1.6 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.1 | | | 0.3 | 0.5 | UG/L | |

| Field ID | C5GW06S002 | | | | | | |
|---------------------------------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | C5GW06S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 13 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 120 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | C5GW06S002 | | | | | | |
|------------------------|------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 3.9 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.29 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 1.1 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.2 | | | 0.3 | 0.5 | UG/L | |

| Field ID | ND132GW03S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 1 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 7 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |

| Field ID | ND132GW03S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,2-Dichloroethene | 280 | | =D | 2.4 | 25 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 33 | | | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 13 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 2.6 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 120 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.3 | | | 0.3 | 0.5 | UG/L | |

| Field ID | ND132GW04S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

Validated Form I

| Field ID | ND132GW04S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6.7 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 82 | | | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 6.4 | J | =J | 1.8 | 25 | UG/L | InvalidLabFlag (J) |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | ND132GW04S002 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 4.1 | J | =J | 0.37 | 10 | UG/L | InvalidLabFlag (J) |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 2.9 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 26 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 2.1 | | | 0.3 | 0.5 | UG/L | |

| Field ID | ND132GW05S002 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.85 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 19 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.32 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |

Validated Form I

| Field ID | ND132GW05S002 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| c-1,2-Dichloroethene | 390 | | =D | 2.4 | 25 | UG/L | InvalidLabFlag (=) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 26 | | | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 150 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 15 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 4.9 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 15 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 13 | | | 0.3 | 0.5 | UG/L | |

| Field ID | ND137AGW01S002 | | | | | | |
|---------------------------------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |

| Field ID | ND137AGW01S002 | | | | | | ValidationReason (Flag) |
|--------------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.31 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.2 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 110 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.31 | J | =J | 0.23 | 10 | UG/L | InvalidLabFlag (J) |
| p/m-Xylene | 0.69 | J | =J | 0.3 | 10 | UG/L | InvalidLabFlag (J) |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |

Validated Form I

| Field ID | ND137AGW01S002 | | | | | | |
|------------------------|----------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 1.7 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071587

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 8/26/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| C5GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05D002 | FD | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| C5GW06S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| CAQW2456Q001 | TB | 1 | | | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW03S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW04S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND132GW05S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| ND137AGW01S002 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

The following items were noted: FD>RPD

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates These samples were out of control: 1,4-Dioxane (C5GW05S002, %RPD = 71.6 vs 30).

| Matrix | Sample ID | Analyte | Result | Field Duplicate Qualifier* | Criteria |
|--------|------------|--------------------|---------|----------------------------|----------|
| WATER | | <u>1,4-Dioxane</u> | | | |
| | C5GW05D002 | | 55 UG/L | J | FD>RPD |
| | C5GW05S002 | | 26 UG/L | J | FD>RPD |

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: These samples were out of control: 1,4-Dioxane (C5GW05S002, %RPD = 71.6 vs 30).
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Sample collection time per sample label for C5GW05S002

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | C5GW04S002 | | | | | | |
|-------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 22 | | | 0.35 | 1 | UG/L | |

| Field ID | C5GW05D002 | | | | | | |
|-------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 55 | J | | 0.35 | 1 | UG/L | FD>RPD (J) |

| Field ID | C5GW05S002 | | | | | | |
|-------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 26 | J | | 0.35 | 1 | UG/L | FD>RPD (J) |

| Field ID | C5GW06S002 | | | | | | |
|-------------|------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 15 | | | 0.35 | 1 | UG/L | |

| Field ID | ND132GW03S002 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 5.6 | | | 0.35 | 1 | UG/L | |

| Field ID | ND132GW04S002 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 3.9 | | | 0.35 | 1 | UG/L | |

| Field ID | ND132GW05S002 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 33 | | | 0.35 | 1 | UG/L | |

Validated Form I

| Field ID | ND137AGW01S002 | | | | | | |
|-------------|----------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--------------------------------------|-----------------|
| FD>RPD | Field duplicate exceeds RPD criteria | FieldDuplicate |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071588

Method SW8260B

Reviewer: bjoness7

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD41BGW01S008 | N | 10 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| RD41BGW01S008 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2456Q001 | TB | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample

These LCS analytes were out of control: Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike

dupes in this SDG.

| <u>Matrix</u> | <u>QAOC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246239BS | 2-Chloroethyl Vinyl Ether | 67 | 70 | 120 |
| WATER | BS | 09916246239BS | Bromomethane | 57 | 70 | 120 |
| WATER | BS | 09916246239BS | t-1,3-Dichloropropene | 122 | 70 | 120 |
| WATER | BS | 09916246240BS | 2-Chloroethyl Vinyl Ether | 53 | 70 | 120 |
| WATER | BS | 09916246240BS | Bromomethane | 66 | 70 | 120 |
| WATER | BS | 09916246240BS | t-1,3-Dichloropropene | 121 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
 Form I Review: These NativeIDs had dilutions or re-extractions that were flagged Exclude: RD41BGW01S008.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

These NativeIDs had dilutions or re-extractions that were flagged Exclude: RD41BGW01S008. Sample was re-analyzed on a diluted basis due to concentration of target analytes

COC Review

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD41BGW01S008 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|----------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 3.8 | J | =J | 0.43 | 25 | UG/L | InvalidLabFlag (J) | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) 2Cleve (R) | |
| | 16 | R | U | 16 | 25 | UG/L | | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.18 | J | =J | 0.14 | 10 | UG/L | InvalidLabFlag (J) | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 1300 | | =D | 4.8 | 50 | UG/L | InvalidLabFlag (=) | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | | |

Validated Form I

| Field ID | RD41BGW01S008 | | | | | | ValidationReason (Flag) |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 58 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.33 | J | =J | 0.24 | 10 | UG/L | InvalidLabFlag (J) |
| Trichloroethene | 8.1 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 23 | | | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |
| RE | Re-extraction and/or re-analysis | Re-analysis |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071588

Method SW8260B-SIM

Reviewer: bjoness7

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD41BGW01S008 | N | 5 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |
| RD41BGW01S008 | N | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

Associated Field Blanks (other SDGs)

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2456Q001 | TB | 1 | Missing Association DP | Missing Association DP | 22071601 / CAQW2456Q001 / 160715 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD41BGW01S008 | | | | | | |
|-------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 1.8 | U | U | 1.8 | 5 | UG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071633

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR21GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |
| HAR23GW01S006 | N | 1 | Missing Association DP | Missing Association DP | 18071601 / CAQW2446Q001 / 160711 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Holding Time: These NativeIDs exceeded holding time: HAR21GW01S006, HAR23GW01S006.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR21GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 61 | | | 20 | 50 | UG/L | |

| Field ID | HAR23GW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 20 | U | U | 20 | 50 | UG/L | |
| HYDRAZINE | 0.06 | U | U | 0.06 | 0.2 | UG/L | |
| METHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071634

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 8/31/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR08GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| HAR08GW01S007SD | SD | 1 | | | |
| HAR08GW01S007MS | MS | 1 | | | |
| HAR11GW01S007 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |
| RD49CGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 19071601 / CAQW2447Q001 / 160712 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
Holding Time: These NativeIDs exceeded holding time: HAR08GW01S007, HAR11GW01S007, RD49CGW01S006.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR08GW01S007 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.8 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 50 | U | U | 20 | 50 | UG/L | |

| Field ID | HAR11GW01S007 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.8 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 23 | J | J | 20 | 50 | UG/L | |

| Field ID | RD49CGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.8 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 49 | J | J | 20 | 50 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071663

Method SW8260B

Reviewer: bjoness7

Date: 8/11/2016

Matrix: WATER

Reviewed: _____ 9/7/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2457Q001 | TB | 1 | | | 25071601 / CAQW2457Q001 / 160716 |
| RD41AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 25071601 / CAQW2457Q001 / 160716 |
| RD41AGW01S006MS | MS | 1 | | | |
| RD41AGW01S006SD | SD | 1 | | | |

1. Case Narrative Items of Interest

The following items were noted; 2Cleve, LCS<LCL; MS<LCL; SD<LCL.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - RD41AGW01S006MS), Pentachloroethane (MS - RD41AGW01S006MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - RD41AGW01S006SD), Pentachloroethane (SD - RD41AGW01S006SD). For high recoveries and sample results reported as ND, no flagging was applied. All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|---------------|---------|----------------------------------|---------|-------------------|----------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | RD41AGW01S006 | | | 16 UG/L | R | MS<LCL |
| | RD41AGW01S006 | | | 16 UG/L | R | SD<LCL |

| WATER | | Pentachloroethane | | |
|-------|---------------|-------------------|------|--------|
| | RD41AGW01S006 | 1.5 UG/L | none | MS>UCL |
| | RD41AGW01S006 | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results reported as ND, no flagging was applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246240BS | 2-Chloroethyl Vinyl Ether | 53 | 70 | 120 |
| WATER | BS | 09916246240BS | Bromomethane | 66 | 70 | 120 |
| WATER | BS | 09916246240BS | t-1,3-Dichloropropene | 121 | 70 | 120 |
| WATER | BS | 09916246241BS | 2-Chloroethyl Vinyl Ether | 47 | 70 | 120 |
| WATER | BS | 09916246241BS | Bromomethane | 66 | 70 | 120 |
| WATER | BS | 09916246241BS | t-1,3-Dichloropropene | 123 | 70 | 120 |

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness Package was complete for level V validation.

**Forms Review/ Items of
Interest
COC Review**

No samples were excluded for dilutions or re-extractions.

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD41AGW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) | |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | | |

| Field ID | RD41AGW01S006 | | | | | | ValidationReason (Flag) |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 1.2 | J | =J | 0.37 | 5 | UG/L | InvalidLabFlag (J) |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071663

Method SW8260B-SIM

Reviewer: bjones7

Date: 8/11/2016

Matrix: WATER

Reviewed: ___ 9/7/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2457Q001 | TB | 1 | | | 25071601 / CAQW2457Q001 / 160716 |
| RD41AGW01S006 | N | 1 | Missing Association DP | Missing Association DP | 25071601 / CAQW2457Q001 / 160716 |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD41AGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071756

Method E314

Reviewer: bjones7

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation.

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | ValidationReason (Flag) |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071756

Method SW8270C-SIM

Reviewer: bjones7

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.091 | J | =J | 0.048 | 9.7 | UG/L | InvalidLabFlag (J) |
| Butyl Benzyl Phthalate | 0.11 | J | =J | 0.052 | 9.7 | UG/L | InvalidLabFlag (J) |
| Diethyl Phthalate | 0.052 | U | U | 0.052 | 9.7 | UG/L | |
| Dimethyl Phthalate | 0.045 | U | U | 0.045 | 9.7 | UG/L | |
| Di-n-Butyl Phthalate | 0.12 | J | =J | 0.078 | 9.7 | UG/L | InvalidLabFlag (J) |
| Di-n-Octyl Phthalate | 0.047 | U | U | 0.047 | 9.7 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071756

Method SW8330A

Reviewer: bjones7

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |

1. Case Narrative Items of Interest

No items of concern.

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike

All MS acceptance criteria were met. These SD's were out of control: 1,3,5-Trinitrobenzene (SD - HAR19GW01S016SD), 1,3-Dinitrobenzene (SD - HAR19GW01S016SD), 2,4,6-Trinitrotoluene (SD - HAR19GW01S016SD), 2,4-Dinitrotoluene (SD - HAR19GW01S016SD), 2,6-Dinitrotoluene (SD - HAR19GW01S016SD), 2-Amino-4,6-DNT (SD - HAR19GW01S016SD), 2-Nitrotoluene (SD - HAR19GW01S016SD), 3-Nitrotoluene (SD - HAR19GW01S016SD), 4-Amino-2,6-DNT (SD - HAR19GW01S016SD), 4-Nitrotoluene (SD - HAR19GW01S016SD), Tetryl (SD - HAR19GW01S016SD). Since recoveries were high and sample results were ND, no flagging applied. All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|-----------|---------|------------------------------|--------|-------------------|----------|
| WATER | | | <u>1,3,5-Trinitrobenzene</u> | | | |

| | | | | |
|-------|---------------|------------------------------|------|--------|
| WATER | HAR19GW01S016 | 0.049 UG/L | none | SD>UCL |
| | | <u>1,3-Dinitrobenzene</u> | | |
| WATER | HAR19GW01S016 | 0.055 UG/L | none | SD>UCL |
| | | <u>2,4,6-Trinitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.028 UG/L | none | SD>UCL |
| | | <u>2,4-Dinitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.042 UG/L | none | SD>UCL |
| | | <u>2,6-Dinitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.057 UG/L | none | SD>UCL |
| | | <u>2-Amino-4,6-DNT</u> | | |
| WATER | HAR19GW01S016 | 0.066 UG/L | none | SD>UCL |
| | | <u>2-Nitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.043 UG/L | none | SD>UCL |
| | | <u>3-Nitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.051 UG/L | none | SD>UCL |
| | | <u>4-Amino-2,6-DNT</u> | | |
| WATER | HAR19GW01S016 | 0.059 UG/L | none | SD>UCL |
| | | <u>4-Nitrotoluene</u> | | |
| WATER | HAR19GW01S016 | 0.058 UG/L | none | SD>UCL |
| | | <u>Tetryl</u> | | |
| | HAR19GW01S016 | 0.073 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2,4,6-Trinitrotoluene (BS). Since recoveries were high and sample results were ND, no flagging applied. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 0991631428BS | 2,4,6-Trinitrotoluene | 134 | 80 | 130 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

N/A

7. Internal Standard

N/A

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

Laboratory Control Sample: These LCS analytes were out of control: 2,4,6-Trinitrotoluene (BS). No spike dupes in this SDG.

VDMS4.32

Data Package Completeness

Package was complete for level V validation.

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies.

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,3,5-Trinitrobenzene | 0.049 | U | U | 0.049 | 1.1 | UG/L | SD>UCL (none) | |
| 1,3-Dinitrobenzene | 0.055 | U | U | 0.055 | 1.1 | UG/L | SD>UCL (none) | |
| 2,4,6-Trinitrotoluene | 0.028 | U | U | 0.028 | 1.1 | UG/L | SD>UCL (none) | |
| | 0.028 | U | U | 0.028 | 1.1 | UG/L | LCS>UCL (none) | |
| 2,4-Dinitrotoluene | 0.042 | U | U | 0.042 | 1.1 | UG/L | SD>UCL (none) | |
| 2,6-Dinitrotoluene | 0.057 | U | U | 0.057 | 1.1 | UG/L | SD>UCL (none) | |
| 2-Amino-4,6-DNT | 0.066 | U | U | 0.066 | 1.1 | UG/L | SD>UCL (none) | |
| 2-Nitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | SD>UCL (none) | |
| 3-Nitrotoluene | 0.051 | U | U | 0.051 | 1.1 | UG/L | SD>UCL (none) | |
| 4-Amino-2,6-DNT | 0.059 | U | U | 0.059 | 1.1 | UG/L | SD>UCL (none) | |
| 4-Nitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | SD>UCL (none) | |
| HMX | 0.05 | U | U | 0.05 | 1.1 | UG/L | | |
| Nitrobenzene | 0.061 | U | U | 0.061 | 1.1 | UG/L | | |
| RDX | 0.065 | U | U | 0.065 | 1.1 | UG/L | | |
| Tetryl | 0.073 | U | U | 0.073 | 1.1 | UG/L | SD>UCL (none) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|-------------------------|
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071757

Method E300.0

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD49BGW01S005 | N | 5 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005MS | MS | 1 | | | |
| RD49BGW01S005SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: Sulfate (MS - RD49BGW01S005MS). These SD's were out of control: Sulfate (SD - RD49BGW01S005SD). The native sample concentration was greater than 4 times spike level; no flagging applied. All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|---------------|---------|----------------|----------|-------------------|----------|
| WATER | | | <u>Sulfate</u> | | | |
| | RD49BGW01S005 | | | 320 MG/L | None | MS>UCL |
| | RD49BGW01S005 | | | 320 MG/L | None | SD>UCL |

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD49BGW01S005 | | | | | | |
|----------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloride | 38 | | | 0.52 | 1 | MG/L | |
| Fluoride | 0.23 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |
| Sulfate | 320 | | =D | 1.3 | 5 | MG/L | SD>UCL (None) |
| | 320 | | =D | 1.3 | 5 | MG/L | MS>UCL (None) |
| | 320 | | =D | 1.3 | 5 | MG/L | InvalidLabFlag (=) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---|------------------------|
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071757

Method E1625C

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |
| ND135GW01D011 | FD | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| ND135GW01S011 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| ND135GW01S011MS | MS | 1 | | | |
| ND135GW01S011SD | SD | 1 | | | |
| RD49BGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR19GW01S016 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.6 | NG/L | |

| Field ID | | ND135GW01D011 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 60 | | | 2.9 | 9.6 | NG/L | |

| Field ID | | ND135GW01S011 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 53 | | | 2.9 | 9.6 | NG/L | |

| Field ID | | RD49BGW01S005 | | | | | |
|------------------------|--------|---------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 12 | | | 2.9 | 9.8 | NG/L | |

Validated Form I

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071757

Method SW8015B

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2458Q001 | TB | 1 | | | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005 | N | 20 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD49BGW01S005 | | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| C12-C14 | 50 | U | U | 8 | 50 | UG/L | | |
| C15-C20 | 29 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C21-C30 | 9.3 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |
| C30-C40 (TPH as Oil) | 50 | U | U | 8 | 50 | UG/L | | |
| C4-C12 (TPH as Gas) | 72 | | =b | 48 | 50 | UG/L | InvalidLabFlag (=) | |
| C7 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C11 | 50 | U | U | 8 | 50 | UG/L | | |
| C8-C30 | 38 | J | =J | 8 | 50 | UG/L | InvalidLabFlag (J) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|----------------------------|---------------------------------|------------------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071757

Method SW8260B

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2458Q001 | TB | 1 | | | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005MS | MS | 1 | | | |
| RD49BGW01S005SD | SD | 1 | | | |

1. Case Narrative Items of Interest

The following items were noted: 2Cleve; LCS<LCL; MS<LCL; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - RD49BGW01S005MS), c-1,2-Dichloroethene (MS - RD49BGW01S005MS), Pentachloroethane (MS - RD49BGW01S005MS). These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - RD49BGW01S005SD), c-1,2-Dichloroethene (SD - RD49BGW01S005SD), Pentachloroethane (SD - RD49BGW01S005SD). For high recoveries and sample results ND, no flagging applied to those analytes. All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|---------------|---------|----------------------------------|---------|-------------------|----------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | RD49BGW01S005 | | | 16 UG/L | R | MS<LCL |

| | | | | |
|-------|---------------|-----------------------------|------|--------|
| WATER | RD49BGW01S005 | 16 UG/L | R | SD<LCL |
| | | <u>c-1,2-Dichloroethene</u> | | |
| | RD49BGW01S005 | 180 UG/L | J | MS<LCL |
| WATER | RD49BGW01S005 | 180 UG/L | J | SD<LCL |
| | | <u>Pentachloroethane</u> | | |
| | RD49BGW01S005 | 1.5 UG/L | none | MS>UCL |
| | RD49BGW01S005 | 1.5 UG/L | none | SD>UCL |

4. Laboratory Control Sample

These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). For high recoveries and sample results ND, no flagging applied to those analytes. No spike dupes in this SDG.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|---------------------------|-----------------|-------------------|-------------------|
| WATER | BS | 09916246241BS | 2-Chloroethyl Vinyl Ether | 47 | 70 | 120 |
| WATER | BS | 09916246241BS | Bromomethane | 66 | 70 | 120 |
| WATER | BS | 09916246241BS | t-1,3-Dichloropropene | 123 | 70 | 120 |

5. Surrogates

All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 Laboratory Control Sample: These LCS analytes were out of control: 2-Chloroethyl Vinyl Ether (BS), Bromomethane (BS), t-1,3-Dichloropropene (BS). No spike dupes in this SDG.
 VDMS4.32

Data Package Completeness

Package was complete for level V validation

**Forms Review/ Items of
Interest
COC Review**

No samples were excluded for dilutions or re-extractions.

Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD49BGW01S005 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | LCS<LCL (UJ) | |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 8.6 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | UJ | U | 3.9 | 25 | UG/L | LCS<LCL (UJ) | |
| c-1,2-Dichloroethene | 180 | J | | 0.48 | 5 | UG/L | MS<LCL (J) | |

| Field ID | RD49BGW01S005 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| | 180 | J | | 0.48 | 5 | UG/L | SD<LCL (J) |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 540 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | MS>UCL (none) |
| | 1.5 | U | U | 1.5 | 10 | UG/L | SD>UCL (none) |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 30 | | | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | LCS>UCL (none) |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 26 | | | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 1.2 | | | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LCS<LCL | LCS recovery less than the lower control limit | LaboratoryControlSample |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| MS>UCL | Matrix spike recovery greater than the upper control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| SD>UCL | Matrix spike duplicate recovery criteria greater than the upper control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH582 3Q2016 SA/PCP_AIG GWS

Data Quality Evaluation

SDG 16071757

Method SW8260B-SIM

Reviewer: mfesler

Date: 8/12/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2458Q001 | TB | 1 | | | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016 | N | 5 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 5 | | | |
| HAR19GW01S016SD | SD | 5 | | | |
| ND135GW01D011 | FD | 5 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| ND135GW01D011 | FD | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| ND135GW01S011 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| ND135GW01S011MS | MS | 1 | | | |
| ND135GW01S011SD | SD | 1 | | | |
| RD49BGW01S005 | N | 5 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| RD49BGW01S005 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |

1. Case Narrative Items of Interest

The following items were noted: FD>RPD; MS<LCL; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates These samples were out of control: 1,4-Dioxane (ND135GW01S011, Difference > RL X 2: 8 vs 2).

| Matrix | Sample ID | Analyte | Result | Field Duplicate Qualifier* | Criteria |
|--------|---------------|--------------------|---------|----------------------------|----------|
| WATER | | <u>1,4-Dioxane</u> | | | |
| | ND135GW01D011 | | 14 UG/L | J | FD>RPD |

ND135GW01S011

22 UG/L

J

FD>RPD

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 1,4-Dioxane (MS - ND135GW01S011MS). These SD's were out of control: 1,4-Dioxane (SD - ND135GW01S011SD). All RPD acceptance criteria were met.

| <i>Matrix</i> | <i>Sample ID</i> | <i>LR Type</i> | <i>Analyte</i> | <i>Result</i> | <i>MS/MSD Qualifier*</i> | <i>Criteria</i> |
|---------------|------------------|----------------|--------------------|---------------|--------------------------|-----------------|
| WATER | | | <u>1,4-Dioxane</u> | | | |
| | ND135GW01S011 | | | 22 UG/L | J | MS<LCL |
| | ND135GW01S011 | | | 22 UG/L | J | SD<LCL |

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: These samples were out of control: 1,4-Dioxane (ND135GW01S011, Difference > RL X 2: 8 vs 2).
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | HAR19GW01S016 | | | | | |
|-------------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 1.8 | U | U | 1.8 | 5 | UG/L | |

| Field ID | | ND135GW01D011 | | | | | |
|-------------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 14 | J | | 1.8 | 5 | UG/L | FD>RPD (J) |

| Field ID | | ND135GW01S011 | | | | | |
|-------------|--------|---------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 22 | J | | 0.35 | 1 | UG/L | SD<LCL (J) |
| | 22 | J | | 0.35 | 1 | UG/L | MS<LCL (J) |
| | 22 | J | | 0.35 | 1 | UG/L | FD>RPD (J) |

| Field ID | | RD49BGW01S005 | | | | | |
|-------------|--------|---------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,4-Dioxane | 2.7 | J | =J | 1.8 | 5 | UG/L | InvalidLabFlag (J) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-----------------|
| FD>RPD | Field duplicate exceeds RPD criteria | FieldDuplicate |
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

NASA SSFL CH614 3Q2016 SA/PCP GWS

Data Quality Evaluation

SDG 16071871

Method SW8315A

Reviewer: mfesler

Date: 8/31/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| HAR19GW01S016 | N | 1 | Missing Association DP | Missing Association DP | 26071601 / CAQW2458Q001 / 160717 |
| HAR19GW01S016MS | MS | 1 | | | |
| HAR19GW01S016SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time All acceptance criteria were met.

10. Confirmation N/A

11. Summary

General Comments All acceptance criteria were met.

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR19GW01S016 | | | | | | |
|-----------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | |
| FORMALDEHYDE | 20 | U | U | 20 | 50 | UG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16071953

Method 4500-NH3F

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|--------------------------|------------------------|----------------------------------|
| WATER | | | | |
| HAR11GW01S008 | N | 1 Missing Association DP | Missing Association DP | 28071601 / CAQW2462Q001 / 160719 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | HAR11GW01S008 | | | | | | |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Ammonia (as N) | 0.38 | | | 0.0086 | 0.05 | MG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method 4500-NH3F

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006MS | MS | 1 | | | |
| RD68BGW01S006SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | | | | | | |
| Ammonia (as N) | 0.088 | | | 0.0086 | 0.05 | MG/L | |

| Field ID | RD68BGW01S006 | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
|----------------|---------------|------------|----------|--------|------|-------|-------------------------|
| Analyte | Result | | | | | | |
| Ammonia (as N) | 0.09 | | | 0.0086 | 0.05 | MG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method E300.0

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01D003 | FD | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003MS | MS | 1 | | | |
| SP29BGW01S003SD | SD | 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD68AGW01S006 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.7 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

| Field ID | | RD68BGW01S006 | | | | | |
|----------------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 0.97 | | | 0.027 | 0.1 | MG/L | |
| Nitrate (as N) | 0.053 | U | U | 0.053 | 0.1 | MG/L | |

| Field ID | | SP29BGW01D003 | | | | | |
|----------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 4.8 | | | 0.027 | 0.1 | MG/L | |

| Field ID | | SP29BGW01S003 | | | | | |
|----------|--------|---------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Fluoride | 4.8 | | | 0.027 | 0.1 | MG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method E314

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| RD68AGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006MS | MS 1 | | | |
| RD68BGW01S006SD | SD 1 | | | |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Surrogates: No surrogates in this SDG.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|-------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Perchlorate | 0.41 | U | U | 0.41 | 2 | UG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method E1625C

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| RD68AGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

**6. Tuning and Mass
Calibration** Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 3 | U | U | 3 | 10 | NG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| N-Nitrosodimethylamine | 2.9 | U | U | 2.9 | 9.8 | NG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method SW8015B

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|----------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD68AGW01S006 | N | 20 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 20 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|----------------------|---------------|------------|----------|-----|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| C12-C14 | 8 | U | U | 8 | 50 | UG/L | |
| C15-C20 | 8 | U | U | 8 | 50 | UG/L | |
| C21-C30 | 8 | U | U | 8 | 50 | UG/L | |
| C30-C40 (TPH as Oil) | 8 | U | U | 8 | 50 | UG/L | |
| C7 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C11 | 8 | U | U | 8 | 50 | UG/L | |
| C8-C30 | 8 | U | U | 8 | 50 | UG/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method SW8260B

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2471Q001 | TB | 1 | | | 12081601 / CAQW2471Q001 / 160809 |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68AGW01S006MS | MS | 1 | | | |
| RD68AGW01S006SD | SD | 1 | | | |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01D003 | FD | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

The following items were noted: 2Cleve; MS<LCL; SD<LCL

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike These MS's were out of control: 2-Chloroethyl Vinyl Ether (MS - RD68AGW01S006MS).
These SD's were out of control: 2-Chloroethyl Vinyl Ether (SD - RD68AGW01S006SD).
All RPD acceptance criteria were met.

| Matrix | Sample ID | LR Type | Analyte | Result | MS/MSD Qualifier* | Criteria |
|--------|---------------|---------|----------------------------------|---------|-------------------|----------|
| WATER | | | <u>2-Chloroethyl Vinyl Ether</u> | | | |
| | RD68AGW01S006 | | | 16 UG/L | R | MS<LCL |
| | RD68AGW01S006 | | | 16 UG/L | R | SD<LCL |

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Acid preserved vials used for 2-chloroethylvinyl ether; results were rejected from project use

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) | |
| | 16 | R | U | 16 | 25 | UG/L | MS<LCL (R) | |
| | 16 | R | U | 16 | 25 | UG/L | SD<LCL (R) | |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | | |

| Field ID | RD68AGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 230 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 13 | J | =J | 6 | 50 | UG/L | InvalidLabFlag (J) |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 410 | | | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |

Validated Form I

| Field ID | RD68BGW01S006 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | SP29BGW01D003 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |

| Field ID | SP29BGW01D003 | | | | | | |
|-----------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 69 | J | =J | 37 | 100 | UG/L | InvalidLabFlag (J) |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

| Field ID | SP29BGW01S003 | | | | | | |
|---------------------------------------|---------------|------------|----------|------|----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,1,1,2-Tetrachloroethane | 0.4 | U | U | 0.4 | 5 | UG/L | |
| 1,1,1-Trichloroethane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,1,2,2-Tetrachloroethane | 0.41 | U | U | 0.41 | 10 | UG/L | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | U | U | 0.45 | 25 | UG/L | |
| 1,1,2-Trichloroethane | 0.38 | U | U | 0.38 | 10 | UG/L | |
| 1,1-Dichloroethane | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,1-Dichloroethene | 0.43 | U | U | 0.43 | 25 | UG/L | |
| 1,1-Dichloropropene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2,3-Trichlorobenzene | 0.51 | U | U | 0.51 | 25 | UG/L | |
| 1,2,3-Trichloropropane | 0.64 | U | U | 0.64 | 5 | UG/L | |
| 1,2,4-Trichlorobenzene | 0.5 | U | U | 0.5 | 25 | UG/L | |
| 1,2,4-Trimethylbenzene | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dibromo-3-Chloropropane | 1.2 | U | U | 1.2 | 25 | UG/L | |
| 1,2-Dibromoethane | 0.36 | U | U | 0.36 | 10 | UG/L | |
| 1,2-Dichlorobenzene | 0.46 | U | U | 0.46 | 10 | UG/L | |
| 1,2-Dichloroethane | 0.24 | U | U | 0.24 | 5 | UG/L | |

| Field ID | SP29BGW01S003 | | | | | | ValidationReason (Flag) |
|--------------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | |
| 1,2-Dichloropropane | 0.42 | U | U | 0.42 | 10 | UG/L | |
| 1,3,5-Trimethylbenzene | 0.28 | U | U | 0.28 | 10 | UG/L | |
| 1,3-Dichlorobenzene | 0.4 | U | U | 0.4 | 10 | UG/L | |
| 1,3-Dichloropropane | 0.3 | U | U | 0.3 | 10 | UG/L | |
| 1,4-Dichlorobenzene | 0.43 | U | U | 0.43 | 10 | UG/L | |
| 2,2-Dichloropropane | 0.36 | U | U | 0.36 | 5 | UG/L | |
| 2-Butanone | 2.2 | U | U | 2.2 | 50 | UG/L | |
| 2-Chloro-1,1,1-trifluoroethane | 2.1 | U | U | 2.1 | 25 | UG/L | |
| 2-Chloroethyl Vinyl Ether | 16 | R | U | 16 | 25 | UG/L | 2Cleve (R) |
| 2-Chlorotoluene | 0.24 | U | U | 0.24 | 25 | UG/L | |
| 2-Hexanone | 2.1 | U | U | 2.1 | 50 | UG/L | |
| 4-Chlorotoluene | 0.13 | U | U | 0.13 | 25 | UG/L | |
| 4-Methyl-2-Pentanone | 4.4 | U | U | 4.4 | 25 | UG/L | |
| Acetone | 6 | U | U | 6 | 50 | UG/L | |
| Benzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Bromobenzene | 0.3 | U | U | 0.3 | 25 | UG/L | |
| Bromochloromethane | 0.48 | U | U | 0.48 | 25 | UG/L | |
| Bromodichloromethane | 0.21 | U | U | 0.21 | 10 | UG/L | |
| Bromoform | 0.5 | U | U | 0.5 | 25 | UG/L | |
| Bromomethane | 3.9 | U | U | 3.9 | 25 | UG/L | |
| c-1,2-Dichloroethene | 0.48 | U | U | 0.48 | 5 | UG/L | |
| c-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Carbon Tetrachloride | 0.23 | U | U | 0.23 | 0.5 | UG/L | |
| Chlorobenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| Chloroethane | 2.3 | U | U | 2.3 | 25 | UG/L | |
| Chloroform | 0.46 | U | U | 0.46 | 10 | UG/L | |
| Chloromethane | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Chlorotrifluoroethylene | 1.8 | U | U | 1.8 | 25 | UG/L | |
| Dibromochloromethane | 0.25 | U | U | 0.25 | 10 | UG/L | |
| Dibromomethane | 0.46 | U | U | 0.46 | 5 | UG/L | |
| Dichlorodifluoromethane | 0.46 | U | U | 0.46 | 25 | UG/L | |
| Ethylbenzene | 0.14 | U | U | 0.14 | 10 | UG/L | |
| Hexachloro-1,3-Butadiene | 0.32 | U | U | 0.32 | 25 | UG/L | |
| Isopropanol | 37 | U | U | 37 | 100 | UG/L | |
| Isopropylbenzene | 0.58 | U | U | 0.58 | 10 | UG/L | |
| Methylene Chloride | 0.64 | U | U | 0.64 | 25 | UG/L | |
| Methyl-t-Butyl Ether (MTBE) | 0.31 | U | U | 0.31 | 25 | UG/L | |
| n-Butylbenzene | 0.23 | U | U | 0.23 | 25 | UG/L | |
| n-Propylbenzene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| o-Xylene | 0.23 | U | U | 0.23 | 10 | UG/L | |
| p/m-Xylene | 0.3 | U | U | 0.3 | 10 | UG/L | |
| Pentachloroethane | 1.5 | U | U | 1.5 | 10 | UG/L | |
| p-Isopropyltoluene | 0.16 | U | U | 0.16 | 10 | UG/L | |
| sec-Butylbenzene | 0.25 | U | U | 0.25 | 25 | UG/L | |
| Styrene | 0.17 | U | U | 0.17 | 10 | UG/L | |
| t-1,2-Dichloroethene | 0.37 | U | U | 0.37 | 10 | UG/L | |
| t-1,3-Dichloropropene | 0.25 | U | U | 0.25 | 10 | UG/L | |
| tert-Butylbenzene | 0.28 | U | U | 0.28 | 25 | UG/L | |
| Tetrachloroethene | 0.39 | U | U | 0.39 | 5 | UG/L | |
| Toluene | 0.24 | U | U | 0.24 | 10 | UG/L | |

Validated Form I

| Field ID | SP29BGW01S003 | | | | | | |
|------------------------|---------------|------------|----------|------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Trichloroethene | 0.37 | U | U | 0.37 | 5 | UG/L | |
| Trichlorofluoromethane | 1.7 | U | U | 1.7 | 25 | UG/L | |
| Vinyl Chloride | 0.3 | U | U | 0.3 | 0.5 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-----------------|
| MS<LCL | Matrix spike recovery less than the lower control limit | Matrix |
| SD<LCL | Matrix spike duplicate recovery criteria less than the lower control limit | Matrix |
| 2Cleve | Acid Preserved Sample | Miscellaneous |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method SW8260B-SIM

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|--------------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| CAQW2471Q001 | TB | 1 | | | 12081601 / CAQW2471Q001 / 160809 |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01D003 | FD | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blank detects were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD68AGW01S006 | | | | | | |
|------------------------|--------|---------------|----------|--------|-------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,2,3-Trichloropropane | 0.0025 | U | U | 0.0025 | 0.005 | UG/L | | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | RD68BGW01S006 | | | | | | |
|------------------------|--------|---------------|----------|--------|-------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,2,3-Trichloropropane | 0.0025 | U | U | 0.0025 | 0.005 | UG/L | | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | SP29BGW01D003 | | | | | | |
|------------------------|--------|---------------|----------|--------|-------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,2,3-Trichloropropane | 0.0025 | U | U | 0.0025 | 0.005 | UG/L | | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

| Field ID | | SP29BGW01S003 | | | | | | |
|------------------------|--------|---------------|----------|--------|-------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,2,3-Trichloropropane | 0.0025 | U | U | 0.0025 | 0.005 | UG/L | | |
| 1,4-Dioxane | 0.35 | U | U | 0.35 | 1 | UG/L | | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method SW8270C-SIM

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: ___ 9/2/2016 ___

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| <u>NativeID</u> | <u>QAQC Type</u> | <u>Dilution</u> | <u>ABLotValue</u> | <u>EBLotValue</u> | <u>TBLotValue</u> |
|-----------------|------------------|-----------------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

The following items were noted: LB<RL

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks These analytes had Method Blank detects: Bis(2-Ethylhexyl) Phthalate, Butyl Benzyl Phthalate, Di-n-Butyl Phthalate.

| <u>Blank Type</u> | <u>Blank ID</u> | <u>Analyte</u> | <u>Result</u> | <u>ReportLimit</u> | <u>LabFlag</u> | <u>Units</u> | <u>SDG</u> |
|-------------------|-----------------|--------------------------|---------------|--------------------|----------------|--------------|------------|
| LB | 0991630233 | Bis(2-Ethylhexyl) Phthal | 0.062 | 10 | =J | UG/L | 16080986 |
| LB | 0991630233 | Butyl Benzyl Phthalate | 0.06 | 10 | =J | UG/L | 16080986 |
| LB | 0991630233 | Di-n-Butyl Phthalate | 0.19 | 10 | =J | UG/L | 16080986 |

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration

Tuning and Mass Calibration were not examined by AutoDV.

7. Internal Standard

Internal Standard Area/Retention Time was not examined by AutoDV.

8. Calibration Information

Initial Calibration

Initial Calibration was not examined by AutoDV.

Continuing Calibration

Continuing Calibration was not examined by AutoDV.

9. Holding Time

All acceptance criteria were met.

10. Confirmation

None for this SDG.

11. Summary

General Comments

Field Duplicates: No FD Associated.

Form I Review: No samples were excluded for dilutions or re-extractions.

Method Blanks: These analytes had Method Blank detects: Bis(2-Ethylhexyl) Phthalate, Butyl Benzyl Phthalate, Di-n-Butyl Phthalate.

Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.

Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.

Initial Calibration: Initial Calibration was not examined by AutoDV.

Continuing Calibration: Continuing Calibration was not examined by AutoDV.

VDMS4.32

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.1 | U | =BJ | 0.048 | 9.8 | UG/L | LB<RL (U) |
| Butyl Benzyl Phthalate | 0.063 | U | =BJ | 0.052 | 9.8 | UG/L | LB<RL (U) |
| Diethyl Phthalate | 0.052 | U | U | 0.052 | 9.8 | UG/L | |
| Dimethyl Phthalate | 0.045 | U | U | 0.045 | 9.8 | UG/L | |
| Di-n-Butyl Phthalate | 0.24 | U | =BJ | 0.079 | 9.8 | UG/L | LB<RL (U) |
| Di-n-Octyl Phthalate | 0.047 | U | U | 0.047 | 9.8 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|-----------------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Bis(2-Ethylhexyl) Phthalate | 0.055 | U | =BJ | 0.048 | 9.8 | UG/L | LB<RL (U) |
| Butyl Benzyl Phthalate | 0.052 | U | U | 0.052 | 9.8 | UG/L | LB<RL (none) |
| Diethyl Phthalate | 0.052 | U | U | 0.052 | 9.8 | UG/L | |
| Dimethyl Phthalate | 0.39 | J | =J | 0.045 | 9.8 | UG/L | InvalidLabFlag (J) |
| Di-n-Butyl Phthalate | 0.085 | U | =BJ | 0.079 | 9.8 | UG/L | LB<RL (U) |
| Di-n-Octyl Phthalate | 0.047 | U | U | 0.047 | 9.8 | UG/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|--|-----------------|
| LB<RL | Laboratory blank contamination less than the reporting limit | Blank |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16080986

Method SW8330A

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type | Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------|----------|------------------------|------------------------|----------------------------------|
| WATER | | | | | |
| RD68AGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68BGW01S006 | N | 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks These analytes had Method Blank detects: 2-Amino-4,6-DNT. No flagging applied

| <u>Blank Type</u> | <u>Blank ID</u> | <u>Analyte</u> | <u>Result</u> | <u>ReportLimit</u> | <u>LabFlag</u> | <u>Units</u> | <u>SDG</u> |
|-------------------|-----------------|-----------------|---------------|--------------------|----------------|--------------|------------|
| LB | 0991631429 | 2-Amino-4,6-DNT | 1.2 | 1.1 | | UG/L | 16080986 |

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG. MS RPD: None for this SDG.

4. Laboratory Control Sample

These LCS analytes were out of control: 2,4,6-Trinitrotoluene (BS). Since recovery was high and sample results were ND, no flagging applied. All RPD acceptance criteria were met.

| <u>Matrix</u> | <u>QAQC Type</u> | <u>Field ID</u> | <u>Analyte</u> | <u>Recovery</u> | <u>LowerLimit</u> | <u>UpperLimit</u> |
|---------------|------------------|-----------------|-----------------------|-----------------|-------------------|-------------------|
| WATER | BS | 0991631429BS | 2,4,6-Trinitrotoluene | 132 | 80 | 130 |

5. Surrogates

These surrogates were out of control: 1,2-Dinitrobenzene (RD68BGW01S006). Since recovery was high and sample results were ND, no flagging applied.

| <u>Field ID</u> | <u>LabsampleID</u> | <u>UpperLimit</u> | <u>LowerLimit</u> | <u>Result</u> | <u>Surrogate</u> |
|-----------------|--------------------|-------------------|-------------------|---------------|--------------------|
| RD68BGW01S006 | 160809863 | 120 | 75 | 174 | 1,2-Dinitrobenzene |

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
 Form I Review: No samples were excluded for dilutions or re-extractions.
 Method Blanks: These analytes had Method Blank detects: 2-Amino-4,6-DNT.
 Surrogates: These surrogates were out of control: 1,2-Dinitrobenzene (RD68BGW01S006).
 Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
 Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
 Initial Calibration: Initial Calibration was not examined by AutoDV.
 Continuing Calibration: Continuing Calibration was not examined by AutoDV.
 VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | RD68AGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.044 | U | U | 0.044 | 0.98 | UG/L | |
| 1,3-Dinitrobenzene | 0.049 | U | U | 0.049 | 0.98 | UG/L | |
| 2,4,6-Trinitrotoluene | 0.025 | U | U | 0.025 | 0.98 | UG/L | LCS>UCL (none) |
| 2,4-Dinitrotoluene | 0.038 | U | U | 0.038 | 0.98 | UG/L | |
| 2,6-Dinitrotoluene | 0.051 | U | U | 0.051 | 0.98 | UG/L | |
| 2-Amino-4,6-DNT | 0.059 | U | U | 0.059 | 0.98 | UG/L | LB>RL (none) |
| 2-Nitrotoluene | 0.039 | U | U | 0.039 | 0.98 | UG/L | |
| 3-Nitrotoluene | 0.045 | U | U | 0.045 | 0.98 | UG/L | |
| 4-Amino-2,6-DNT | 0.052 | U | U | 0.052 | 0.98 | UG/L | |
| 4-Nitrotoluene | 0.052 | U | U | 0.052 | 0.98 | UG/L | |
| HMX | 0.045 | U | U | 0.045 | 0.98 | UG/L | |
| Nitrobenzene | 0.054 | U | U | 0.054 | 0.98 | UG/L | |
| RDX | 0.058 | U | U | 0.058 | 0.98 | UG/L | |
| Tetryl | 0.065 | U | U | 0.065 | 0.98 | UG/L | |

| Field ID | RD68BGW01S006 | | | | | | |
|-----------------------|---------------|------------|----------|-------|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| 1,3,5-Trinitrobenzene | 0.05 | U | U | 0.05 | 1.1 | UG/L | Sur>UCL (none) |
| 1,3-Dinitrobenzene | 0.056 | U | U | 0.056 | 1.1 | UG/L | Sur>UCL (none) |
| 2,4,6-Trinitrotoluene | 0.029 | U | U | 0.029 | 1.1 | UG/L | LCS>UCL (none) |
| | 0.029 | U | U | 0.029 | 1.1 | UG/L | Sur>UCL (none) |
| 2,4-Dinitrotoluene | 0.043 | U | U | 0.043 | 1.1 | UG/L | Sur>UCL (none) |
| 2,6-Dinitrotoluene | 0.058 | U | U | 0.058 | 1.1 | UG/L | Sur>UCL (none) |
| 2-Amino-4,6-DNT | 0.067 | U | U | 0.067 | 1.1 | UG/L | LB>RL (none) |
| | 0.067 | U | U | 0.067 | 1.1 | UG/L | Sur>UCL (none) |
| 2-Nitrotoluene | 0.044 | U | U | 0.044 | 1.1 | UG/L | Sur>UCL (none) |
| 3-Nitrotoluene | 0.052 | U | U | 0.052 | 1.1 | UG/L | Sur>UCL (none) |
| 4-Amino-2,6-DNT | 0.06 | U | U | 0.06 | 1.1 | UG/L | Sur>UCL (none) |
| 4-Nitrotoluene | 0.059 | U | U | 0.059 | 1.1 | UG/L | Sur>UCL (none) |
| HMX | 0.051 | U | U | 0.051 | 1.1 | UG/L | Sur>UCL (none) |
| Nitrobenzene | 0.062 | U | U | 0.062 | 1.1 | UG/L | Sur>UCL (none) |
| RDX | 0.066 | U | U | 0.066 | 1.1 | UG/L | Sur>UCL (none) |
| Tetryl | 0.074 | U | U | 0.074 | 1.1 | UG/L | Sur>UCL (none) |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-------------------------|
| LB>RL | Laboratory blank contamination greater than the reporting limit | Blank |
| LCS>UCL | LCS recovery greater than the upper control limit | LaboratoryControlSample |
| Sur>UCL | Surrogate recovery greater than the upper control limit | SurrogateRecovery |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16081070

Method SW8315A

Reviewer: mfesler

Date: 9/2/2016

Matrix: WATER

Reviewed: _____ 9/2/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| RD68AGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| RD68AGW01S006SD | SD 1 | | | |
| RD68AGW01S006MS | MS 1 | | | |
| RD68BGW01S006 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates No FD Associated.

Laboratory Duplicates None in this SDG

Matrix Spike All MS acceptance criteria were met. All SD acceptance criteria were met. All RPD acceptance criteria were met.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates All acceptance criteria were met.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration Initial Calibration was not examined by AutoDV.

Continuing Calibration Continuing Calibration was not examined by AutoDV.

9. Holding Time All acceptance criteria were met.

10. Confirmation None for this SDG.

11. Summary

General Comments Field Duplicates: No FD Associated.
Form I Review: No samples were excluded for dilutions or re-extractions.
Tuning and Mass Calibration: Tuning and Mass Calibration were not examined by AutoDV.
Internal Standard Area/Retention Time: Internal Standard Area/Retention Time was not examined by AutoDV.
Initial Calibration: Initial Calibration was not examined by AutoDV.
Continuing Calibration: Continuing Calibration was not examined by AutoDV.
VDMS4.32

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | RD68AGW01S006 | | | | | | |
|-----------------------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | | |
| FORMALDEHYDE | 20 | U | U | 20 | 50 | UG/L | | |

| Field ID | | RD68BGW01S006 | | | | | | |
|-----------------------|--------|---------------|----------|------|-----|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| 1,1-DIMETHYLHYDRAZINE | 0.25 | U | U | 0.25 | 0.8 | UG/L | | |
| FORMALDEHYDE | 20 | U | U | 20 | 50 | UG/L | | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16090740

Method E900

Reviewer: mfesler

Date: 10/3/2016

Matrix: WATER

Reviewed: ___ 10/3/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|-----------------|-------------------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| SP29BGW01D003 | FD 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time All acceptance criteria were met.

10. Confirmation N/A

11. Summary

General Comments All acceptance criteria were met.

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest These NativeIDs had dilutions or re-extractions that were flagged Exclude: SP29BGW01D003, SP29BGW01S003. Samples were re-processed and re-analyzed to confirm original sample analysis results. The reprocessed sample results will be used per Jon Freed.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | | SP29BGW01D003 | | | | | | |
|-----------------------|-------------|---------------|----------|------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Gross Alpha | 5.23 | U | U G | 7.53 | 7.53 | pCi/L | InvalidLabFlag (U) | |
| | 3.07 | Exclude | U G | 4.54 | 4.54 | pCi/L | exclude (Exclude) | |
| Gross Alpha, decanted | 4.88 | U | U G | 6.87 | 6.87 | pCi/L | InvalidLabFlag (U) | |
| | 5.84 | Exclude | G | 4.93 | 4.93 | pCi/L | exclude (Exclude) | |
| Gross Beta | 4.7 | Exclude | | 2.11 | 2.11 | pCi/L | exclude (Exclude) | |
| | 7.19 | | | 3.85 | 3.85 | pCi/L | | |
| Gross Beta, decanted | 5.62 | | | 3.8 | 3.8 | pCi/L | | |
| | 4.33 | Exclude | | 1.91 | 1.91 | pCi/L | exclude (Exclude) | |

| Field ID | | SP29BGW01S003 | | | | | | |
|-----------------------|-------------|---------------|----------|------|------|-------|-------------------------|--|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) | |
| Gross Alpha | 5.9 | | G | 5.58 | 5.58 | pCi/L | InvalidLabFlag (=) | |
| | 3.84 | Exclude | G | 3.83 | 3.83 | pCi/L | exclude (Exclude) | |
| Gross Alpha, decanted | 5.15 | U | U G | 9.18 | 9.18 | pCi/L | InvalidLabFlag (U) | |
| | 5.57 | Exclude | U G | 6.05 | 6.05 | pCi/L | exclude (Exclude) | |
| Gross Beta | 3.37 | Exclude | | 1.92 | 1.92 | pCi/L | exclude (Exclude) | |
| | 5.79 | | | 3.14 | 3.14 | pCi/L | | |
| Gross Beta, decanted | 7.91 | | | 3.63 | 3.63 | pCi/L | | |
| | 2.09 | Exclude | U | 2.56 | 2.56 | pCi/L | exclude (Exclude) | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---|-----------------|
| exclude | Data not used; another value is appropriate or data was not requested | Exclude |
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16090740

Method E901.1

Reviewer: mfesler

Date: 9/13/2016

Matrix: WATER

Reviewed: _____ 10/3/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| SP29BGW01D003 | LR 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01D003 | FD 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates All acceptance criteria were met.

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met. No spike dupes in this SDG.

5. Surrogates No surrogates in this SDG.

6. Tuning and Mass Calibration N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time All acceptance criteria were met.

10. Confirmation N/A

11. Summary

General Comments All acceptance criteria were met.

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Nitric acid preservative added to the sample bottle marked "filtered" upon receipt at the laboratory

Validated Form I

Final Data Flags*

***When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).**

| Field ID | SP29BGW01D003 | | | | | | |
|--------------------------|---------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Actinium-228 | 8.47 | U | U | 57 | 57 | pCi/L | |
| Actinium-228, Dissolved | 11.8 | U | U | 43.9 | 43.9 | pCi/L | |
| Americium-241 | -2.12 | U | U | 33.8 | 33.8 | pCi/L | |
| Americium-241, Dissolved | 7.77 | U | U | 48.5 | 48.5 | pCi/L | |
| Antimony-125 | -4.3 | U | U | 45 | 45 | pCi/L | |
| Antimony-125, Dissolved | 12.9 | U | U | 39.7 | 39.7 | pCi/L | |
| Barium-133 | -7 | U | U | 59.7 | 59.7 | pCi/L | |
| Barium-133, Dissolved | -0.17 | U | U | 53.5 | 53.5 | pCi/L | |
| Bismuth-212 | 22.5 | U | U | 212 | 212 | pCi/L | |
| Bismuth-212, Dissolved | 0 | U | U | 193 | 193 | pCi/L | |
| Bismuth-214 | 466 | | | 26.9 | 26.9 | pCi/L | |
| Bismuth-214, Dissolved | 393 | | | 24.5 | 24.5 | pCi/L | |
| Cesium-134 | 8.71 | U | U | 50.6 | 50.6 | pCi/L | |
| Cesium-134, Dissolved | 2.23 | U | U | 48.2 | 48.2 | pCi/L | |
| Cesium-137 | -5.24 | U | U | 19.4 | 19.4 | pCi/L | |
| Cesium-137, Dissolved | -2.31 | U | U | 18.1 | 18.1 | pCi/L | |
| Cobalt-57 | -4.25 | U | U | 15.5 | 15.5 | pCi/L | |
| Cobalt-57, Dissolved | -4.63 | U | U | 15.4 | 15.4 | pCi/L | |
| Cobalt-60 | 0.244 | U | U | 13.1 | 13.1 | pCi/L | |
| Cobalt-60, Dissolved | 2.56 | U | U | 14.9 | 14.9 | pCi/L | |
| Europium-152 | 13.3 | U | U | 69.1 | 69.1 | pCi/L | |
| Europium-152, Dissolved | 2.29 | U | U | 82.8 | 82.8 | pCi/L | |
| Europium-154 | 5.3 | U | U | 146 | 146 | pCi/L | |
| Europium-154, Dissolved | 26.1 | U | U | 132 | 132 | pCi/L | |
| Europium-155 | -0.35 | U | U | 59.5 | 59.5 | pCi/L | |
| Europium-155, Dissolved | 11.3 | U | U | 58.8 | 58.8 | pCi/L | |
| Lead-210 | -218 | U | U | 349 | 349 | pCi/L | |
| Lead-210, Dissolved | -262 | U | U | 384 | 384 | pCi/L | |
| Lead-212 | -0.762 | U | U | 46.4 | 46.4 | pCi/L | |
| Lead-212, Dissolved | 7.79 | U | U | 22.5 | 22.5 | pCi/L | |
| Lead-214 | 509 | | | 24.9 | 24.9 | pCi/L | |
| Lead-214, Dissolved | 413 | | | 28.4 | 28.4 | pCi/L | |
| Manganese-54 | -2.97 | U | U | 13.5 | 13.5 | pCi/L | |
| Manganese-54, Dissolved | -10.4 | U | U | 19.7 | 19.7 | pCi/L | |
| Potassium-40 | 41.7 | U | U | 201 | 201 | pCi/L | |
| Potassium-40, Dissolved | -4.98 | U | U | 190 | 190 | pCi/L | |
| Sodium-22 | 6.37 | U | U | 12.6 | 12.6 | pCi/L | |
| Sodium-22, Dissolved | 2.82 | U | U | 11.6 | 11.6 | pCi/L | |
| Thallium-208 | 3.23 | U | U | 14.3 | 14.3 | pCi/L | |
| Thallium-208, Dissolved | -7.61 | U | U | 16.6 | 16.6 | pCi/L | |

Validated Form I

| Field ID | SP29BGW01D003 | | | | | | |
|------------------------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Thorium-234 | -165 | U | U | 372 | 372 | pCi/L | |
| Thorium-234, Dissolved | -224 | U | U | 448 | 448 | pCi/L | |

| Field ID | SP29BGW01S003 | | | | | | |
|--------------------------|---------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Actinium-228 | 23 | U | U | 57.7 | 57.7 | pCi/L | |
| Actinium-228, Dissolved | 21.3 | U | U | 45.9 | 45.9 | pCi/L | |
| Americium-241 | -10.6 | U | U | 51.9 | 51.9 | pCi/L | |
| Americium-241, Dissolved | -3.29 | U | U | 35 | 35 | pCi/L | |
| Antimony-125 | 15.5 | U | U | 48.7 | 48.7 | pCi/L | |
| Antimony-125, Dissolved | 20.1 | U | U | 31.9 | 31.9 | pCi/L | |
| Barium-133 | -9.23 | U | U | 64.4 | 64.4 | pCi/L | |
| Barium-133, Dissolved | -8.7 | U | U | 63.6 | 63.6 | pCi/L | |
| Bismuth-212 | 75.6 | U | U | 229 | 229 | pCi/L | |
| Bismuth-212, Dissolved | 47.2 | U | U | 276 | 276 | pCi/L | |
| Bismuth-214 | 523 | | | 30.3 | 30.3 | pCi/L | |
| Bismuth-214, Dissolved | 418 | | | 27.5 | 27.5 | pCi/L | |
| Cesium-134 | 9.02 | U | U | 55.1 | 55.1 | pCi/L | |
| Cesium-134, Dissolved | -7.18 | U | U | 56.1 | 56.1 | pCi/L | |
| Cesium-137 | -8.65 | U | U G | 27.1 | 27.1 | pCi/L | InvalidLabFlag (U) |
| Cesium-137, Dissolved | 1.38 | U | U G | 23.3 | 23.3 | pCi/L | InvalidLabFlag (U) |
| Cobalt-57 | -45 | U | U | 223 | 223 | pCi/L | |
| Cobalt-57, Dissolved | 3.04 | U | U | 14.2 | 14.2 | pCi/L | |
| Cobalt-60 | 4.41 | U | U | 14 | 14 | pCi/L | |
| Cobalt-60, Dissolved | 7.21 | U | U | 17.4 | 17.4 | pCi/L | |
| Europium-152 | 12.1 | U | U | 100 | 100 | pCi/L | |
| Europium-152, Dissolved | -4.79 | U | U | 88.1 | 88.1 | pCi/L | |
| Europium-154 | 29.7 | U | U | 157 | 157 | pCi/L | |
| Europium-154, Dissolved | 55.3 | U | U | 182 | 182 | pCi/L | |
| Europium-155 | -21.9 | U | U | 125 | 125 | pCi/L | |
| Europium-155, Dissolved | -14.4 | U | U | 63.7 | 63.7 | pCi/L | |
| Lead-210 | 233 | U | U | 254 | 254 | pCi/L | |
| Lead-210, Dissolved | 122 | U | U | 250 | 250 | pCi/L | |
| Lead-212 | -3.99 | U | U | 54 | 54 | pCi/L | |
| Lead-212, Dissolved | 2.65 | U | U | 22.7 | 22.7 | pCi/L | |
| Lead-214 | 558 | | | 30.3 | 30.3 | pCi/L | |
| Lead-214, Dissolved | 457 | | | 33.4 | 33.4 | pCi/L | |
| Manganese-54 | -0.0242 | U | U | 19.2 | 19.2 | pCi/L | |
| Manganese-54, Dissolved | -6.54 | U | U | 19.2 | 19.2 | pCi/L | |
| Potassium-40 | 8.78 | U | U | 214 | 214 | pCi/L | |
| Potassium-40, Dissolved | -2.4 | U | U | 227 | 227 | pCi/L | |
| Sodium-22 | -12.3 | U | U | 21.9 | 21.9 | pCi/L | |
| Sodium-22, Dissolved | -2.66 | U | U | 18.9 | 18.9 | pCi/L | |
| Thallium-208 | -0.0769 | U | U | 20 | 20 | pCi/L | |
| Thallium-208, Dissolved | -0.317 | U | U | 18.1 | 18.1 | pCi/L | |
| Thorium-234 | -56.8 | U | U | 476 | 476 | pCi/L | |
| Thorium-234, Dissolved | -42.1 | U | U | 366 | 366 | pCi/L | |

Validation Flag Abbreviations

| <i>Abbreviation</i> | <i>Validation Reason</i> | <i>Category</i> |
|---------------------|---------------------------------|-----------------|
| InvalidLabFlag | Removed invalid laboratory flag | Miscellaneous |

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16090740

Method E905.0

Reviewer: mfesler

Date: 9/13/2016

Matrix: WATER

Reviewed: ___ 10/3/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| SP29BGW01D003 | FD 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time All acceptance criteria were met.

10. Confirmation N/A

11. Summary

General Comments All acceptance criteria were met.

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review Nitric acid preservative added to the sample bottle upon receipt at the laboratory

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP29BGW01D003 | | | | | | |
|-----------------|---------------|------------|----------|------|------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Strontium 89/90 | -0.191 | U | U | 0.38 | 0.38 | pCi/L | |

| Field ID | SP29BGW01S003 | | | | | | |
|-----------------|---------------|------------|----------|-------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Strontium 89/90 | 0.287 | U | U | 0.438 | 0.438 | pCi/L | |

Validated Form I

3Q2016 SA/PCP & AIG GWS

Data Quality Evaluation

SDG 16090740

Method E906.0

Reviewer: mfesler

Date: 9/13/2016

Matrix: WATER

Reviewed: ___ 10/3/2016 _____

Field Samples

Field blank association lot values: LotNumber / FieldID / SDG

| NativeID | QAQC Type Dilution | ABLotValue | EBLotValue | TBLotValue |
|---------------|-----------------------|------------------------|------------------------|----------------------------------|
| WATER | | | | |
| SP29BGW01D003 | FD 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |
| SP29BGW01S003 | N 1 | Missing Association NA | Missing Association NA | 12081601 / CAQW2471Q001 / 160809 |

1. Case Narrative Items of Interest

There were no items of concern

2. Blank Summary

Field Blanks No Field Blanks were found.

Method Blanks No Method Blank detects were found.

3. Spikes and Duplicates

Field Duplicates All acceptance criteria were met.

Laboratory Duplicates None in this SDG

Matrix Spike No MS's for this SDG. No SD's for this SDG.

4. Laboratory Control Sample All acceptance criteria were met.

5. Surrogates No surrogates in this SDG.

**6. Tuning and Mass
Calibration** N/A

7. Internal Standard N/A

8. Calibration Information

Initial Calibration No DV

Continuing Calibration No DV

9. Holding Time All acceptance criteria were met.

10. Confirmation N/A

11. Summary

General Comments All acceptance criteria were met.

Data Package Completeness Package was complete for level V validation

Forms Review/ Items of Interest No samples were excluded for dilutions or re-extractions.

COC Review No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP29BGW01D003 | | | | | | |
|----------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tritium | -35.6 | U | U | 150 | 150 | pCi/L | |

| Field ID | SP29BGW01S003 | | | | | | |
|----------|---------------|------------|----------|-----|-----|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Tritium | -40.5 | U | U | 132 | 132 | pCi/L | |

Validated Form I

7. Internal Standard

N/A

8. Calibration Information

Initial Calibration

No DV

Continuing Calibration

No DV

9. Holding Time

All acceptance criteria were met.

10. Confirmation

N/A

11. Summary

General Comments

All acceptance criteria were met.

Data Package Completeness

Package was complete for level V validation

Forms Review/ Items of Interest

No samples were excluded for dilutions or re-extractions.

COC Review

No discrepancies

Validated Form I

Final Data Flags*

*When the data evaluation process results in multiple flags, the most severe flag becomes the final data flag. All flags are from the site-specific QAPP, except the "exclude" flag that is used to designate results that are not for risk assessment (for example, a result from a dilution where the original undiluted result is appropriate).

| Field ID | SP29BGW01D003 | | | | | | |
|-----------------|---------------|------------|----------|-------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Uranium-233/234 | 0.992 | | | 0.237 | 0.237 | pCi/L | |
| Uranium-235/236 | 0.0285 | U | U | 0.237 | 0.237 | pCi/L | |
| Uranium-238 | 0.352 | | | 0.19 | 0.19 | pCi/L | |

| Field ID | SP29BGW01S003 | | | | | | |
|-----------------|---------------|------------|----------|-------|-------|-------|-------------------------|
| Analyte | Result | Final Flag | Lab Flag | MDL | RL | Units | ValidationReason (Flag) |
| Uranium-233/234 | 1.22 | | | 0.221 | 0.221 | pCi/L | |
| Uranium-235/236 | -0.00906 | U | U | 0.22 | 0.22 | pCi/L | |
| Uranium-238 | 0.559 | | | 0.22 | 0.22 | pCi/L | |

Validated Form I

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