

Phase 3 Chemical Data Gap Sampling – Subarea 8

John Jones and Stephie Jennings
US Department of Energy

Laura Rainey and Buck King
California Department of Toxic Substances Control

June 11, 2013

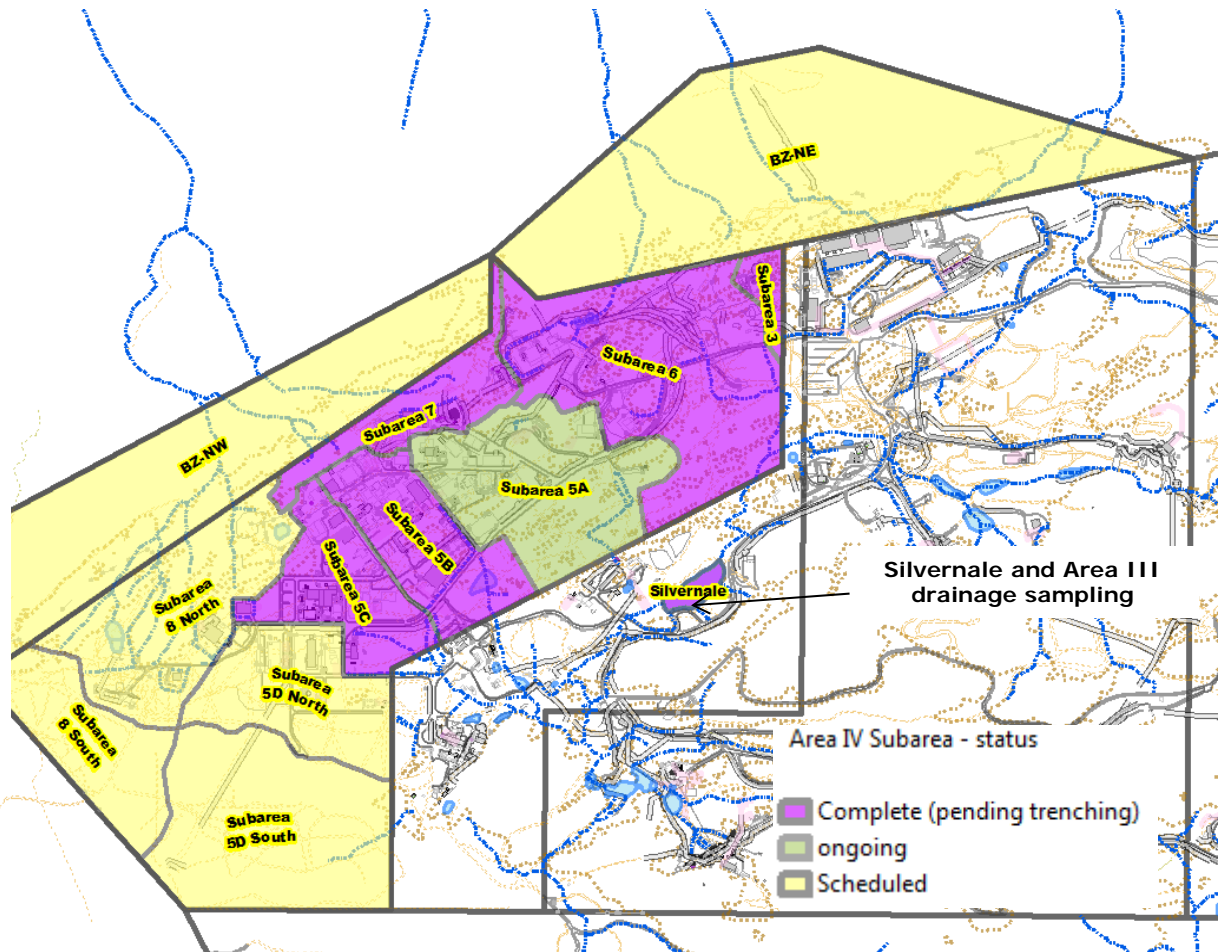


Fiscal Year 2013 Program Update

- DOE remains committed to the 2010 AOC and our intent is to complete Phase 3 data gap sampling by end of calendar year 2013
- Budget Update
- Implement soil treatability studies
- In planning stages of groundwater characterization
- Continue dialogue with community (ongoing)

Phase 3 Data Gap Sampling Status

- Phase 1 and 2 sampling completed (~2,800 samples collected)
- Phase 3 data gap sampling
 - 5A - field work underway
 - 5B - 908 samples collected to date
 - 5C - 675 samples collected to date
 - 3/6 - 405 samples collected to date
 - 7 - 74 samples collected to date
 - Silvernale and Area III drainages – 20 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

- Today's meeting is to describe the proposed sampling for Subarea 8





Phase 3 Chemical Data Gap Investigation

- The Phase 3 Chemical Data Gap Investigation is being conducted to complete the chemical characterization of Area IV and the NBZ to assist in remedial planning
- We need your input as we finalize each of the Subarea sampling plan addenda
 - Previous public meetings to get this input included 5C, 5B, 5A, 3/6 and 7, this time 8
 - Future meetings will include 5D and the Northern Buffer Zone
- DTSC will describe the Phase 3 approach and Subarea 8 sampling plan addendum

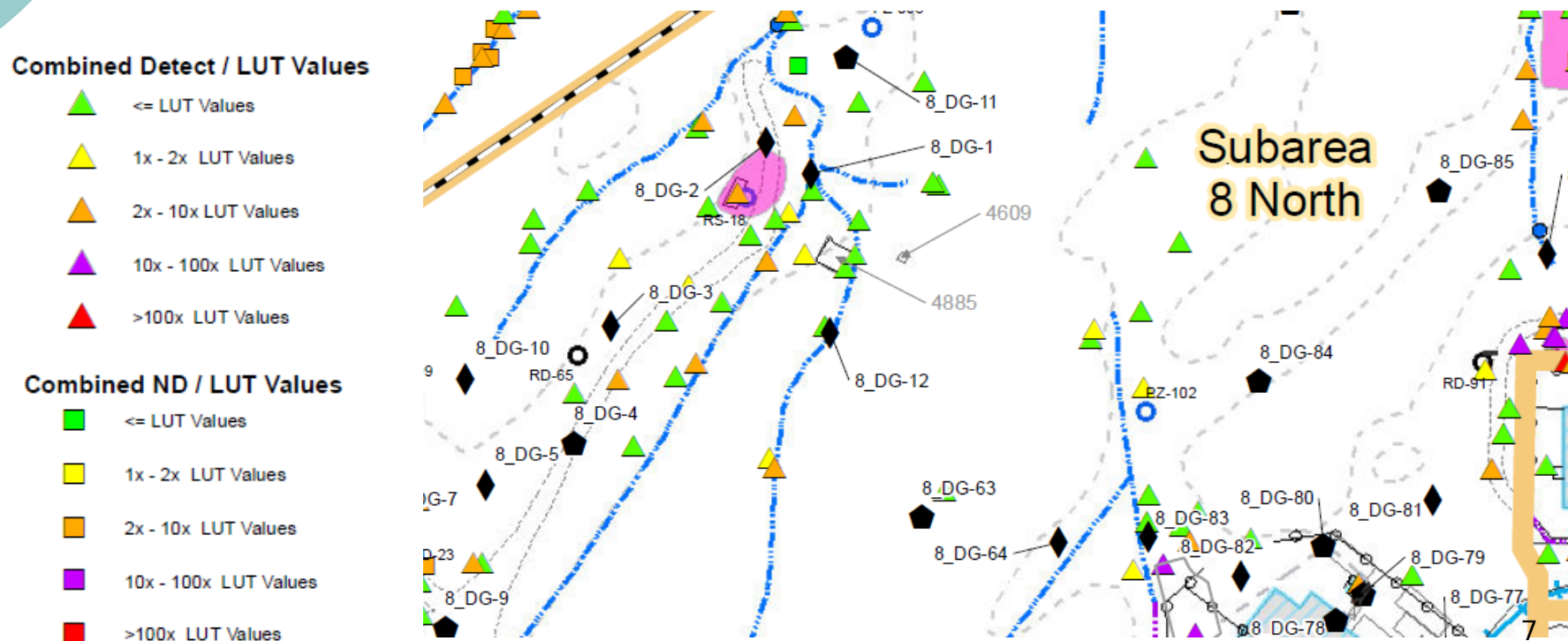


Phase 3 Sampling Approach is Based on a Chemical Data Gap Analysis

- 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 Evaluating historical documents and site survey information to identify potential release areas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 Subarea 8





Chemical Data Gap Analysis

- Migration pathways are evaluated to answer where chemical contamination may move –
 - Into subsurface soil and potentially into groundwater,
 - Via surface water transport into drainages, and/or
 - Via air dispersion and deposition onto surrounding soil areas

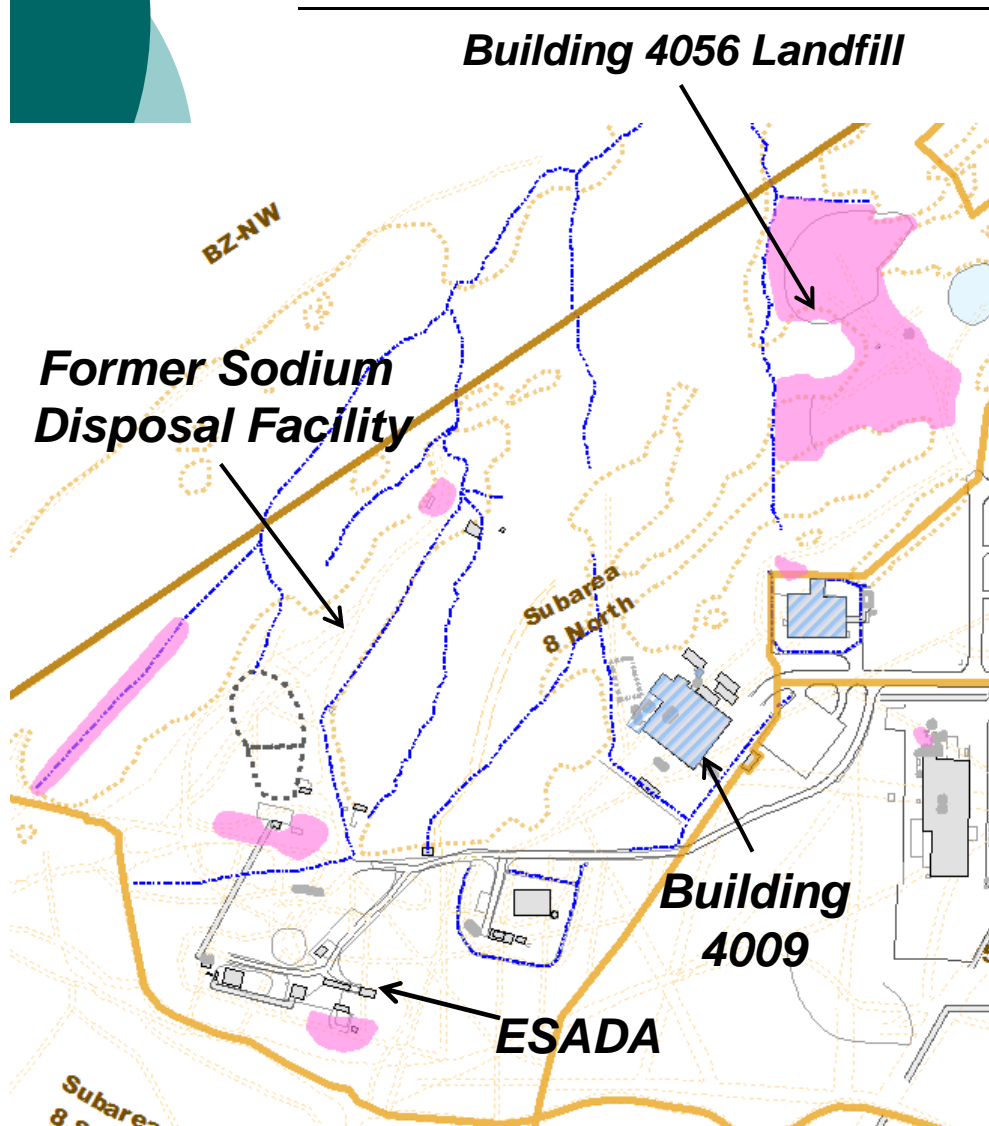
- Historical and site survey information are evaluated to identify if there are potential release areas or features that have not been sampled, or that need additional chemicals evaluated. Example information includes -
 - Historical – Building operations, storage tanks, waste vaults, etc.
 - Surveys – Geophysical surveys, debris mapping, etc.



Data Gap Process Summary

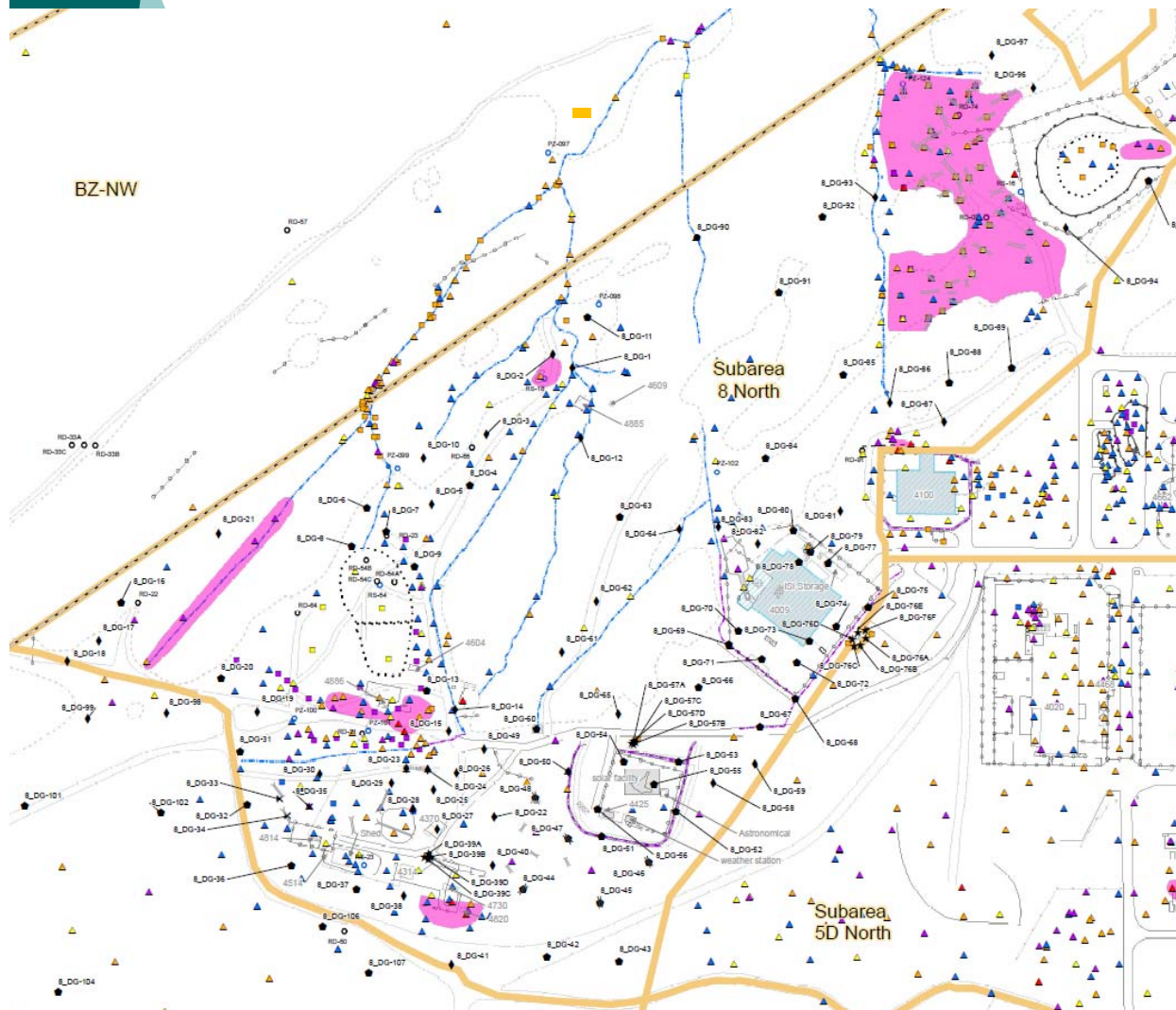
- Combining data gap recommendations from:
 - Data Screening Evaluations
 - Migration pathway evaluations; and
 - Historical document/ site survey reviews
- Leads to Phase 3 chemical sampling recommendations

Overview of Operations in Subarea 8



- Former Sodium Disposal Facility (FSDF)
 - Former Ponds used for cleaning residual metallic sodium and NaK from equipment, and burning of waste organic liquids
 - Western Debris Area used to store components and barrels
 - Area IV Pistol Range
- Building 4056 Landfill
 - Used during 1960s /70s for disposal of soil, bedrock, and minor construction debris
 - Top of Landfill used for drum storage 1980s
 - B4056 pit was constructed to build the basement for the Building 4056 (never built)
- Building 4009
 - Building 4009 housed two reactors - a sodium graphite reactor (SGR) and organic moderated reactor (OMR)
 - Septic tank and leach field removed 2002
- ESADA
 - Used for testing pipe burst characteristics under sodium-water reaction conditions
 - Storage Yard used for storage of Dowanol drums
 - ESADA Pistol Range

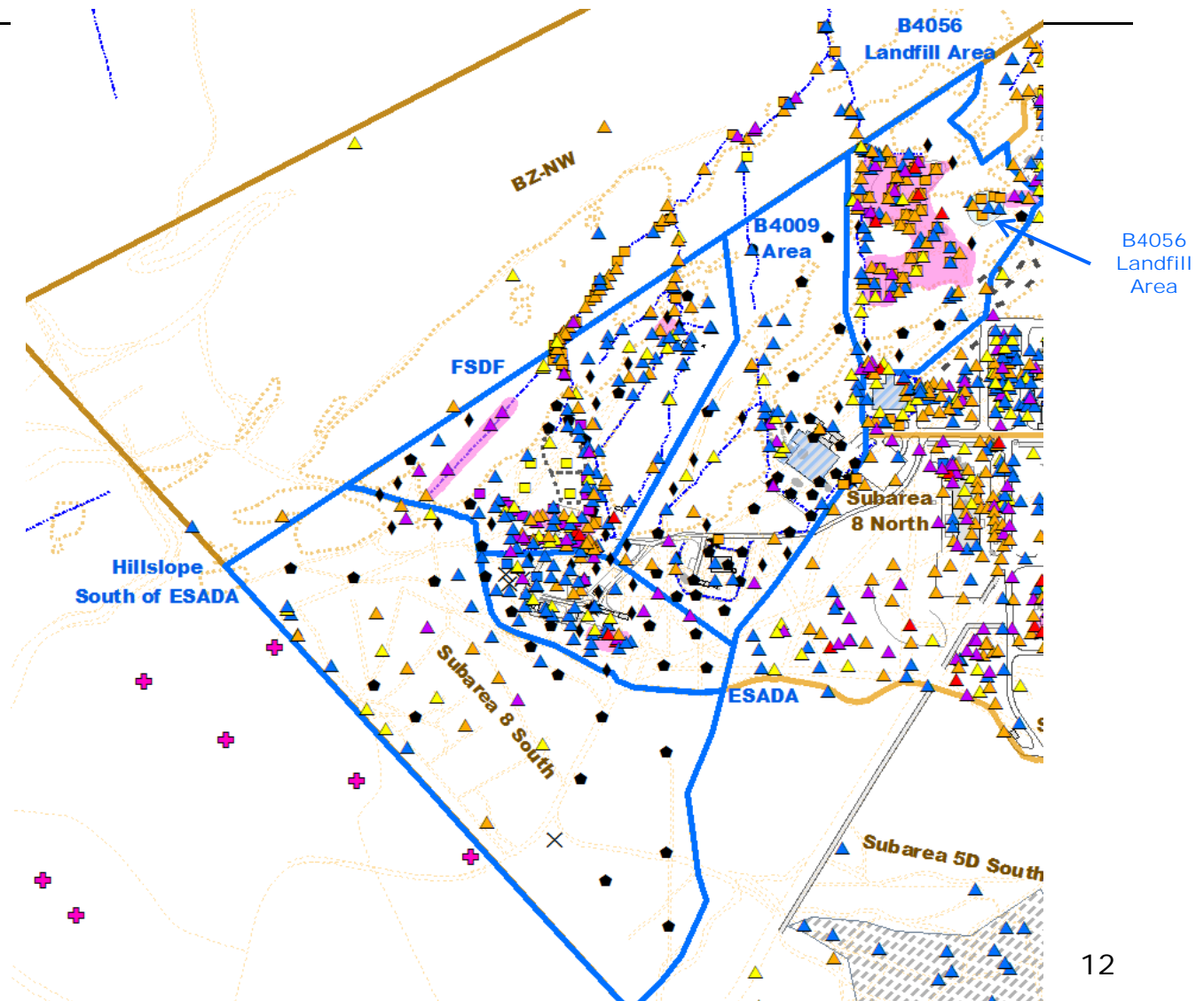
Overview of Subarea 8 Chemical Sampling Results



- ~ 1020 samples previously collected from 633 locations
- 6 Clearly Contaminated Areas identified for chemicals
- 1 area identified for investigation during future demolition (Building 4009)

Overview of Subarea 8 Phase 3 Proposed Sampling Locations

1. Building 4056 Landfill Area
2. Building 4009 Area
3. FSDF
4. ESADA
5. Hillslope South of ESADA



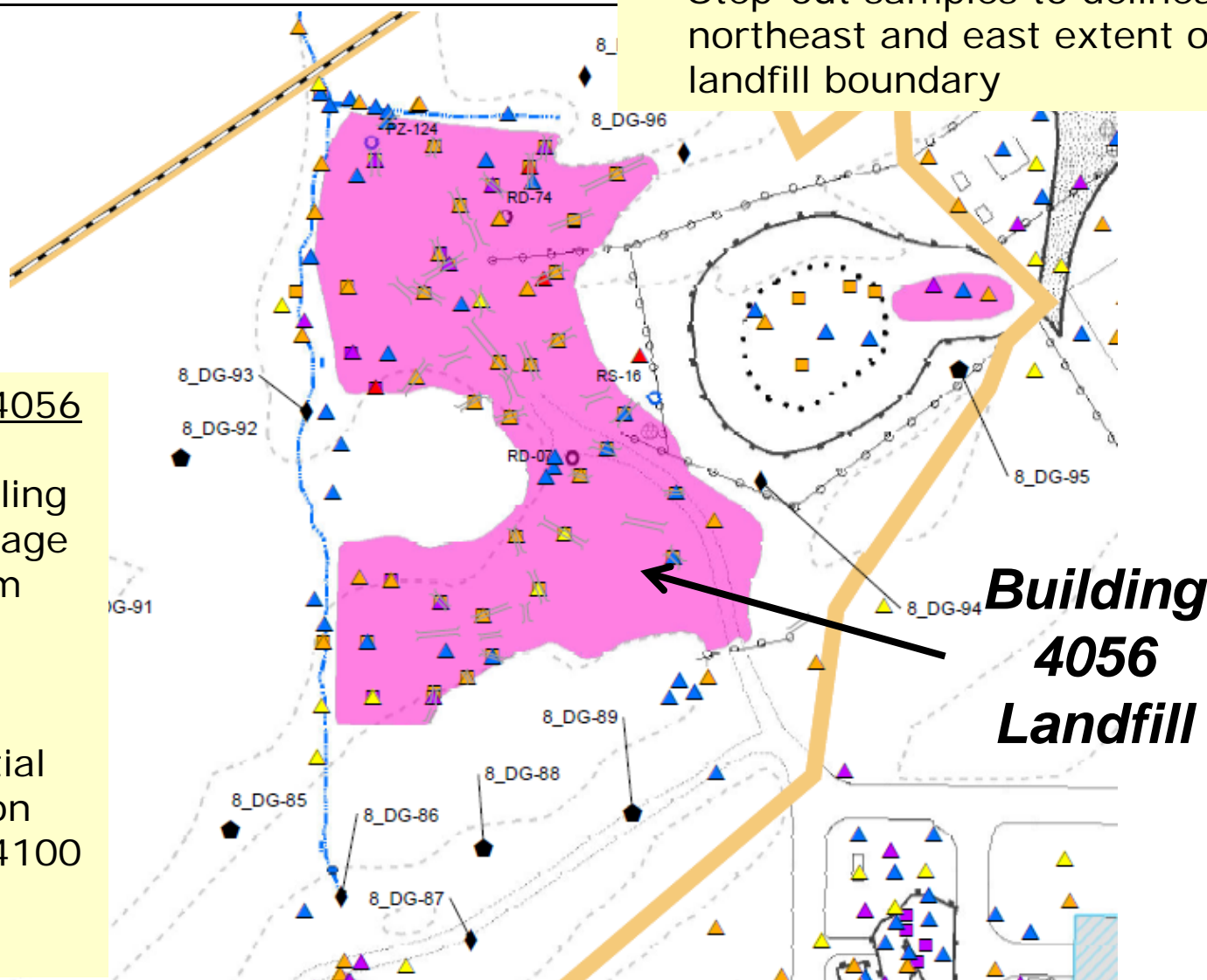
Building 4056 Landfill Area

Extent of Landfill

- Step-out samples to delineate northeast and east extent of landfill boundary

West of Building 4056 Landfill

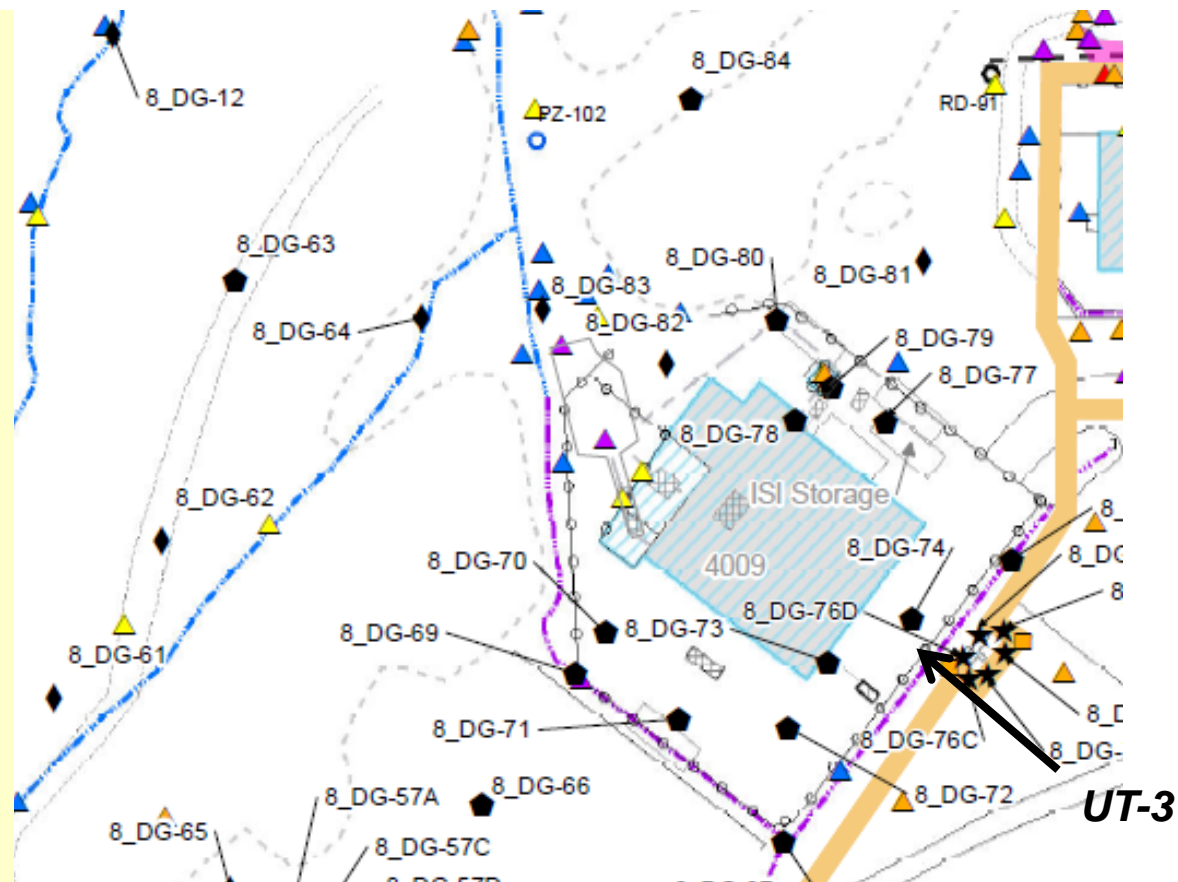
- Step-out sampling targeting drainage downslope from Building 4100 operations
- Sampling to address potential aerial deposition from Building 4100 trench



Building 4009 Area

Building 4009 Operational Area

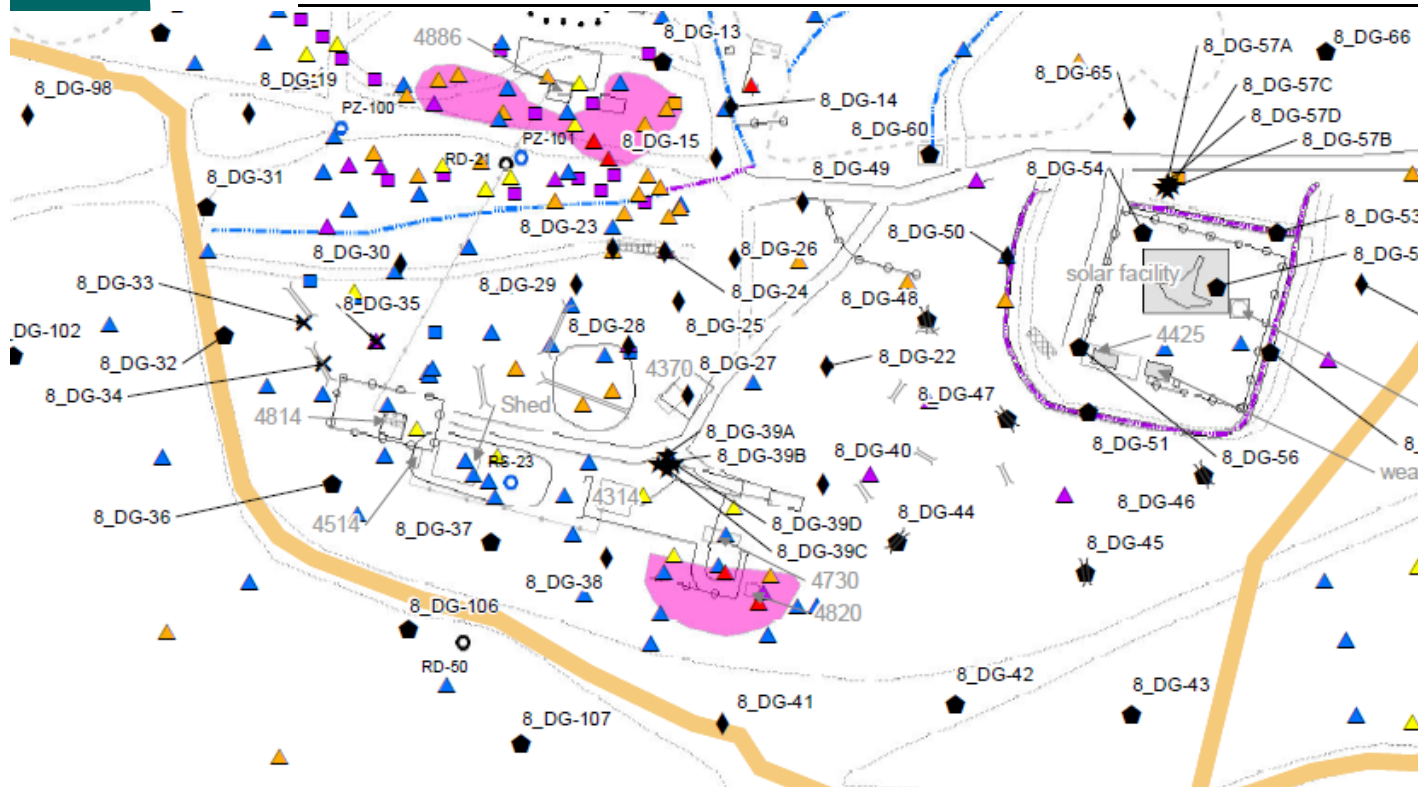
- Samples targeting pipelines exiting the building, septic tank, and lined drainage around perimeter of operations
- Step-out sampling to delineate extent of detects in leach field
- Step-out sampling around UT-3, known hydrocarbon fuel release area
- Sampling former transformer locations (PCBs)



Within B4009 Footprint

- Sampling planned within footprint and at doorways following future demolition activities

ESADA and Solar Concentrator Facility



Solar Concentrator Facility

- Locations targeting former lined drainage around Solar Concentrator Facility
- Sampling at former transformer locations (PCBs)
- Trenches to investigate debris area south and west

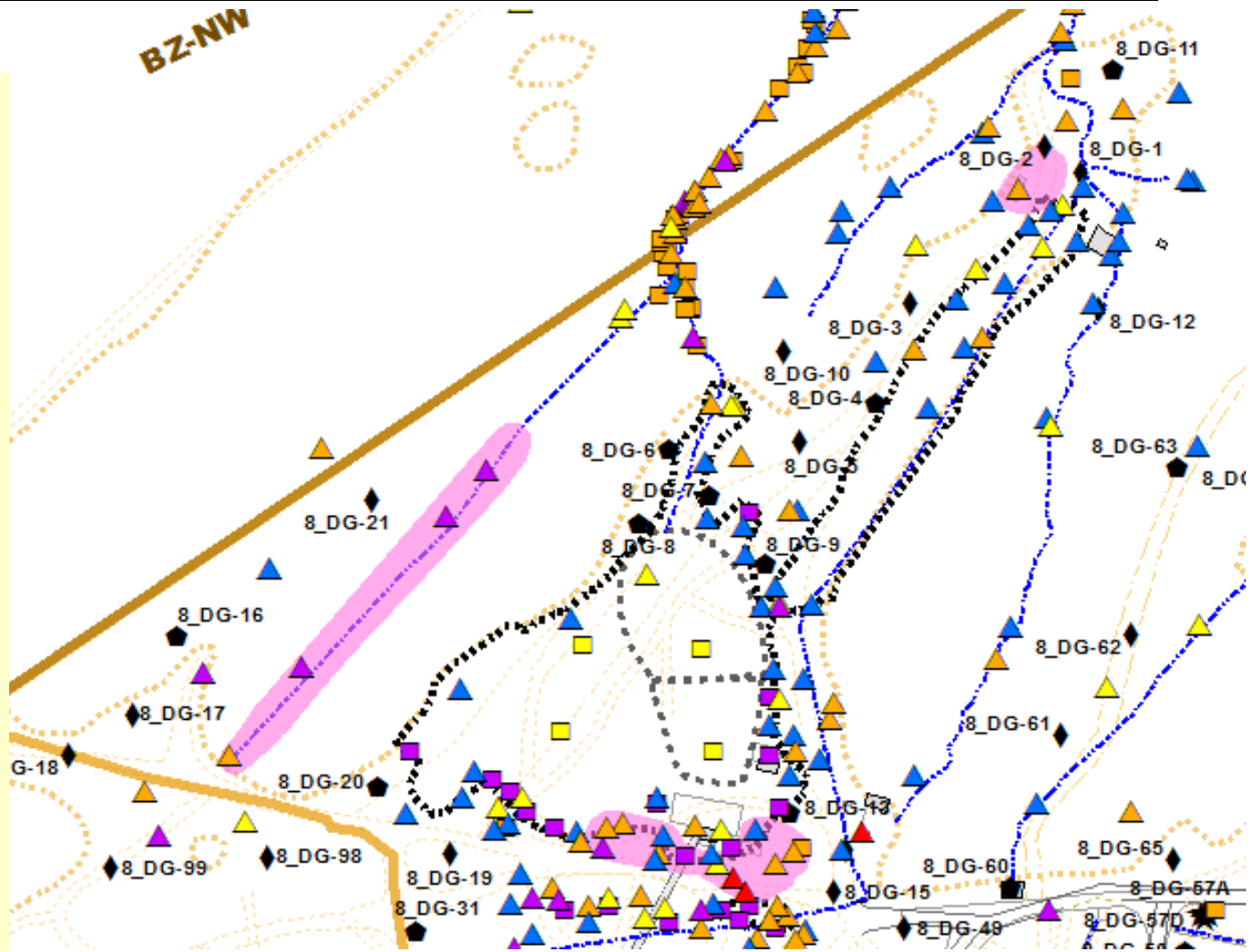
ESADA

- Step down sampling beneath two ASTs north of ESADA
- Sampling in field west of ESADA operational area
- Test pits to investigate debris area west of ESADA
- Sampling at former transformer locations (PCBs)

- FSDF
- Ste to c
- Are
- Ste
- we
- de

FSDF

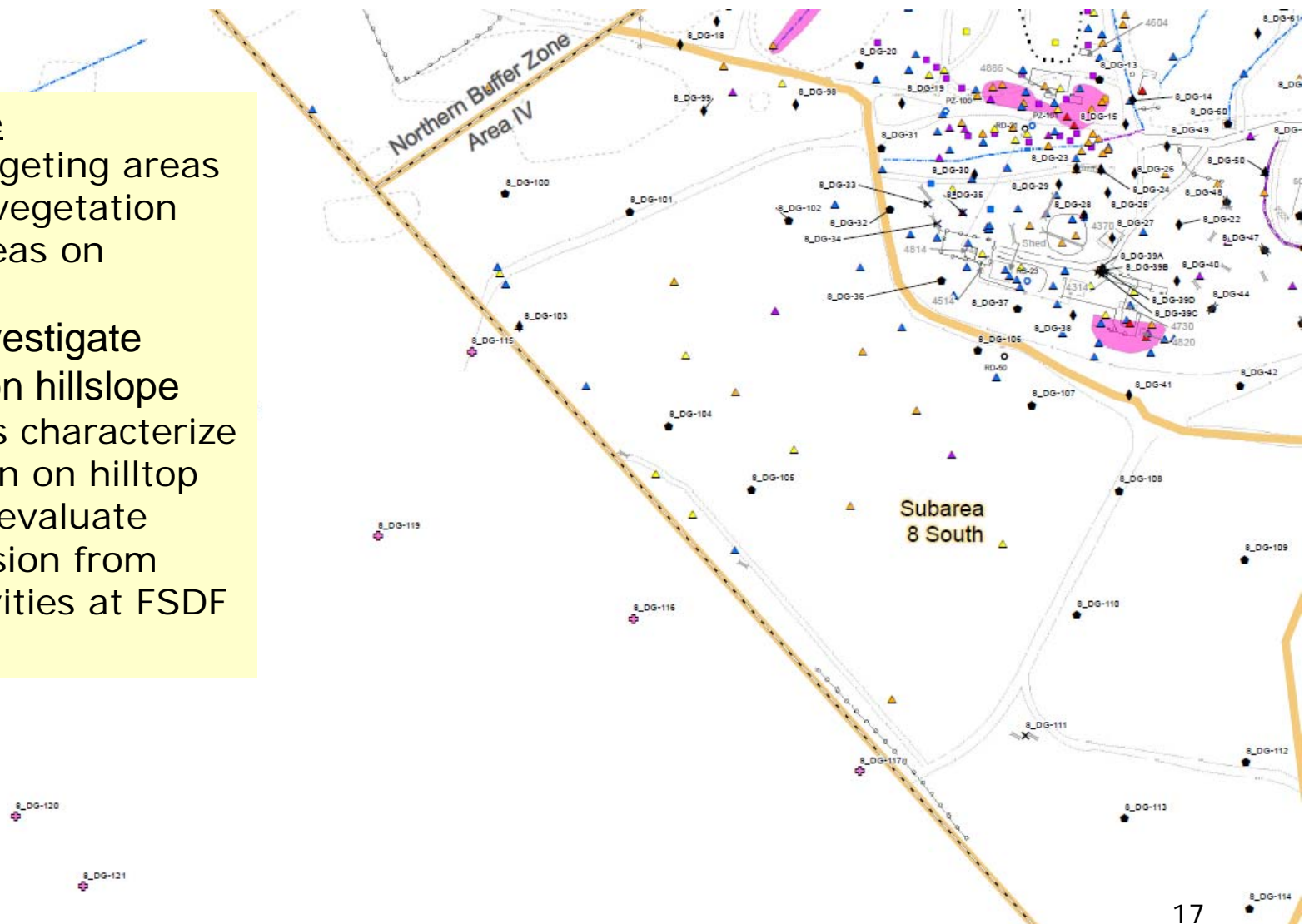
- Step-out sampling to define extent of Area IV Pistol Range
- Step-out sampling west of the drum debris area
- Sampling targeting native soils outside the 2000 IM Excavation
- Step-out sampling to define extent in drainages
- Step-out sampling to east along dirt roads, and to west near a cleared area



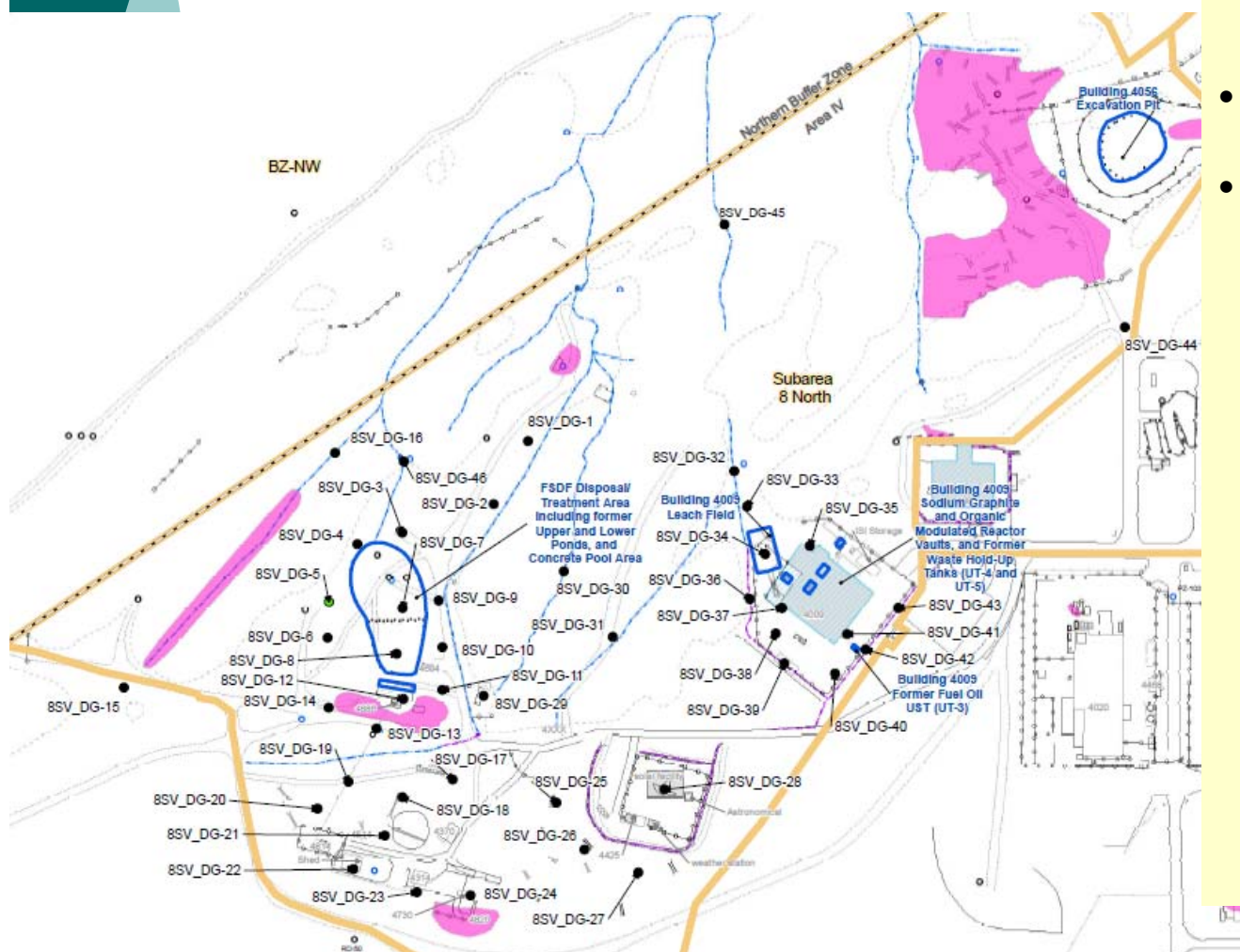
Hillslope South of ESADA

ESADA Hillslope

- Sampling targeting areas of historical vegetation clearance areas on hillslope
- Test pit to investigate debris area on hillslope
- Two locations characterize mineralization on hilltop
- Sampling to evaluate aerial dispersion from burning activities at FSDF to west




Subarea 8 Soil Vapor Sampling Locations



Soil Vapor Locations

- Extensive sampling previously performed -129 samples from 43 locations
- 44 locations proposed
- Targeted features include
 - Building 4009 Area - Leach Field, UT-3, lined drainage
 - Solar Concentrator Facility and nearby debris areas
 - ESADA Storage Yard and debris area
 - FSDF - former ponds, concrete pool, semi-permanent SV probe, and 2000 IM Excavation
 - Building 4056 Landfill – southeastern extent



Summary of Subarea 8 Proposed Phase 3 Sampling Locations

- About 270 soil matrix samples proposed at 114 locations
- About 90 soil vapor samples proposed at 45 locations
- Chemical suites proposed based on step-out requirements, or for evaluation of new and/or existing features



Coming Attractions

- Conduct Next Chemical Data Gap Investigation Stakeholder Meeting for Subarea 5D – late July 2013
- Continue Phase 3 Sampling – field work for Subarea 8 will begin following DTSC approval
- Soil Treatability Study Group – University researchers developing work plans for implementation following DTSC approval. Next meeting tentatively planned for July/August 2013
- EIS – activities ongoing

Update for Action Items

Action Item	Date Requested	Progress
DOE evaluate what is needed so that sampling can occur at proposed 'future' locations in Area III, and if EPA could obtain radiological samples near the Building 4015 Field during this next phase of work since laboratory contracts and protocols in place.	2/22/12	In progress. Area III sediment samples collected by DOE. DOE and Boeing are committed to completing a thorough investigation, and are coordinating with DTSC regarding other samples identified or needed near administrative area boundaries.
DOE to consider hosting meeting to explore use of GIS for data review, evaluation of information sources, etc.	8/10/12	In progress – stay tuned!
Ensure that Health and Safety information is provided for student soil treatability studies and onsite personnel for demo projects.	2/28/13	Ongoing. Site safety briefings provided to researchers for chemical, radiological, biological, and physical hazards.
Correct Clearly Contaminated Area figure to include area #9 (B4011 Leach Field) as listed in legend.	2/28/13	Corrected.



Update for Action Items

Action Item	Date Requested	Progress
What are the depth of the vaults in B4022 at RMHF?	2/28/13	Vault depths are 20.5 feet bgs, as documented in the EPA HSA report.
Prepare a map displaying soil thickness in Subarea 7 and share with stakeholders.	2/28/13	Ongoing. Soil depth analysis in progress as part of data gaps. Interpretation will be included in the Chemical Data Summary Report.
Provide the material specifications of the impermeable liner at Subarea 6.	2/28/13	Impermeable liner constructed of high density polyethylene (HDPE).
Provide photos of Subarea 7 shown during public meeting.	2/28/13	Done; emailed by DOE to stakeholders 2/28/13.