Phase 3 Chemical Data Gap Sampling – Final Phase 3 Data Gaps Block 2 “Go-Backs”

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April 22, 2014

Agenda

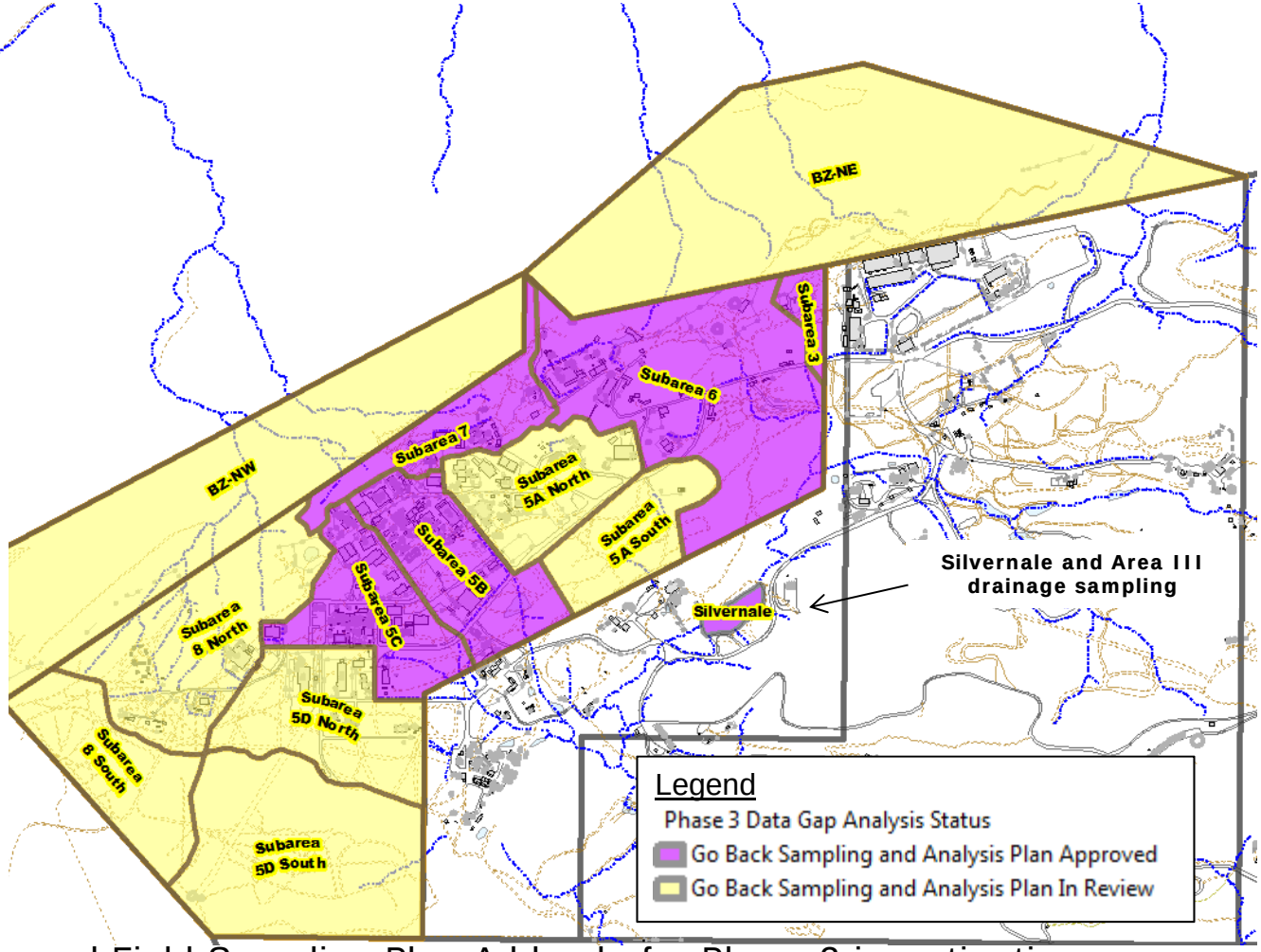
Time	Topic	Presenter
9:30 am	Introduction	Marina Perez
9:35 am	DOE Update	John Jones
9:45 am	Go Back Data Gap Criteria	Laura Rainey
10:15 am	Break	
10:25 am	Go Backs for Subarea 5A, 5D, 8, and the NBZ including GIS	Buck King
11:30 am	Soil Vapor Implementation Plan	Buck King
11:50 am	Next Steps	Stephie Jennings

DOE ETEC Fiscal Year 2014 Priorities

- Complete AOC Phase 3 data gap sampling by June 30, 2014
- Continue to implement soil treatability studies
- Continue to implement groundwater characterization
- Begin preparation of Data Summary Reports
- Prepare Draft EIS
- Continue dialogue with community (ongoing)

Phase 3 "Go Backs" Data Gap Analysis Status

- Phase 1 and 2 sampling completed (~2,800 samples collected)
- Phase 3 data gap sampling (>2,500 collected to date)
  - 5A – 200 samples
  - 5B - 635 samples
  - 5C - 675 samples
  - 5D – 272 samples
  - 3/6 - 303 samples
  - 7 – 92 samples
  - 8 – 240 samples
  - NBZ – 76 samples
  - Silvernale and Area III drainages – 18 samples



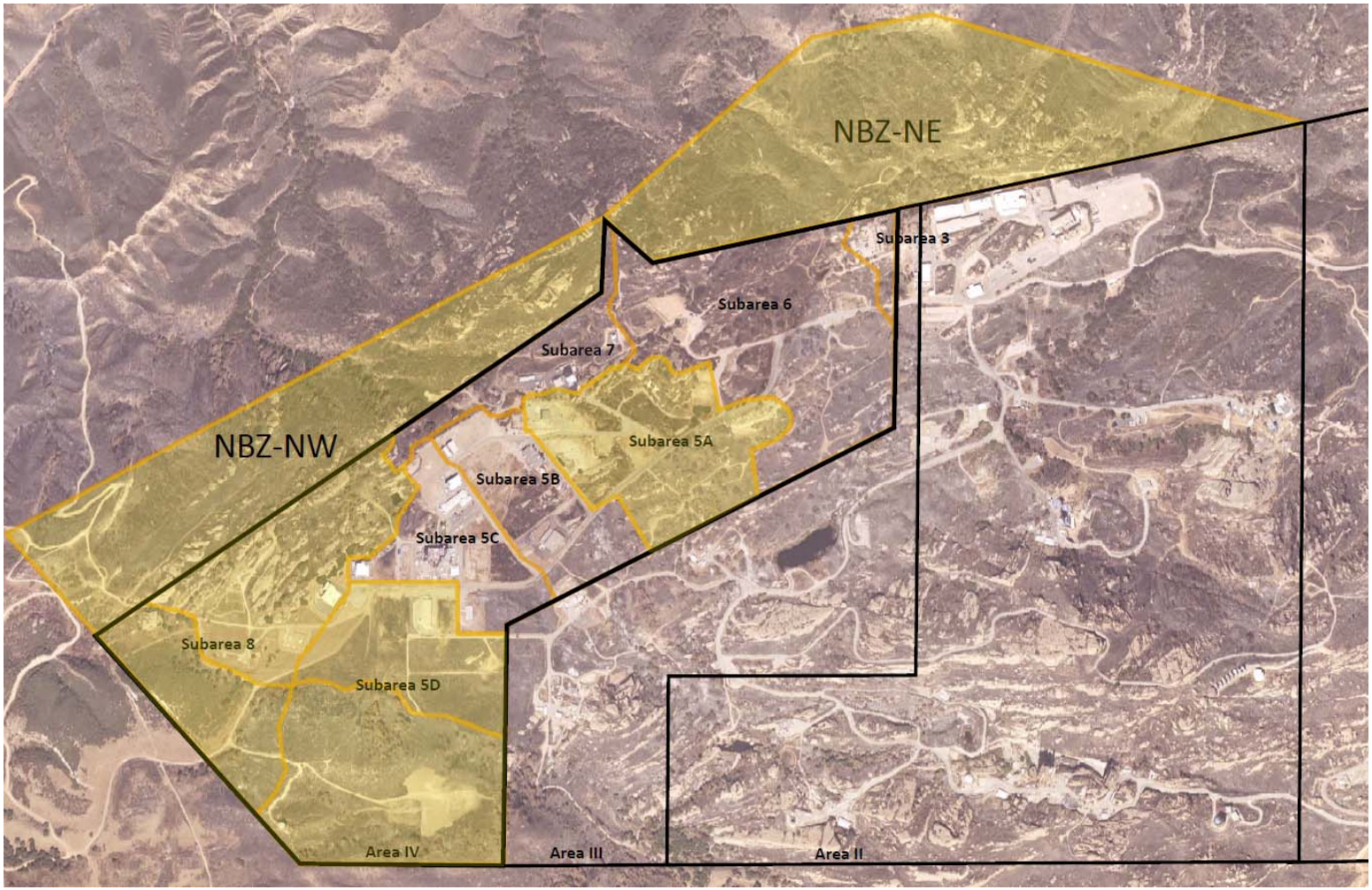
- Master Planning documents and Field Sampling Plan Addenda for Phase 3 investigations are located on DOE and DTSC's websites:

http://www.dtsc.ca.gov/SiteCleanup/Santa_Susana_Field_Lab/ssfl_document_library.cfm

http://www.etec.energy.gov

Phase 3 Chemical Soil Sampling

- The first part of today's meeting is to describe planned "Go-Backs" for Subareas 5A, 5D, 8, and the Northern Buffer Zone (NBZ).



Phase 3 Sampling Approach is Based on a Chemical Data Gap Analysis

- Data gaps exist where more information is needed for DOE/DTSC to make remedial planning decisions; whether soil contamination exists, and if so, to what extent

- Data gap analysis is done by:
  1. Comparing existing soil sampling results to screening criteria
  2. Evaluating migration pathways - how contamination may move
  3. Evaluating historical documents and site survey information to identify potential release areas
  4. Reviewing EPA radiological characterization information

Chemical Data Gap Analysis

- Existing sampling results are compared to criteria to define the extent of soil contamination. That is - What is the areal extent? How deep does it go?

>> Look-up Table (LUT) values established by DTSC are being used for screening in Area IV and the Northern Buffer Zone

Combined Detect / LUT Values

- <= 1x LUT Values
- 1x - 2x LUT Values
- 2x - 10x LUT Values
- 10x - 100x LUT Values
- > 100x LUT Values

Combined ND / LUT Values

- <= 1x LUT Values
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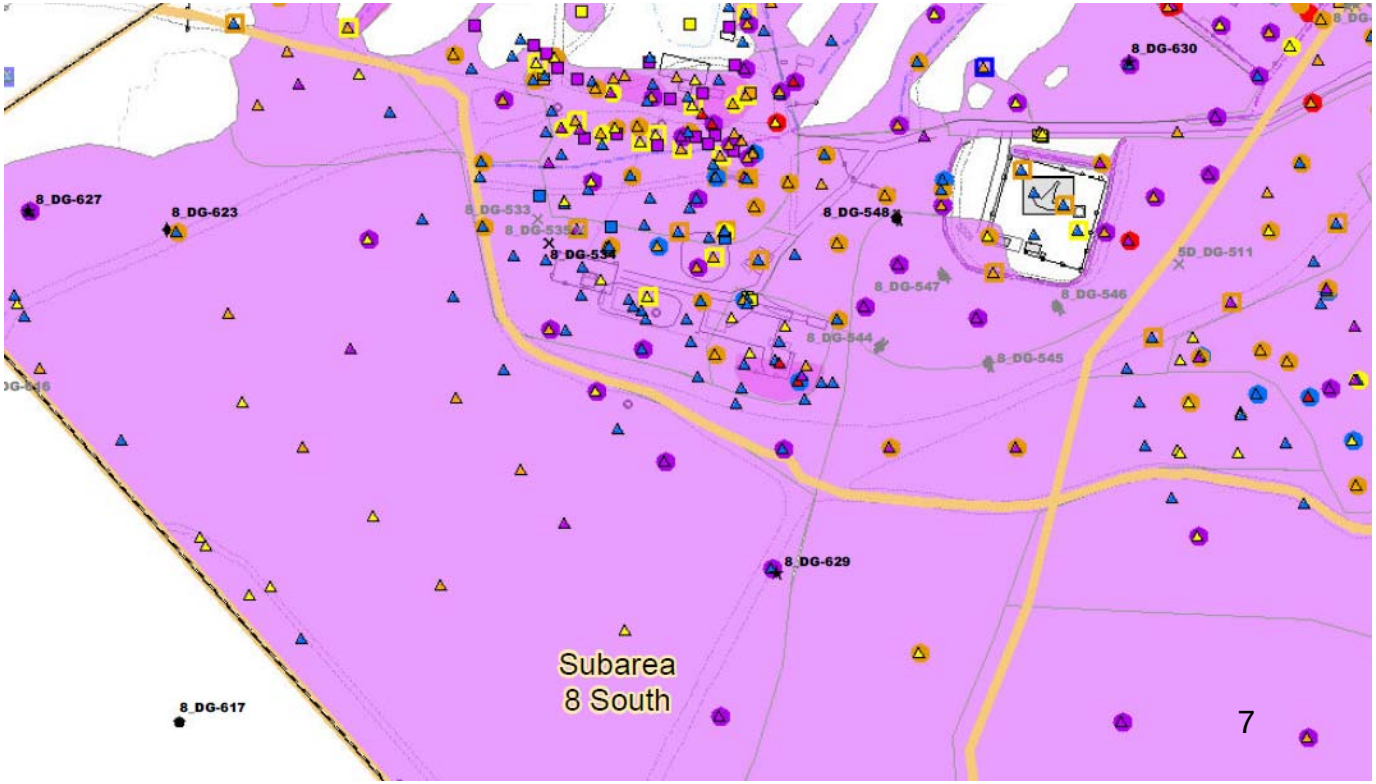


Data Gap Process Summary

- Combining data gap recommendations from:
  - Data Screening Evaluations
  - Migration pathway evaluations; and
  - Historical document/ site survey reviews

- Leads to initial Phase 3 chemical sampling recommendations

Phase 3 Final Data Gaps – A "Go-Back" Approach

- To date, ~6,000 samples currently exist in Area IV and the NBZ and form a robust dataset for evaluation
- In 2013, DTSC published a Lookup Table (LUT), which allows identification of areas where a LUT value is exceeded
- DOE/DTSC are re-visiting each subarea using LUT values and all available sampling results for a final data gap analysis

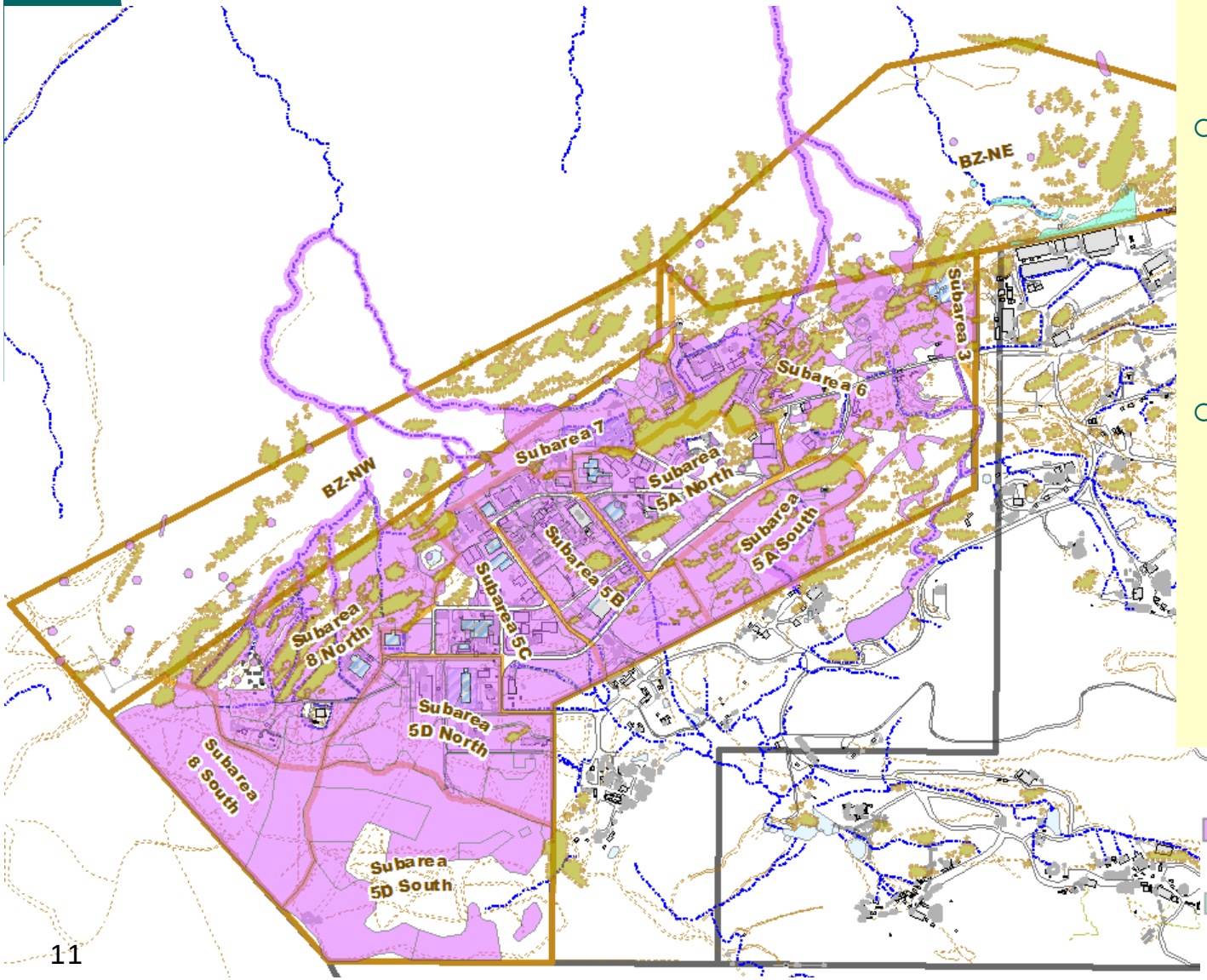
>>>>> A 'Go-Back' approach has been established to identify critical, final characterization needs for remedial planning…..

- *What other data does DOE/DTSC need to develop the remedial plan?*

Phase 3 Final Data Gaps – Preliminary Remediation Areas

- As a first step, DOE has identified locations where soil concentrations exceed the LUT values
- Based on these locations, Preliminary Remediation Areas (PRAs) were identified
- Each PRA is evaluated to define lateral and vertical extent of chemicals exceeding LUT values
- If a PRA is identified, it means we know enough that the area will be included for remedial planning according to the AOC
  - Except in a few circumstances, we have sufficient data for remedial planning
- As part of 'Go-Backs', DTSC has been reviewing the DOE PRAs

Chemical Preliminary Remediation Areas in Area IV / NBZ



- Expanded PRAs based on new Phase 3 data
- PRAs extend outside of Area IV if migration of chemicals above LUT values identified
- Sensitive habitat or cultural areas are NOT shown here, although those areas will definitely be evaluated in the EIS

DOE Preliminary Remediation Areas

NASA Preliminary Remediation Areas

Rock Outcrop

Sampling Needs for Remedial Planning – Final Data Gap Analysis PRA Checks

- PRAs are checked to confirm they are defined laterally; if not, samples are proposed
- PRAs are checked to confirm depths are defined; if not, samples are proposed
- PRAs are checked to confirm that the appropriate chemicals are identified for remedial planning; if not, additional samples are proposed

Other “Go-Back” Final Data Gap Analysis Checks

- Throughout the data gap process, sitewide features or sampling requirements were tracked for re-evaluation once the LUT was established and initial results obtained

- These other ‘Go-Back’ items include:
  - Sample reporting limits above final LUT values
  - Sampling near site-wide features: sewer lines, natural gas pipelines, and water conveyance pipelines
  - Sampling results with potential laboratory contaminants
  - Sitewide perchlorate results since multiple analytical methods can be applied
  - Deep boring results
  - Post-demolition observations and findings
  - Uncollected data from initial Phase 3 proposed sample locations

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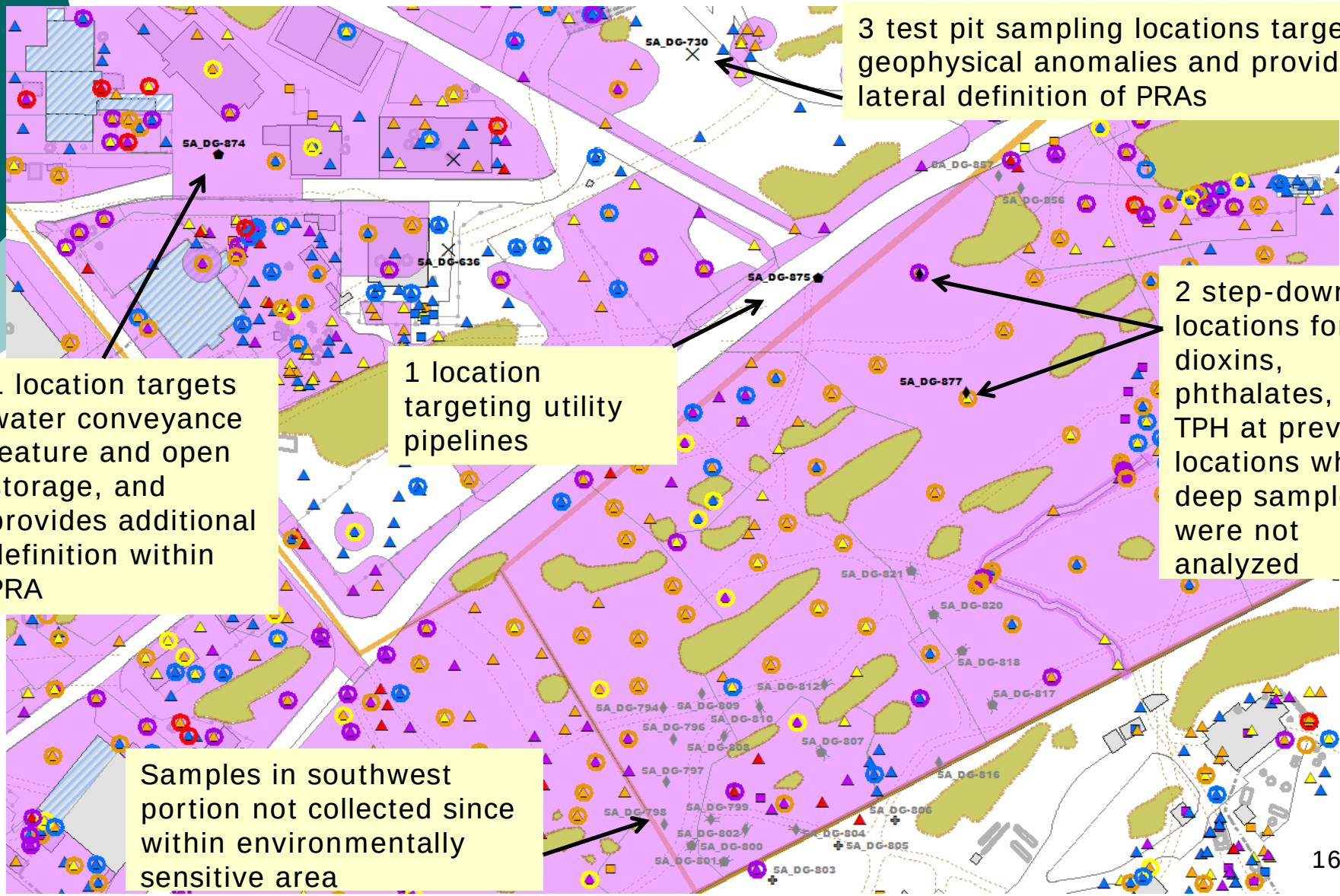
Final Phase 3 Data Gaps for Subareas 5A, 5D, 8, and the NBZ

- PRAs have been identified and outstanding Go-Back items checked for Subareas 5A, 5D, 8, and the NBZ

- Final Phase 3 data gap samples proposed to provide sufficient data for remedial planning

Subarea 5A – Final Data Gaps



3 test pit sampling locations targeting geophysical anomalies and providing lateral definition of PRAs

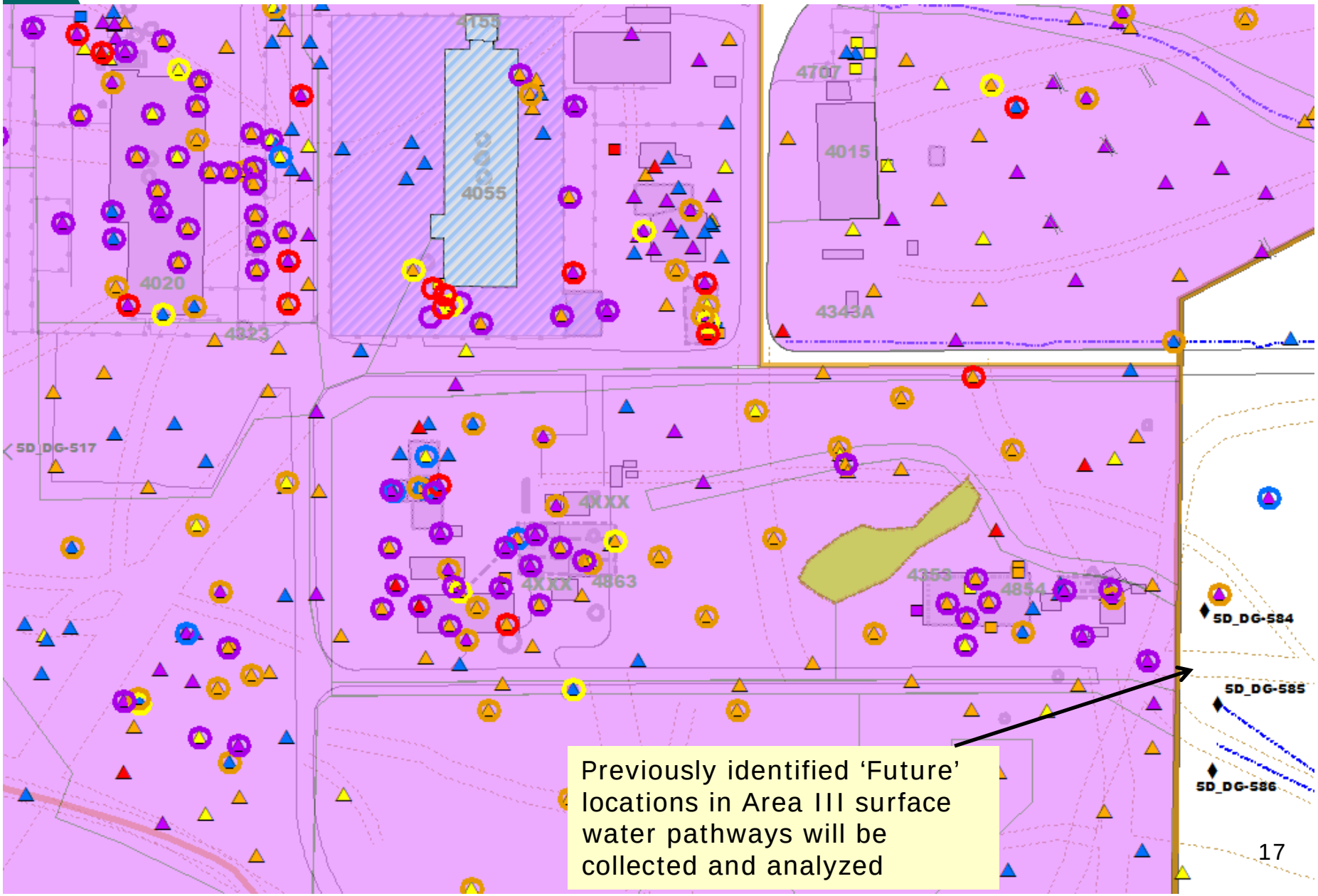
2 step-down locations for dioxins, phthalates, and TPH at previous locations where deep samples were not analyzed

1 location targets water conveyance feature and open storage, and provides additional definition within PRA

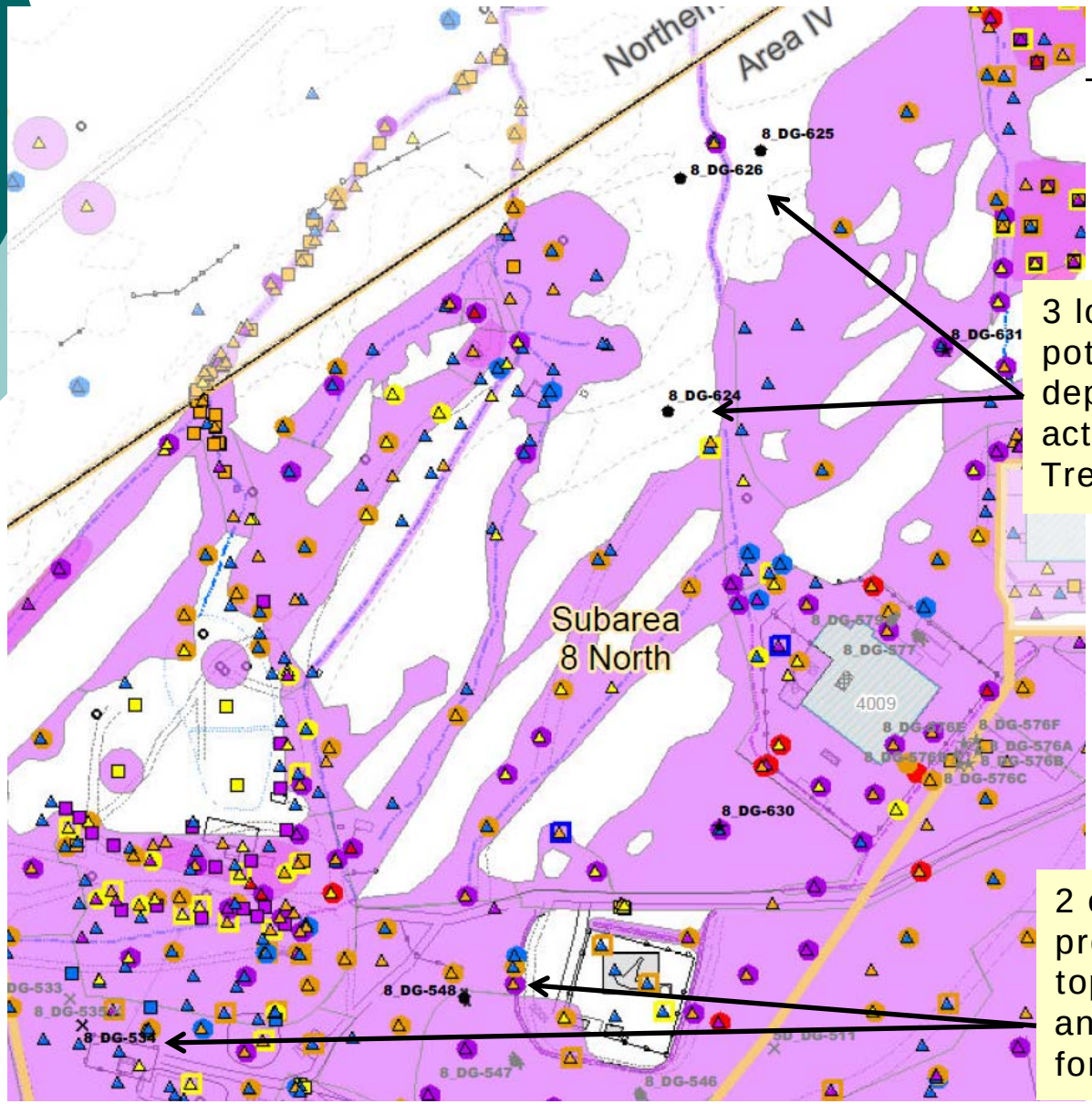
1 location targeting utility pipelines

Samples in southwest portion not collected since within environmentally sensitive area

Subarea 5D – Final Data Gaps



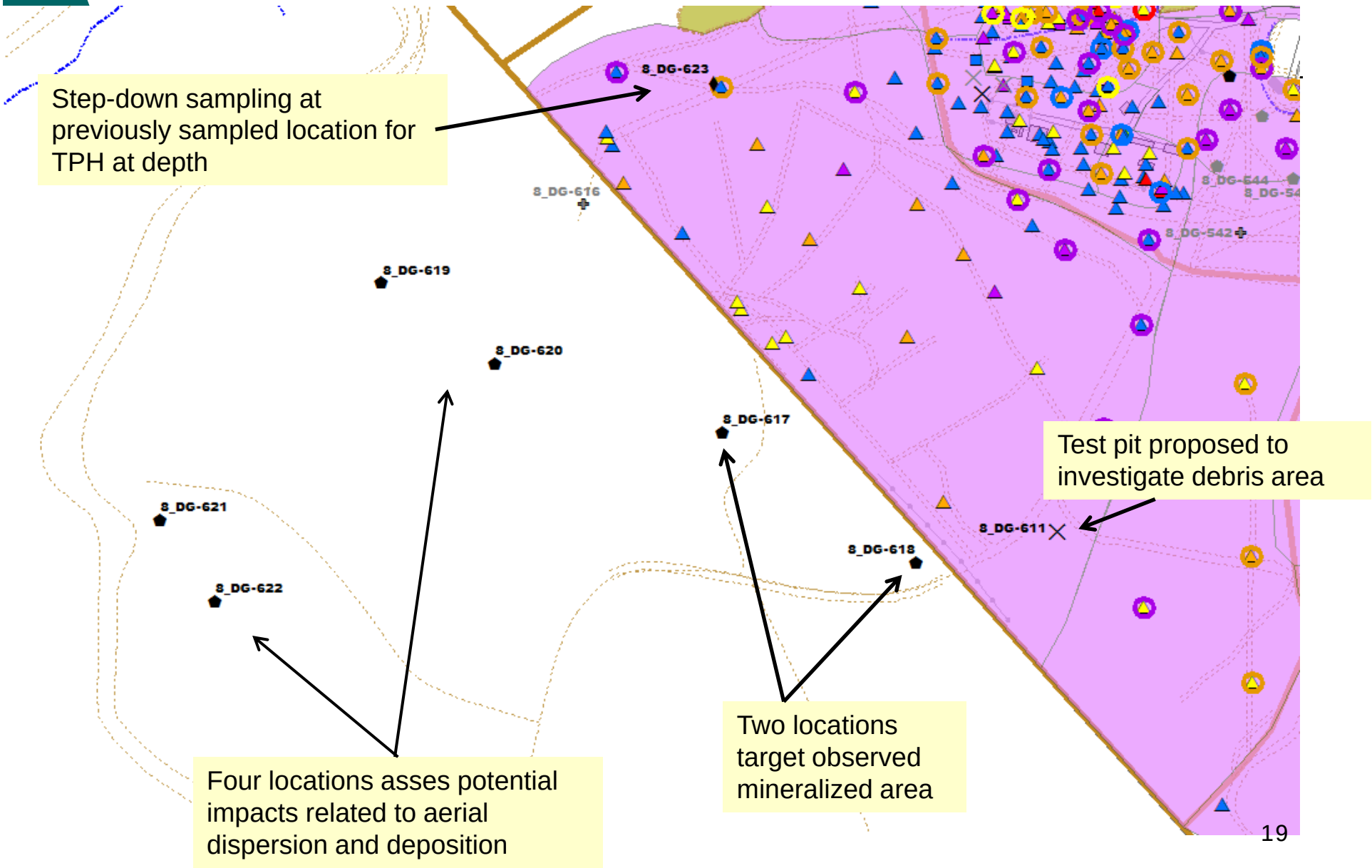
Subarea 8 North – Final Data Gaps



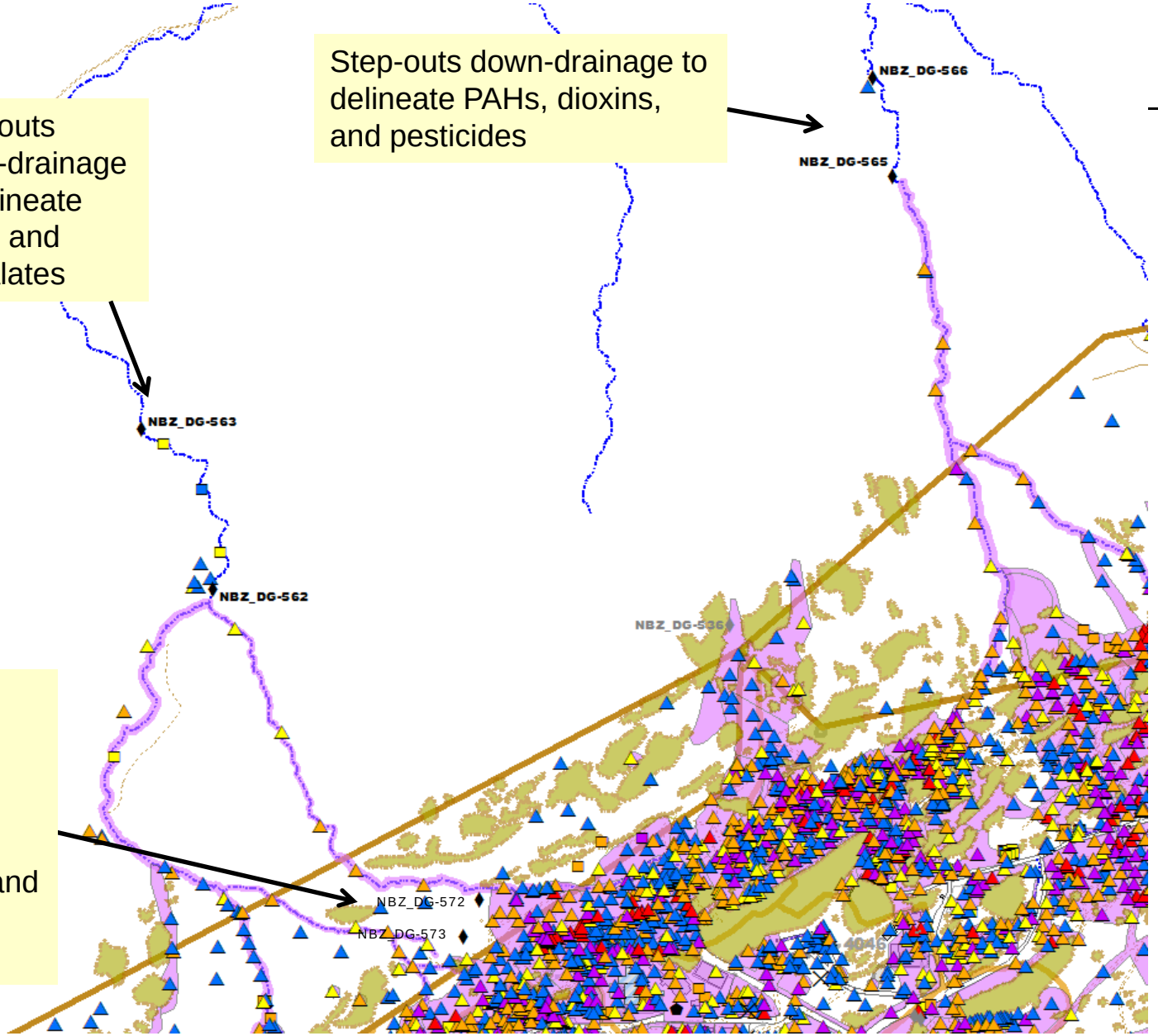
3 locations proposed to assess potential aerial dispersion and deposition related to burning activities at the Building 4100 Trench

2 exploratory trenches proposed to investigate topographic low spot and/or hummocky terrain for evidence of fill

Subarea 8 South – Final Data Gaps



Northern Buffer Zone– Final Data Gaps

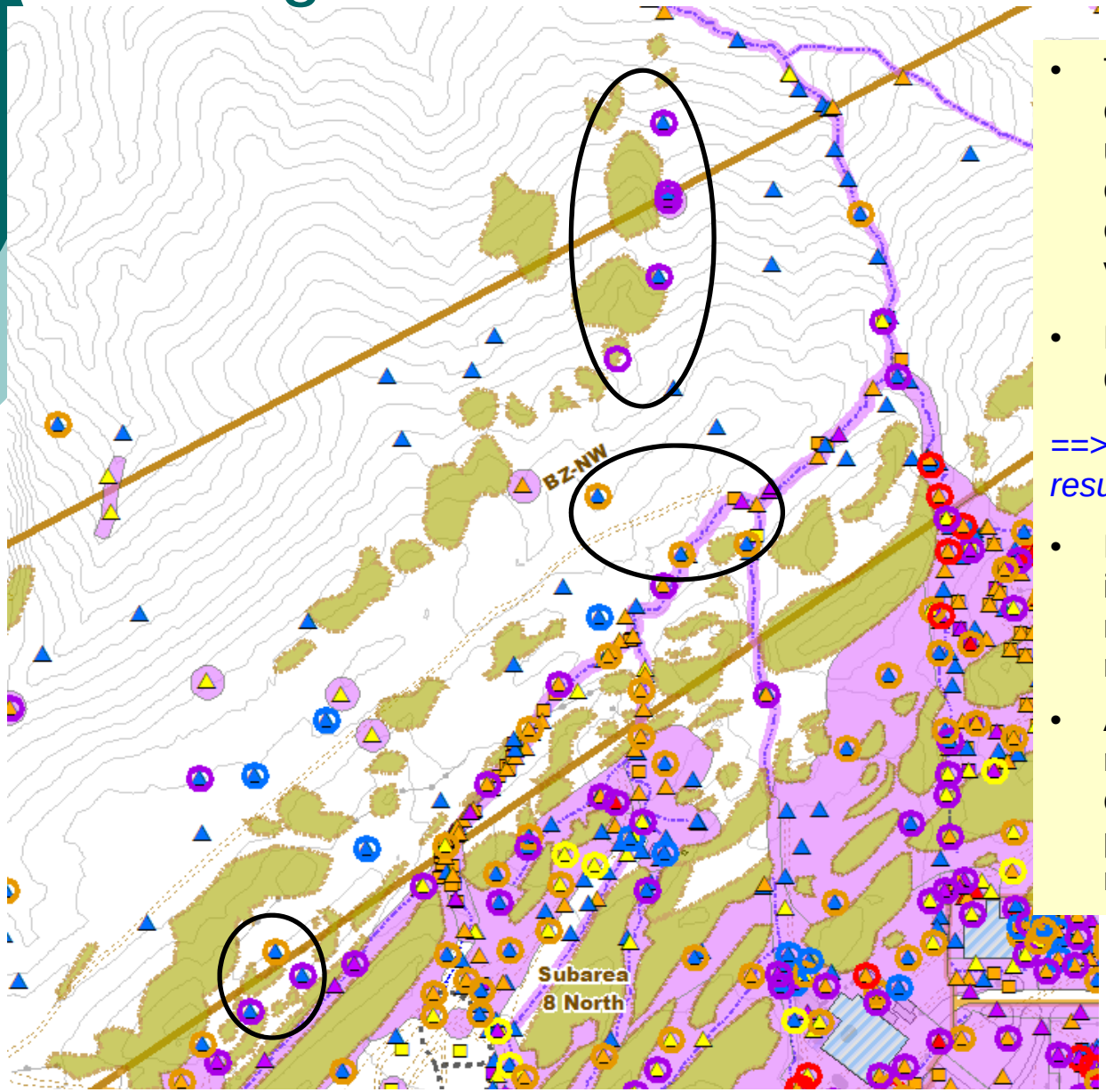


Total Petroleum Hydrocarbon (TPH) Analysis

- Recent data in the NBZ had suspect detections of TPH that may reflect non-petroleum related hydrocarbons (e.g., plant and animal derived hydrocarbons)

- Project chemists recommend re-sampling for TPH and using an EPA-approved sample preparation method to further evaluate petroleum-related hydrocarbon results

Total Petroleum Hydrocarbon (TPH) Investigation – Area IV and the NBZ

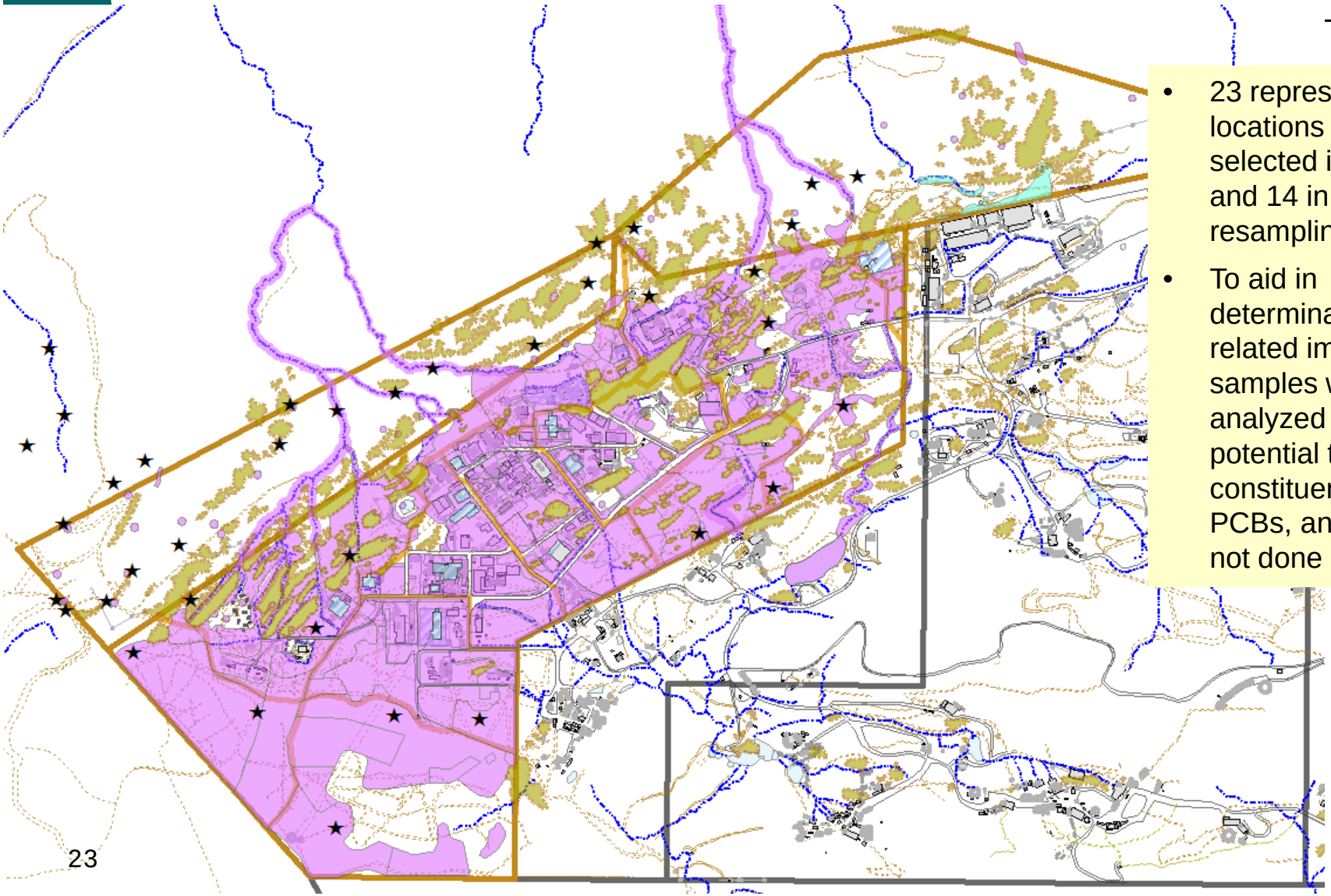


- TPH has been detected at low concentrations exceeding Look-up Table (LUT) values in non-operational areas, but are the only chemicals exceeding LUT values
- No onsite source(s) of these detections has been identified

==>Leads to the question: Are these results truly representative of TPH?

- Evaluation of laboratory data indicates plant organic material may be contributing to the reported TPH concentrations
- An EPA-approved method to remove non-petroleum organic compounds can be performed prior to TPH analysis to provide more accurate TPH results

TPH Investigation – Area IV and the NBZ



- 23 representative locations have been selected in the NBZ and 14 in Area IV for resampling
- To aid in determination of site-related impacts, the samples will also be analyzed for potential toxic constituents PAHs, PCBs, and metals (if not done previously)

Summary of “Go-Back” Sampling for Second Set of Subareas

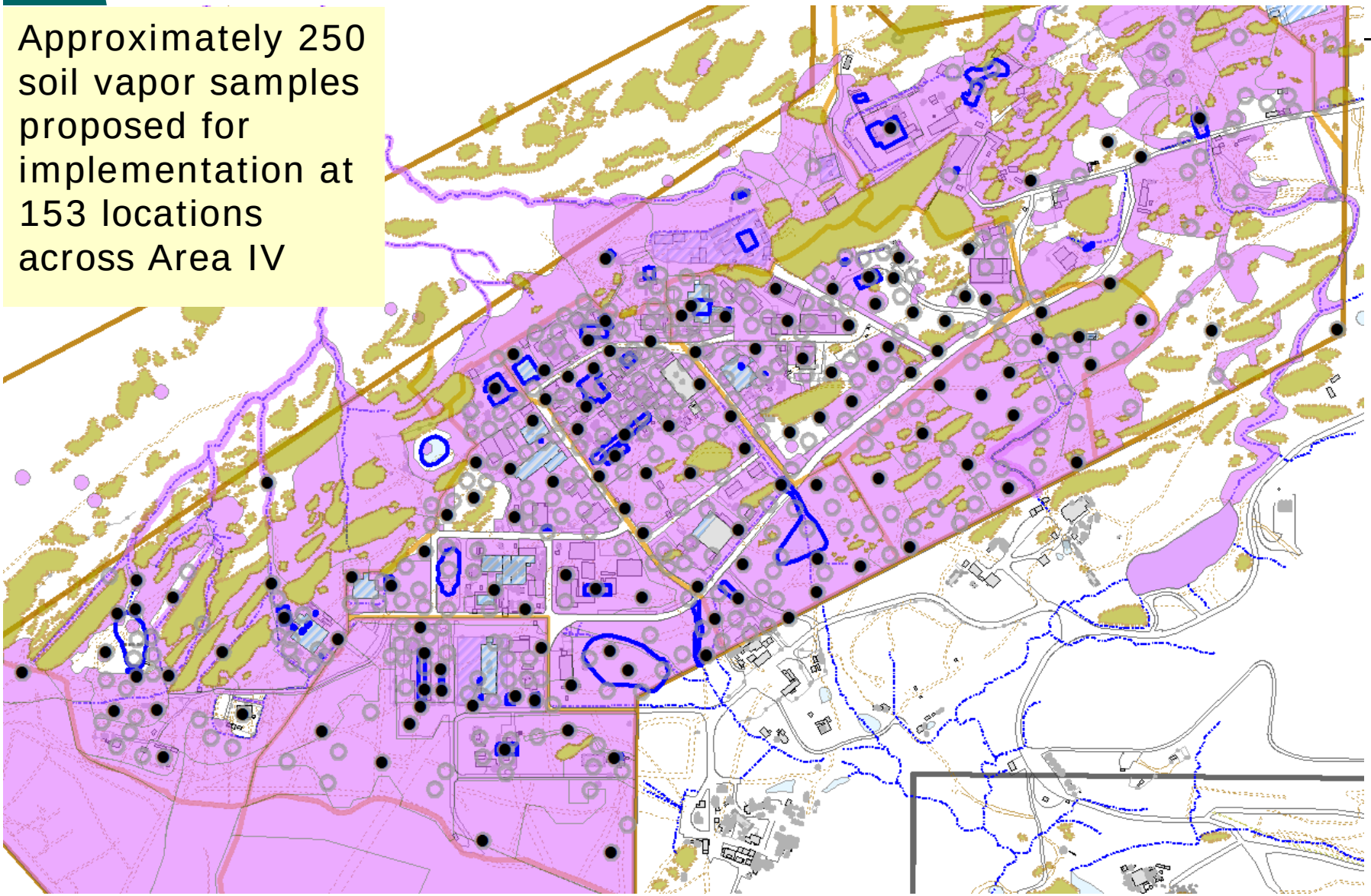
- 85 soil matrix samples are proposed at 29 locations
  - 23 at boring locations
  - 6 at trench / test pit locations
- 54 soil matrix samples are proposed at 37 locations for TPH re-analysis

Area IV Soil Vapor Implementation Plan

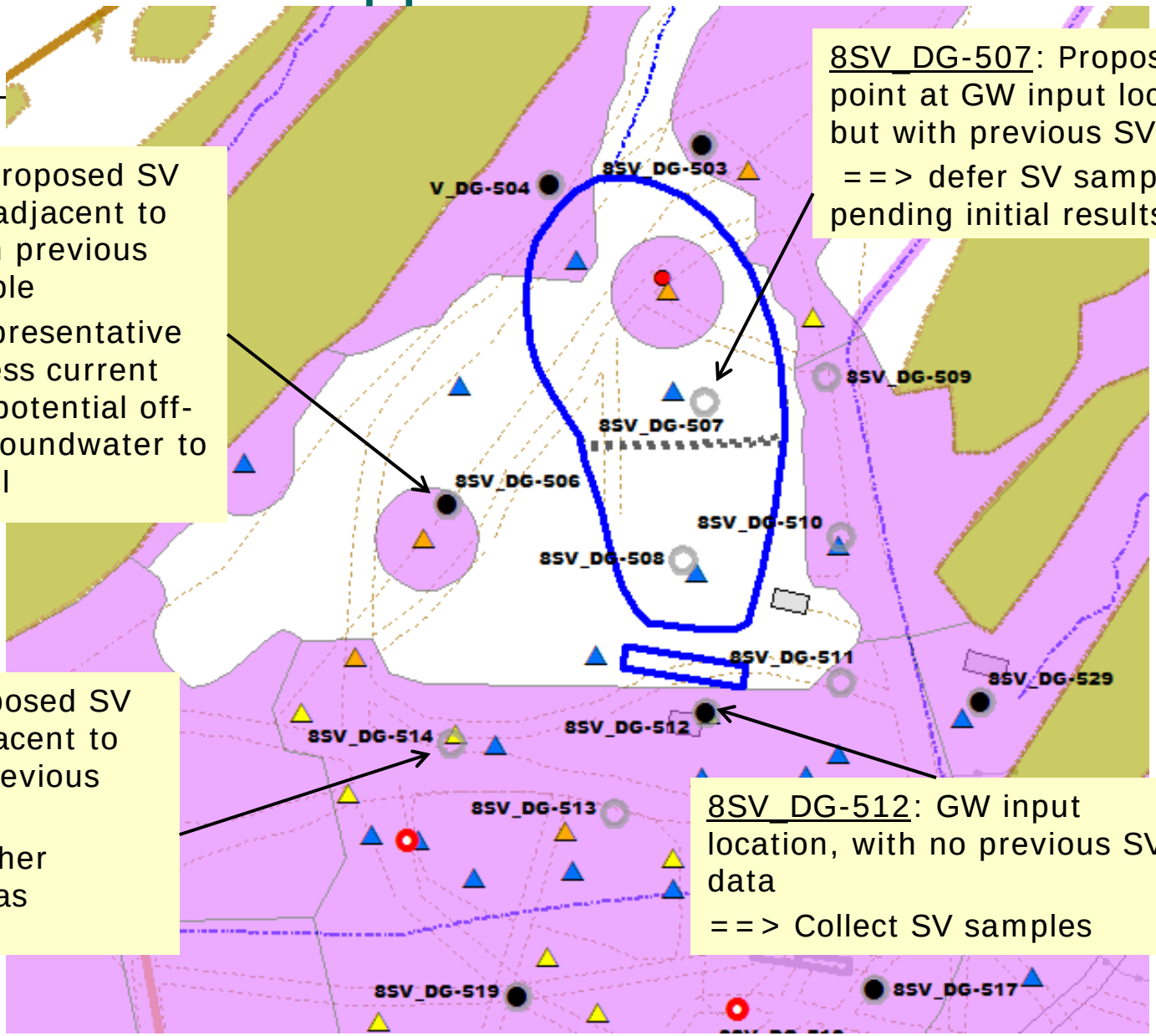
- New information has become available since submittal of the Data Gap Analysis TMs which included proposed SV locations:
  - Final Chemical Look-Up Table values for soil issued by DTSC in June 2013
  - Receipt of initial Phase 3 soil matrix sampling results for all subareas
  - New groundwater data collected from Area IV wells
- Based on new information, DOE is planning a phased implementation approach (similar to Subarea 5A North)
- Data Quality Objectives (DQOs) do not change; the same DQOs are being applied to the evaluation that accounts for the new information
- Soil vapor sampling locations were evaluated for soil and groundwater remedial planning and either selected for implementation or deferment until Phase 3 SV data is obtained and evaluated

Area IV Soil Vapor Implementation

Approximately 250 soil vapor samples proposed for implementation at 153 locations across Area IV



Examples of Area IV Phased Soil Vapor Implementation Approach



8SV_DG-506: Proposed SV point above or adjacent to GW plume, with previous VOC data variable

==> Collect representative samples to assess current conditions and potential off-gassing from groundwater to vadose zone soil

8SV_DG-507: Proposed SV point at GW input location but with previous SV data

==> defer SV sampling pending initial results

8SV_DG-514: Proposed SV point above or adjacent to GW plume, with previous VOC data variable

==> Deferred; other locations selected as representative

8SV_DG-512: GW input location, with no previous SV data

==> Collect SV samples

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Next Steps

- Complete Phase 3 Field Work Sampling
  - Soil matrix sampling for Go Backs 1 and 2 (5A, 5B, 5C, 5D, 3/6, 7, 8, and the NBZ) including trenching and test pits
  - Area IV soil vapor implementation
- Share Groundwater Characterization Plans
- Prepare Draft EIS
- Continue Soil Treatability Studies
- Prepare Final Data Summary Report

Now let's celebrate this milestone – DOE is completing this phase of our soils characterization planning process with this step!