Phase 3 Chemical Data Gap Sampling – Subarea 5D

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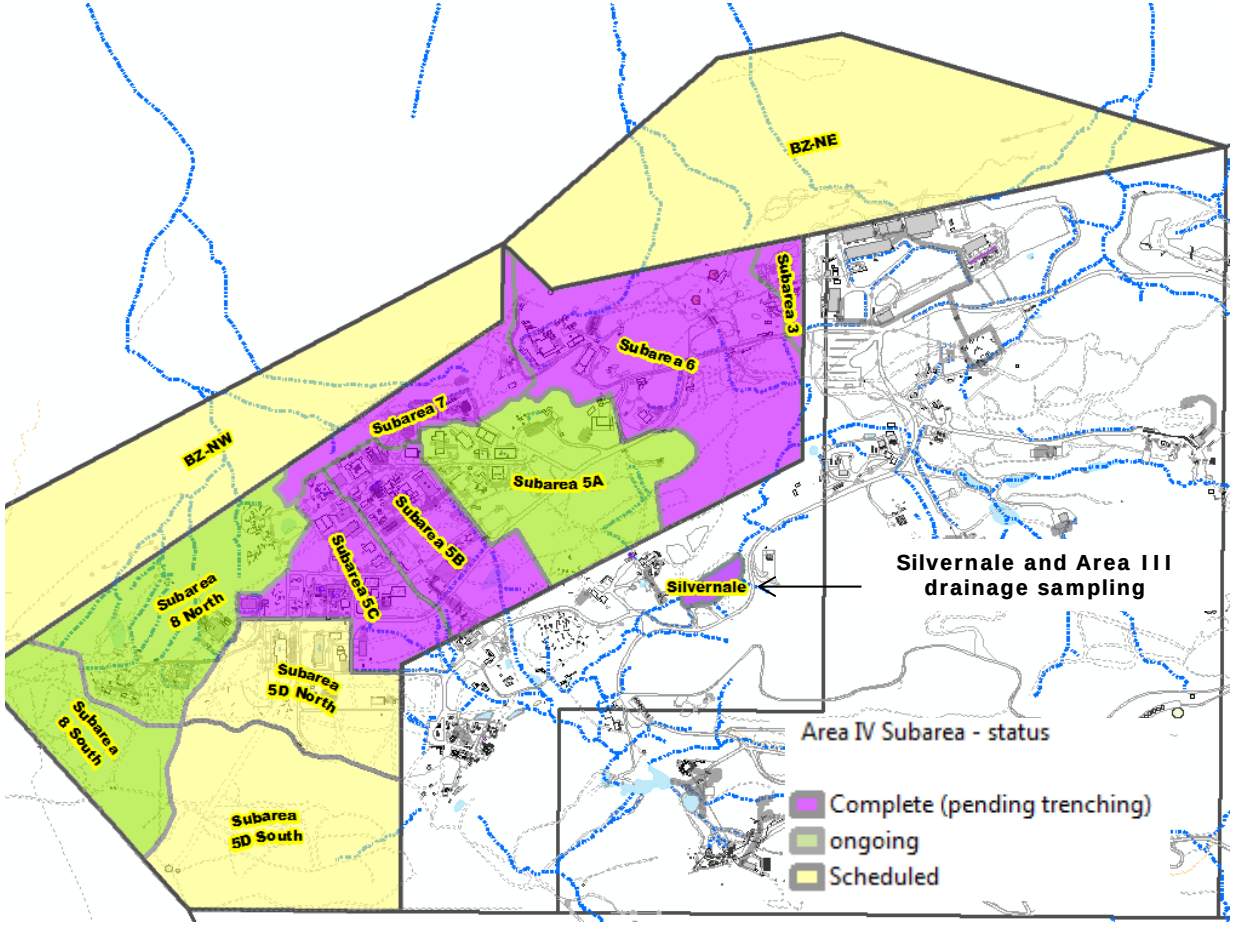
Program Update

- 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
- Groundwater characterization update
- 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 – sampling in progress (124 samples collected to date in 5A South)
  - 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
  - 8 – sampling in progress (160 samples collected to date)
  - Silvernale and Area III drainages – 20 samples



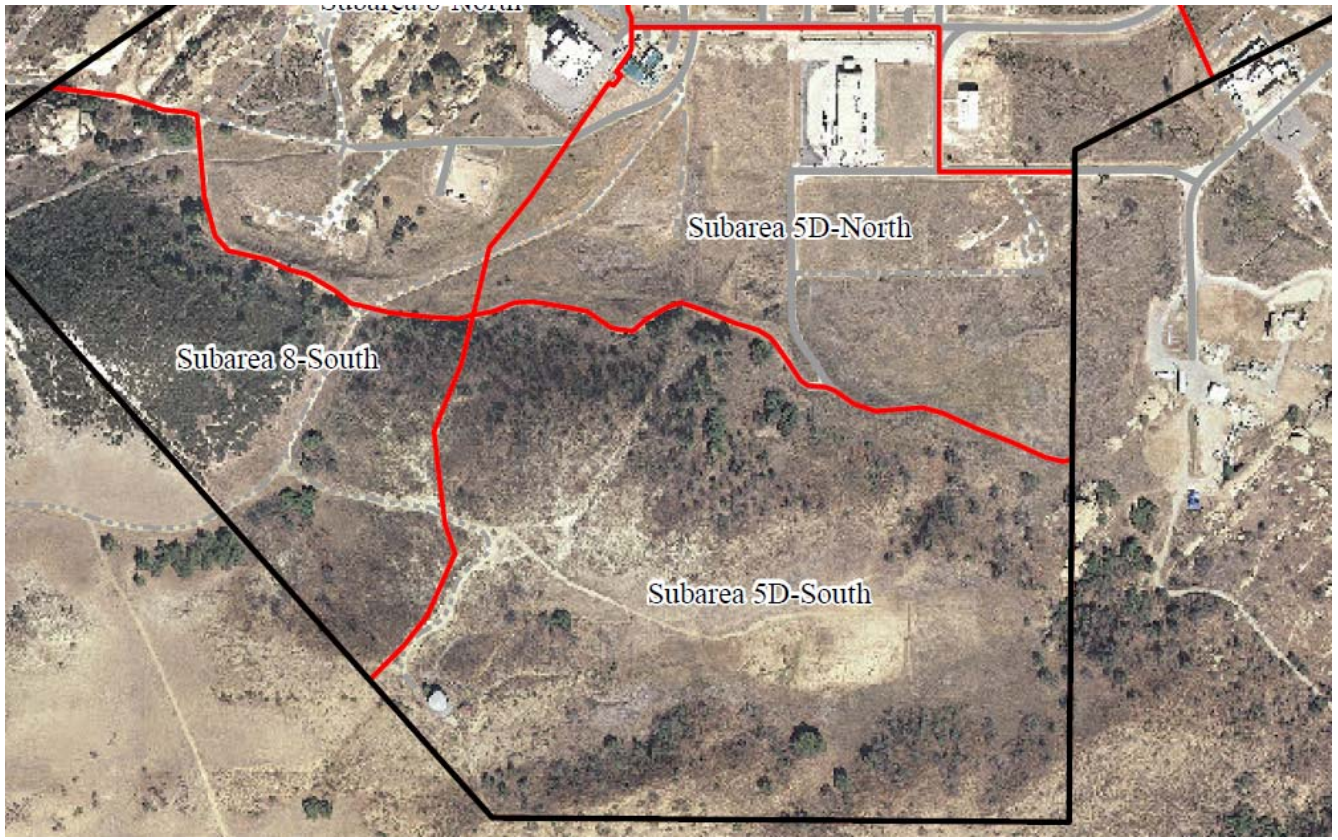
- Master Planning documents and Field Sampling Plan Addenda for Phase 3 investigations are located on DOE and DTSC's websites:

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

http://www.etec.energy.gov/Char_Cleanup/Phase3.html

Phase 3 Chemical Soil Sampling

- Today's meeting is to describe the proposed sampling for Subarea 5D



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, 7, 8, and this time 5D
  - Future meetings will include the Northern Buffer Zone and any final data gap sampling needs ('go-backs')
- DTSC will describe the Phase 3 approach and Subarea 5D 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?

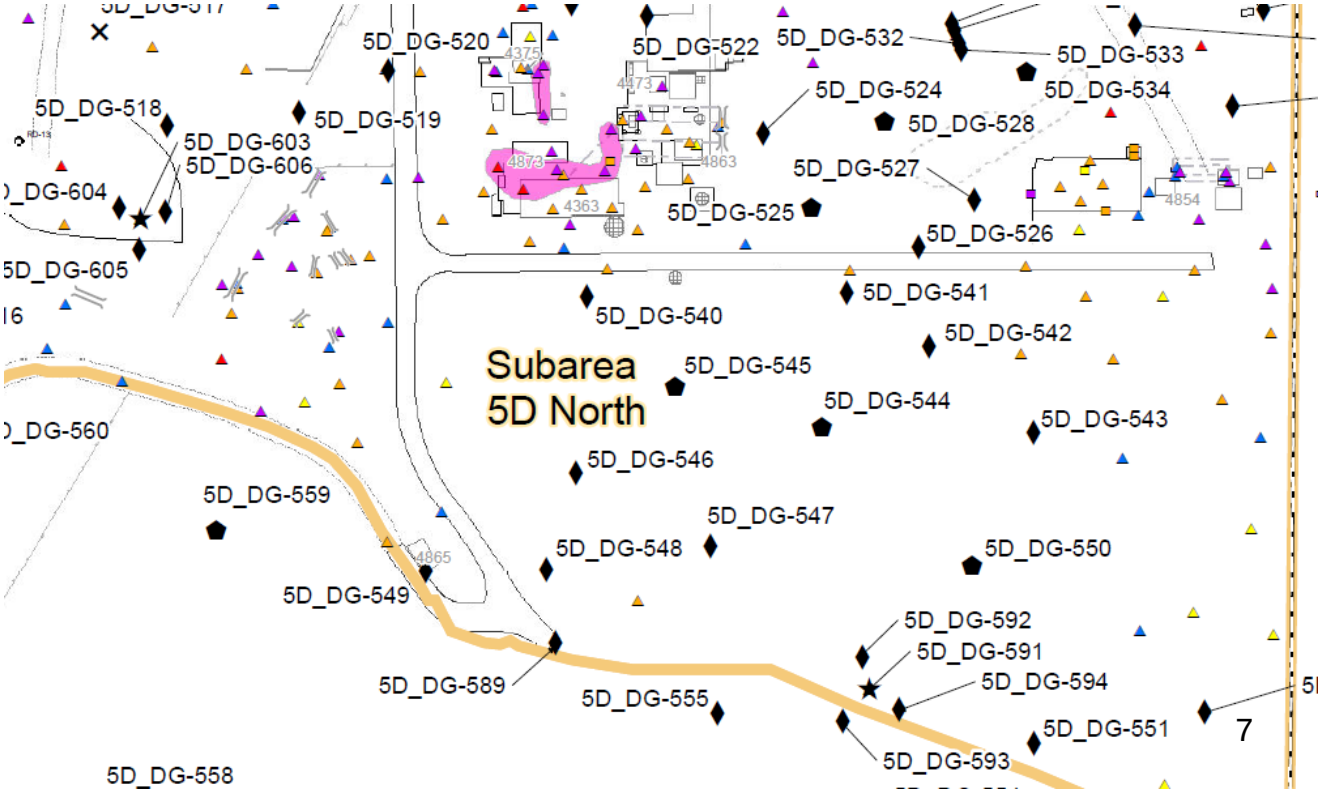
>> Look-up Table (LUT) values established by DTSC are being used for screening in Subarea 5D

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



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

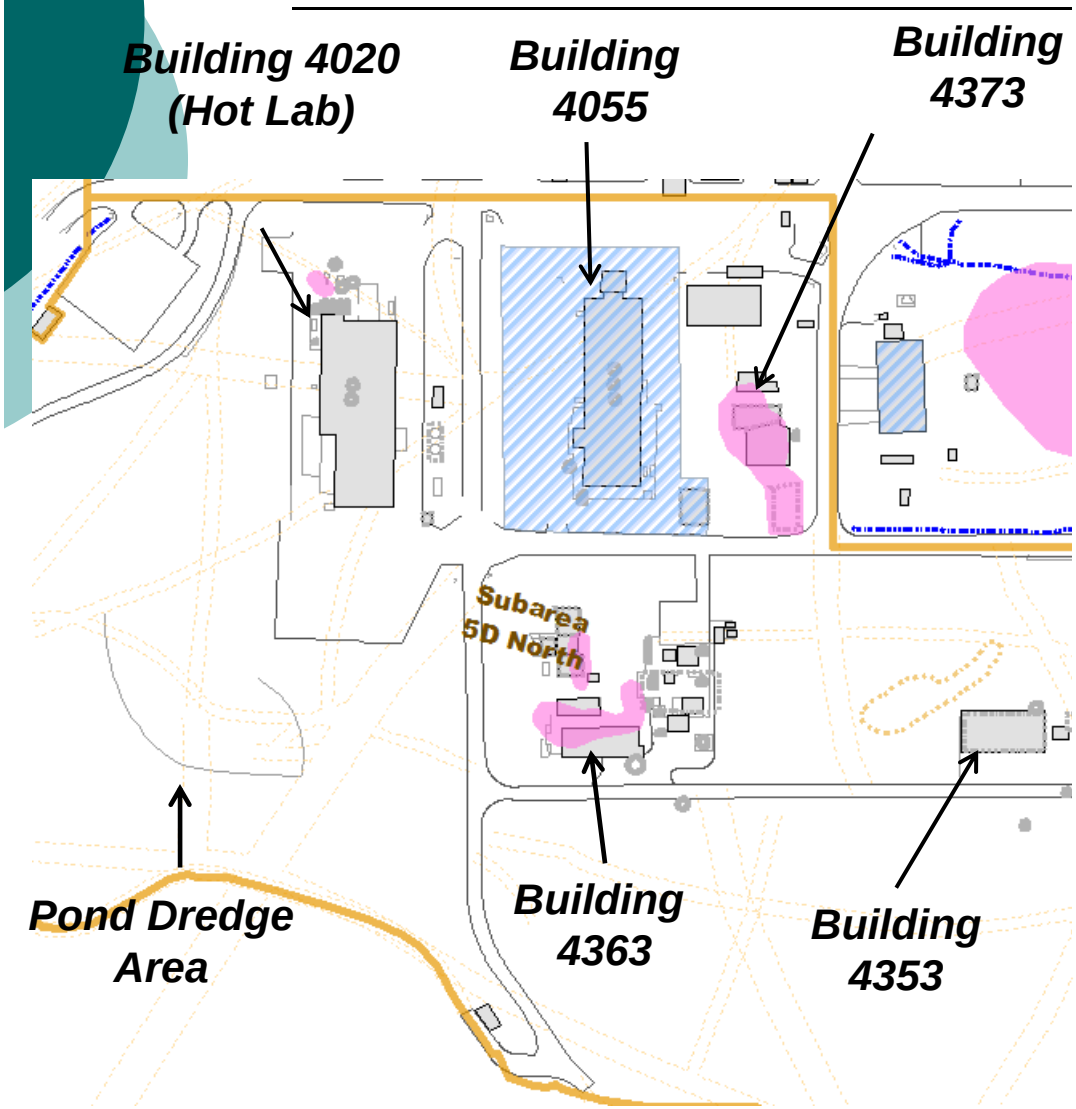
- Historical and site survey information are evaluated to identify if there are potential release areas or features that have not been sampled, or that need additional chemicals evaluated. Example information includes -
  - Historical – Building operations, storage tanks, waste vaults, etc.
  - Surveys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

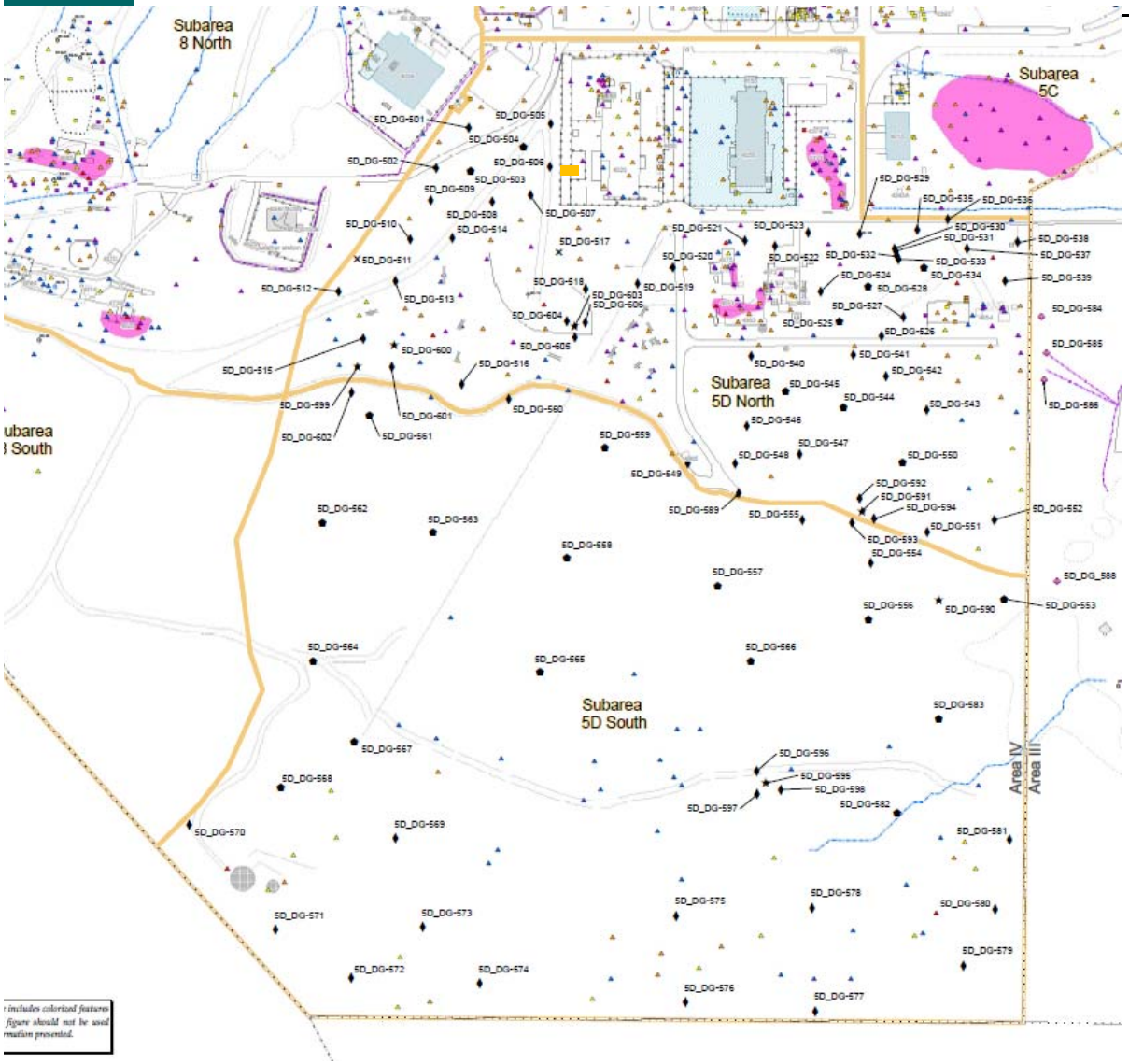
- Leads to Phase 3 chemical sampling recommendations

Overview of Former Operations in Subarea 5D



- Building 4020 (Hot Lab)
  - Constructed for remote handling and examination of highly radioactive materials
  - Included four hot cells, deep basement with sumps, and southern parking area used for storage
  - Demolished in 1990s (all structures removed), final release survey completed in 2000
- Building 4055
  - Research, development, and production of nuclear fuels and radioactive sources
  - Demolition planned by Boeing once plans approved by DTSC
- Building 4373
  - Originally built for testing and handling of highly explosive solid rocket fuels (operations were not documented); used as a SNAP critical facility starting in 1957
  - Septic tank and leach field removed in 2000
- Building 4363
  - Field test facilities for performance of OMR mechanical component development tests
  - Septic tank and leach field removed in 2002
- Building 4353
  - Research and development laboratory for OMR Program
  - Septic tank and leach field removed 2001
- Pond Dredge Area
  - Debris and disturbed soil in east, with soil piles and more limited debris in west

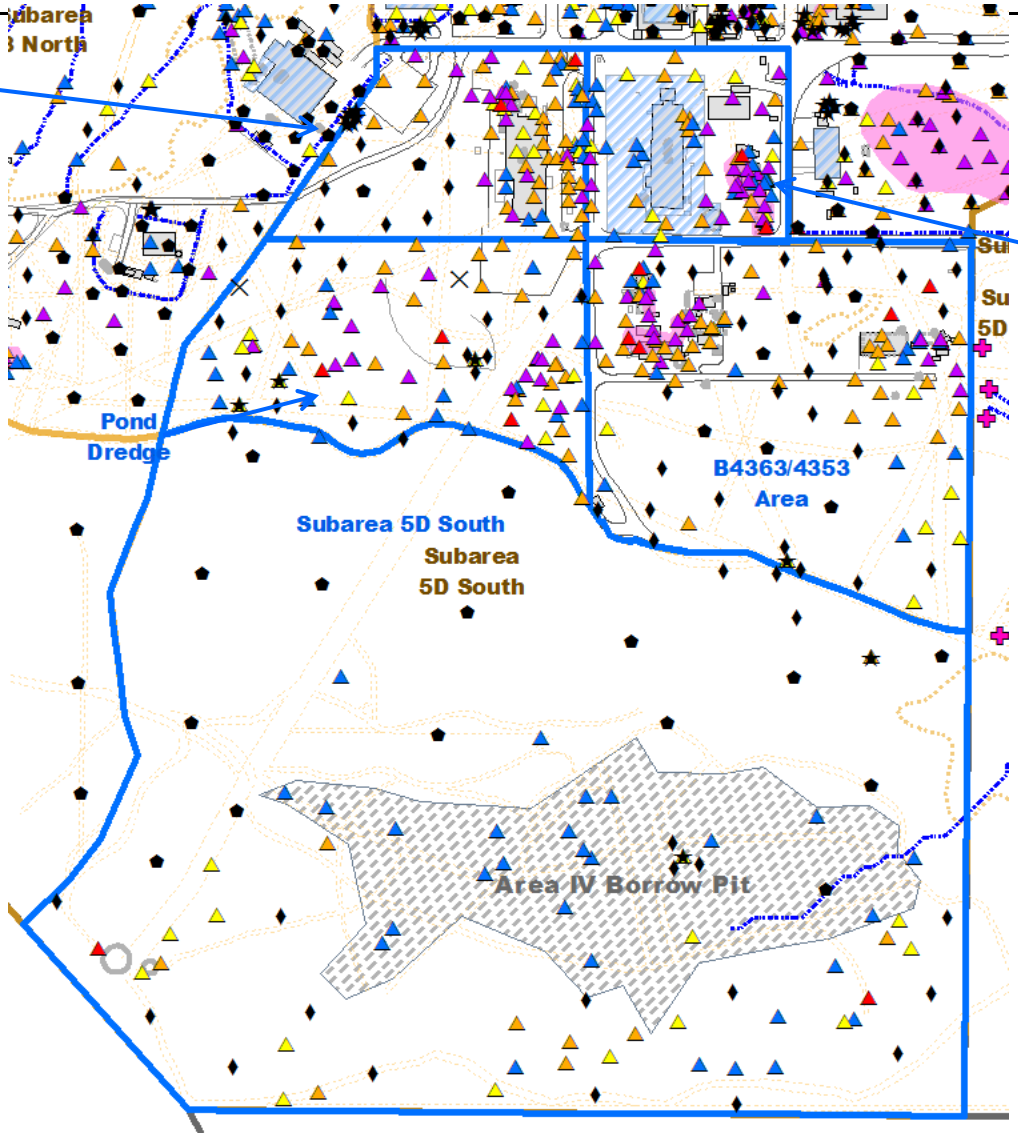
Overview of Subarea 5D Chemical Sampling Results



- ~930 samples previously collected from 410 locations
- 4 Clearly Contaminated Areas identified for chemicals
- 1 area identified for investigation during future demolition (Building 4055)

Overview of Subarea 5D Phase 3 Proposed Sampling Locations

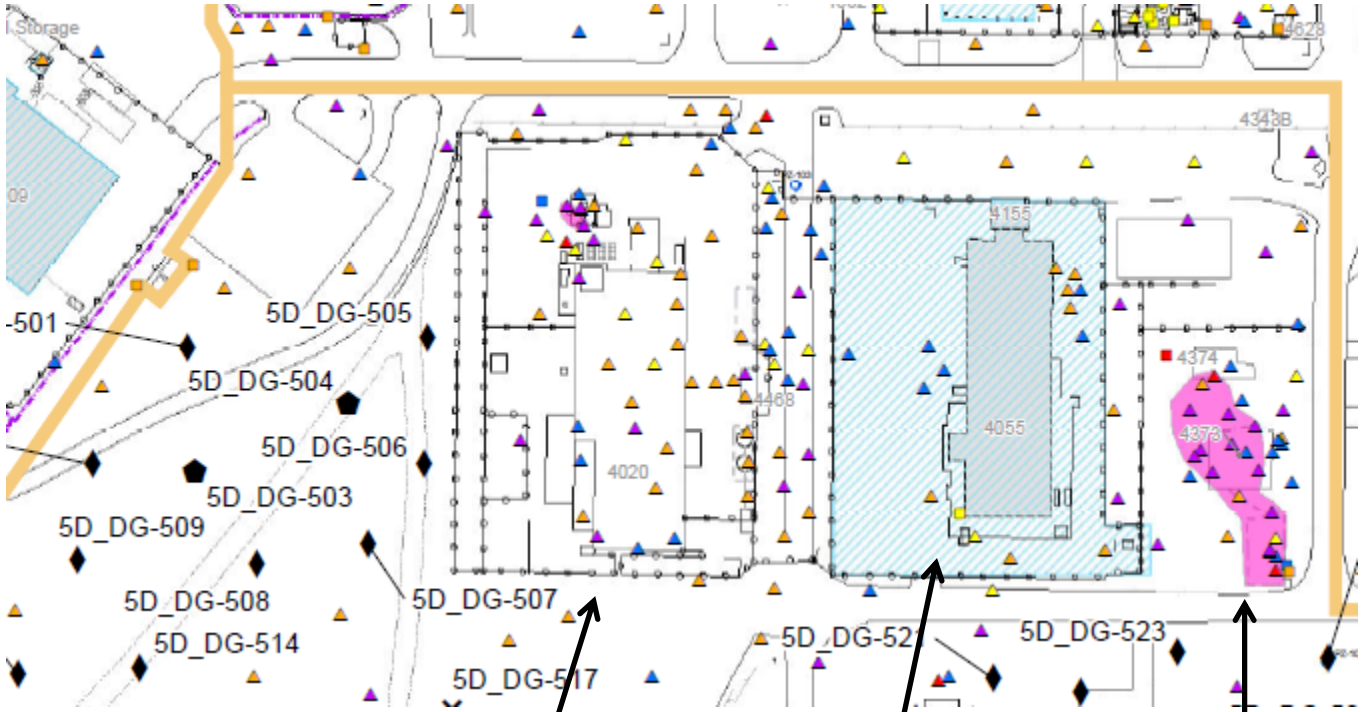
1. Building 4020 Area
2. Building 4055 / 4373 Area
3. Building 4363 / 4353 Area
4. Pond Dredge Area
5. Subarea 5D South



Building 4020 and Building 4055/4373 Areas

Building Operational Areas

- Operational areas at/near buildings well characterized by previous sampling, with many LUT exceedances (primarily PAHs, dioxins, PCBs, metals)
- Step-out sampling proposed to west and south of former operations



Building 4020 Area

Building 4055 Area

Building 4373 Area

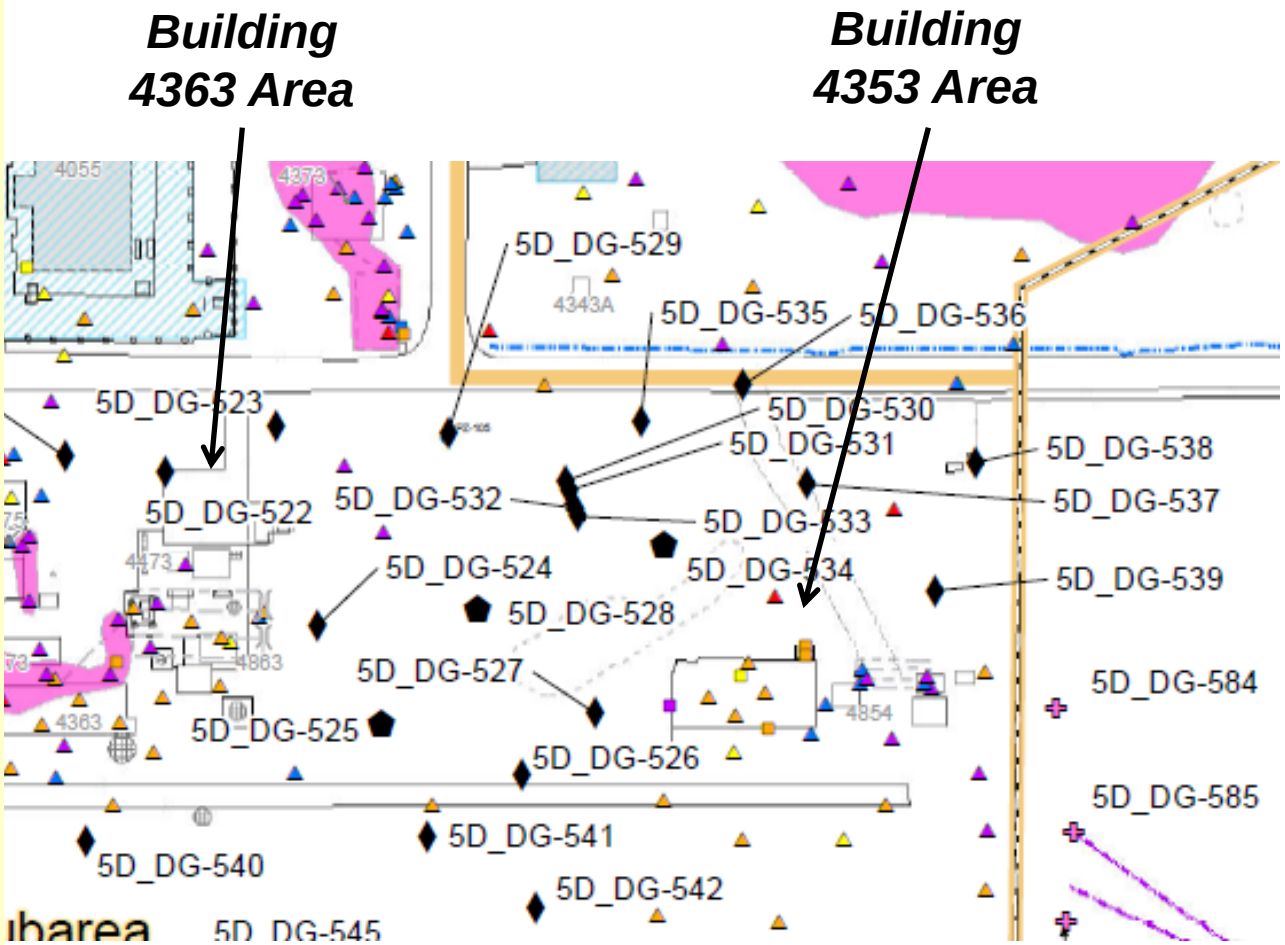
Building 4055 Footprint

- Sampling planned for building area including southern liquid waste hold up vault following future demolition activities

Building 4353 and Building 4363 Areas

Building Operational Areas

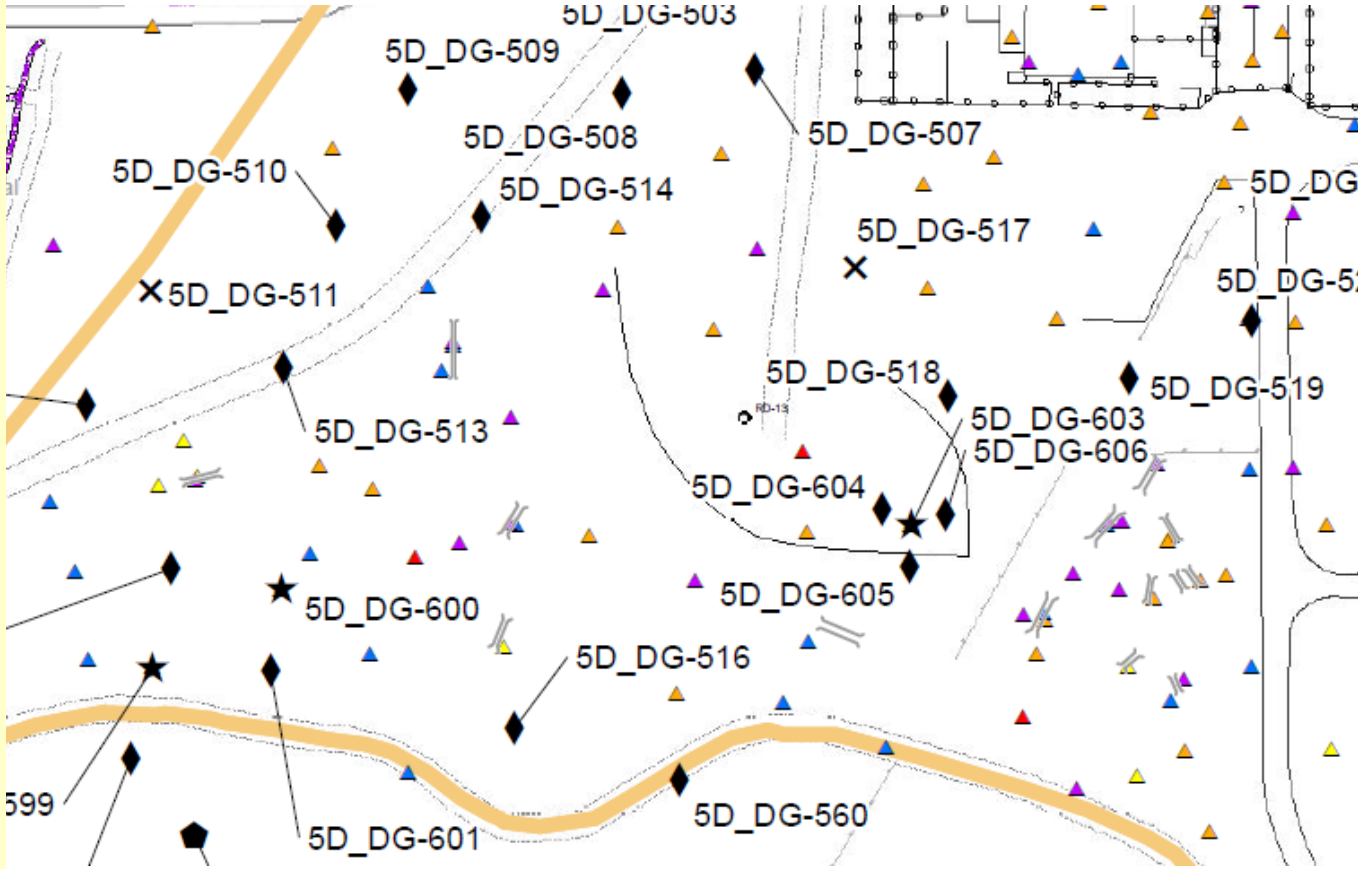
- Again, former operational areas at/near buildings well characterized by previous sampling, with many LUT exceedances (primarily PAHs, dioxins, and metals)
- Step-out sampling proposed between former operations areas, and along historical drainage feature
- Future sampling in Area III to assess contaminant migration
- Step-out and representative sampling in open area to south



Pond Dredge Area

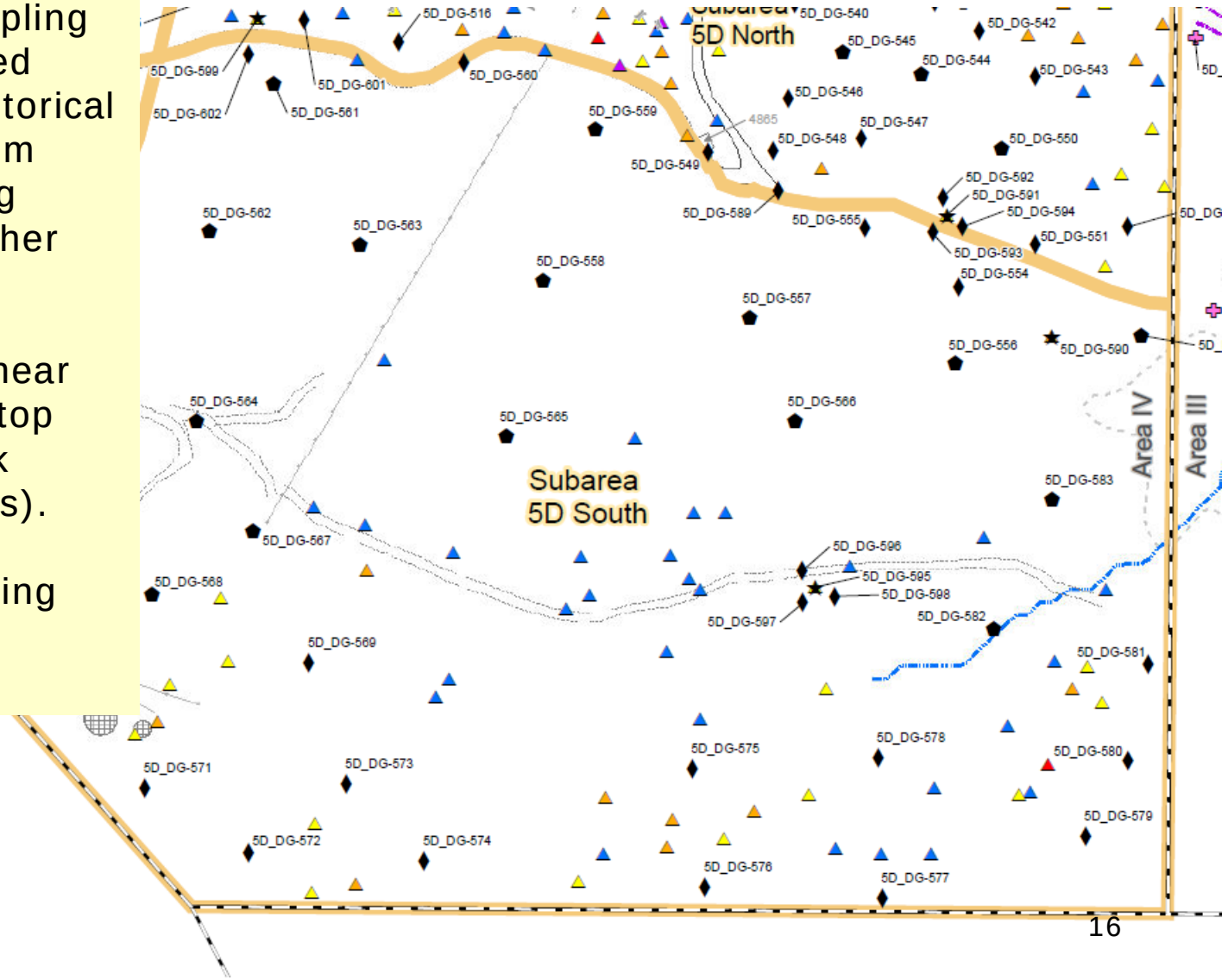
Pond Dredge Area

- Step-out samples targeting LUT exceedances (primarily PAHs, metals, dioxins)
- Test pits to investigate geophysical anomalies
- Samples in south both serve as step-outs and to assess historical surface water feature along roadway

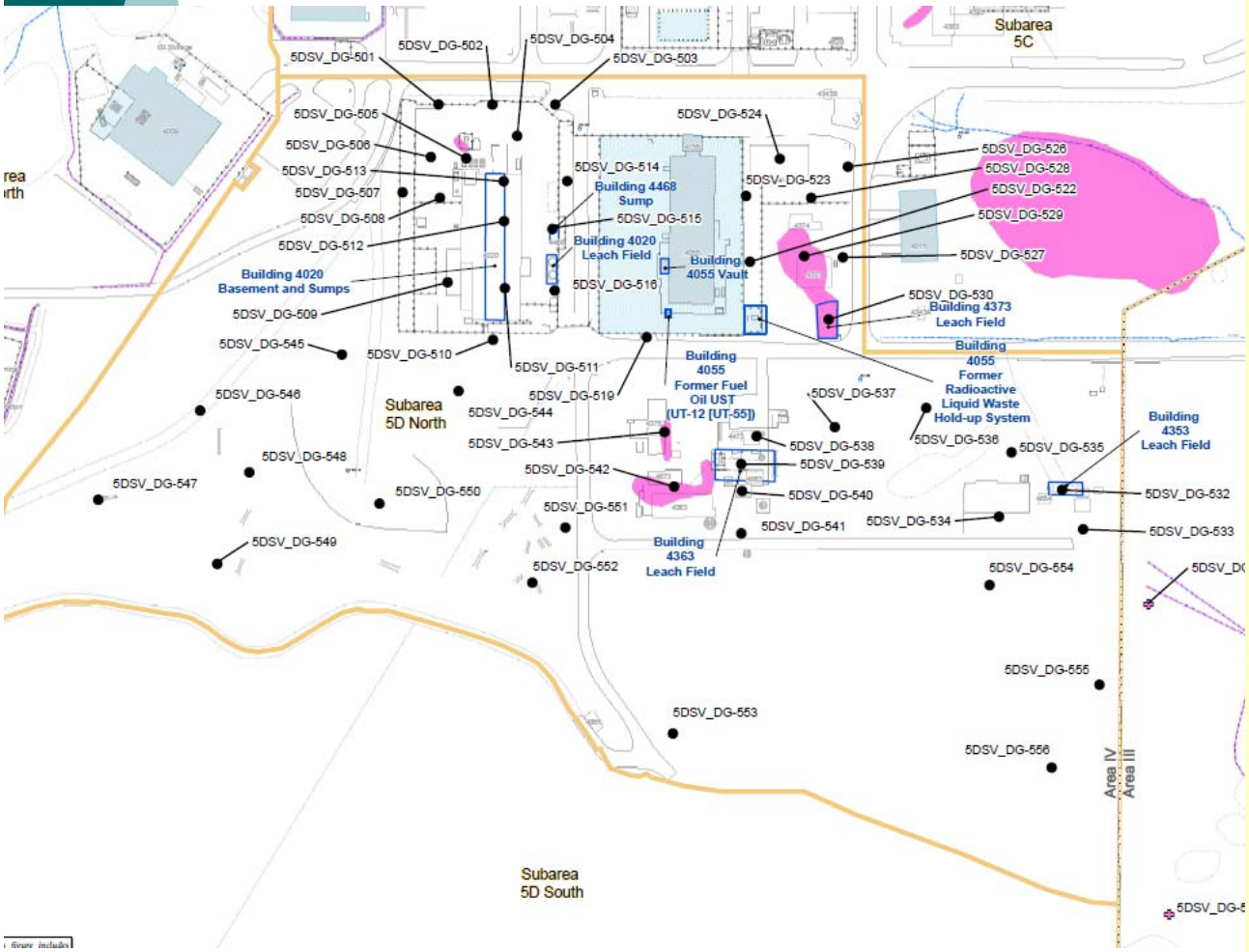


Subarea 5D South Area

- Representative sampling in open, undeveloped area to evaluate historical aerial dispersion from former open burning activities or from other operations
- Step-out sampling near exceedances on hilltop and near water tank (PAHs, dioxins, PCBs).
- Also some re-sampling locations to confirm previous results



Subarea 5D Soil Vapor Sampling Locations



Soil Vapor Locations

- 52 locations proposed in operations areas (none in Subarea 5D South Area)
- Targeted features include
  - Building 4020 leach field, building basement, and potential disposal area to west
  - Building 4353, 4363, and 4373 leach fields and operational areas
  - Current and historical drainage features
  - Former storage areas
  - Disturbed soil and geophysical anomaly areas
  - Building 4055 soil vapor sampling after building demo, including UT-12 and liquid waste hold up vault

Summary of Subarea 5D Proposed Phase 3 Sampling Locations

- About 304 soil matrix samples proposed at 107 locations
- About 135 soil vapor samples proposed at 52 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 NBZ – October 2013
- Begin evaluation for final data gap sampling based on Look-Up Table values
  - Initial Look-Up Table 'Go-Back' evaluation in progress for 5A North since sampling not yet performed there
    - Results of 5A North re-evaluation and changes will be documented and approved by DTSC before implemented
  - Planning additional meetings to review final data gap analysis for other subareas
- Continue Phase 3 Sampling – field work for Subarea 5D will begin following DTSC approval

Coming Attractions

- Soil Treatability Study Group – University researchers developing work plans for DTSC review approval. Potential field trips to watch seed gathering and/or to see the work in the labs
- EIS – activities ongoing
- Upcoming groundwater activities

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!
Include base map features on legend hand out.	6/11/13	Done.
What are NPDES monitoring requirements below Building 4056 Landfill, and what are the results?	6/11/13	Summary of NPDES requirements and data for Building 4056 Landfill in progress.
Add sampling location south of UT-3 near ditch.	6/11/13	Done.
Stakeholder request e-copy of FSDF IM report.	6/11/13	Done.