



Phase 3 Chemical Sampling – Subarea 5A

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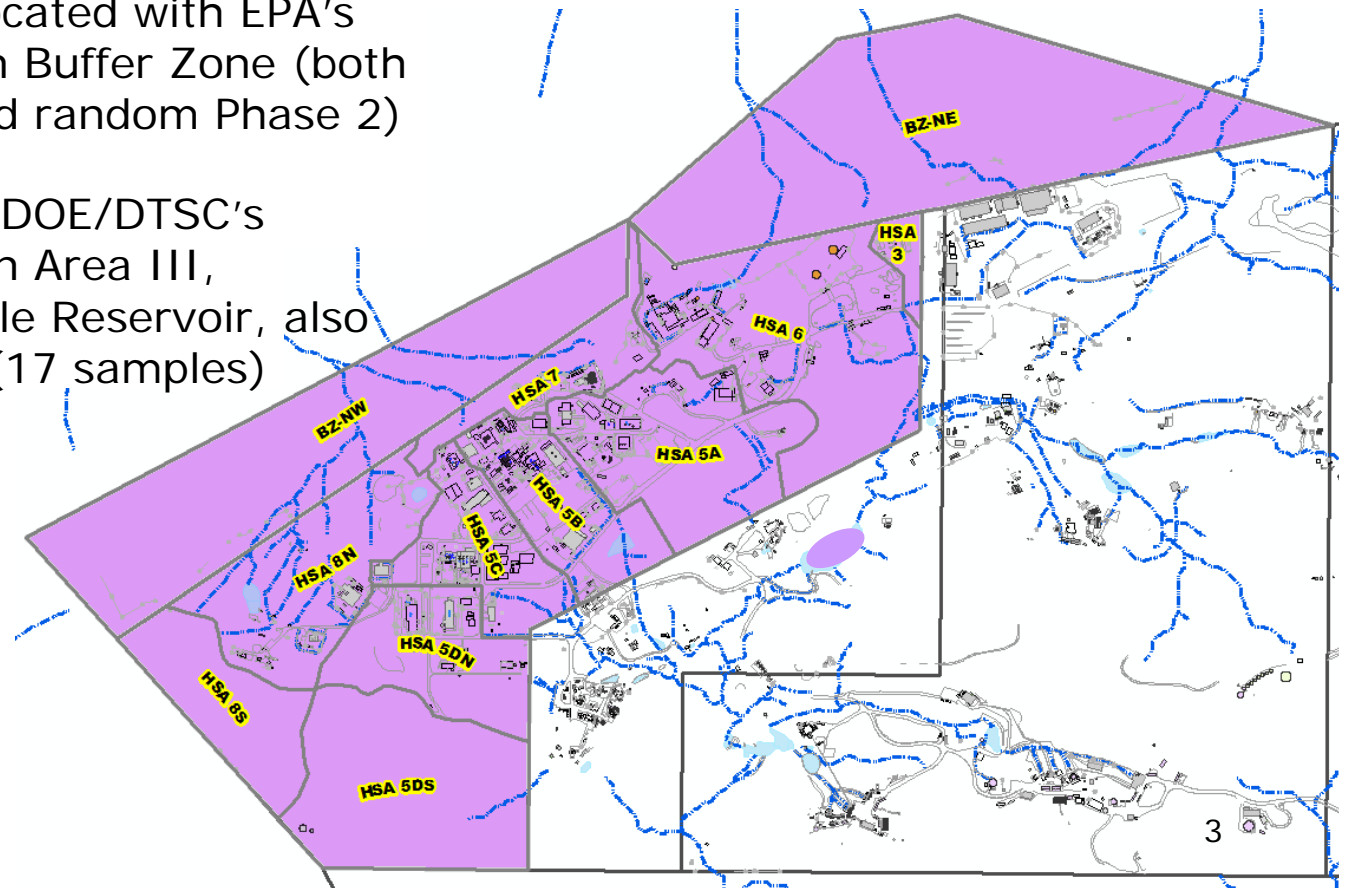


Area IV Chemical Soil Sampling

- The DTSC/DOE AOC identifies 3 chemical sampling phases:
 - Phase 1 is co-located targeted sampling performed with EPA (completed in Spring 2012)
 - Phase 2 is co-located random sampling performed with EPA (completed in Spring 2012)
 - Phase 3 is sampling at chemical 'data gap' locations, or areas where more information is needed for remedial planning (currently underway in Subareas 5B and 5C)

Recap of Phase 1 and 2 Co-located Sampling Status

- Soil sampling with EPA completed in all HSA subareas within Area IV with ~2700 samples collected to date
- DOE/DTSC has co-located with EPA's work in the Northern Buffer Zone (both targeted Phase 1 and random Phase 2)
- EPA co-located with DOE/DTSC's sediment sampling in Area III, including at Silvernale Reservoir, also recently completed (17 samples)





Phase 3 Chemical Soil Sampling

- Phase 3 chemical soil sampling is being conducted to collect sufficient chemical data for remedial planning
- Since April, we've been conducting data gap sampling in Subareas 5C and 5B:
 - 5C: ~75 percent complete, 480 samples collected
 - 5B: ~25 percent complete, 180 samples collected
- Master Planning documents and Field Sampling Plan Addenda 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 5A





Phase 3 Chemical Data Gap Investigation

- DOE remains committed to the 2010 AOC and our intent is to complete Phase 3 data gap sampling in Spring/Summer 2013
 - We need your input as we finalize each of the Subarea sampling plan addenda
 - There will be periodic public meetings to get this input – last time for 5B, this time for 5A, etc.
- DTSC will describe the Phase 3 approach and Subarea 5A sampling plan addendum



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
- Chemical data collected to date in Area IV serve as a foundation for planning this work
 - RCRA Facility Investigation (~3400 samples)
 - AOC Phase 1 and 2 co-located (~2700 samples)
- EPA radiological data summaries are also being used in chemical data gap planning



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

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?
 - >> Interim screening levels (ISLs), based on interim background values and reporting limits, are being used for screening until the Lookup Table values are established by DTSC

Combined Analyte Detect / ISL

- ▲ < 1 ISL
- ▲ 1x to 2x ISL
- ▲ 2x to 10 x ISL
- ▲ 10x to 100x ISL
- ▲ >100x ISL

Combined Analyte ND / ISL

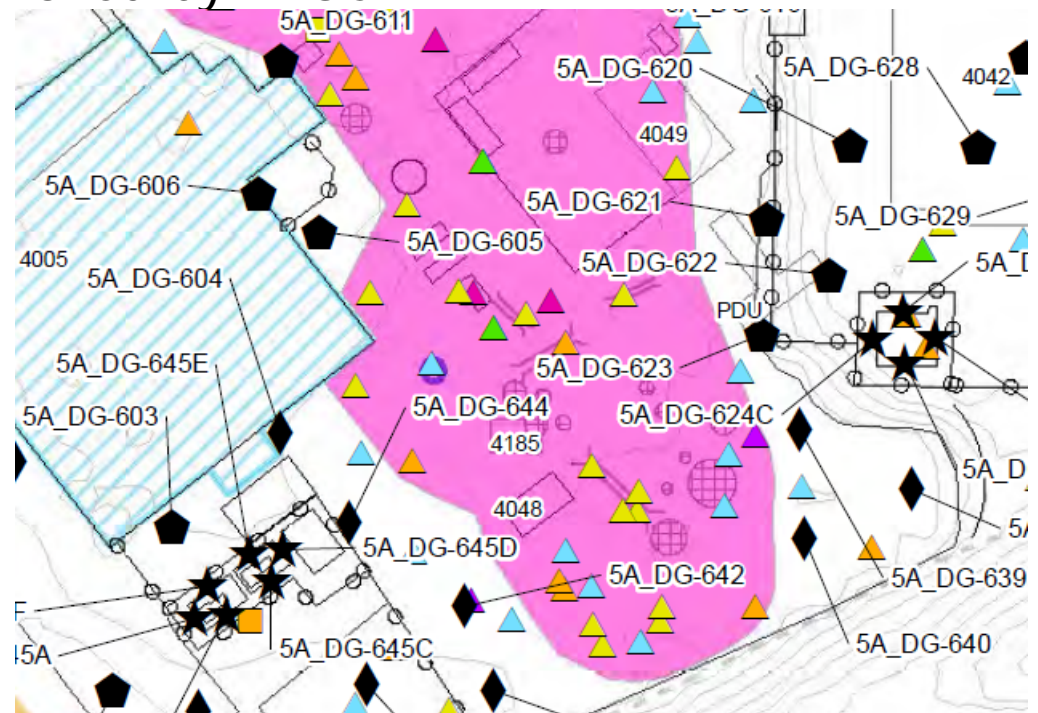
- < ISL
- 1x ISL to 2X ISL
- 2x ISL to 10x ISL
- 10x ISL to 19x ISL

Combined Analyte Detect / LDC

- ▲ < 1 x LDC

Combined Analyte ND / LDC

- < 1 x LDC





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.

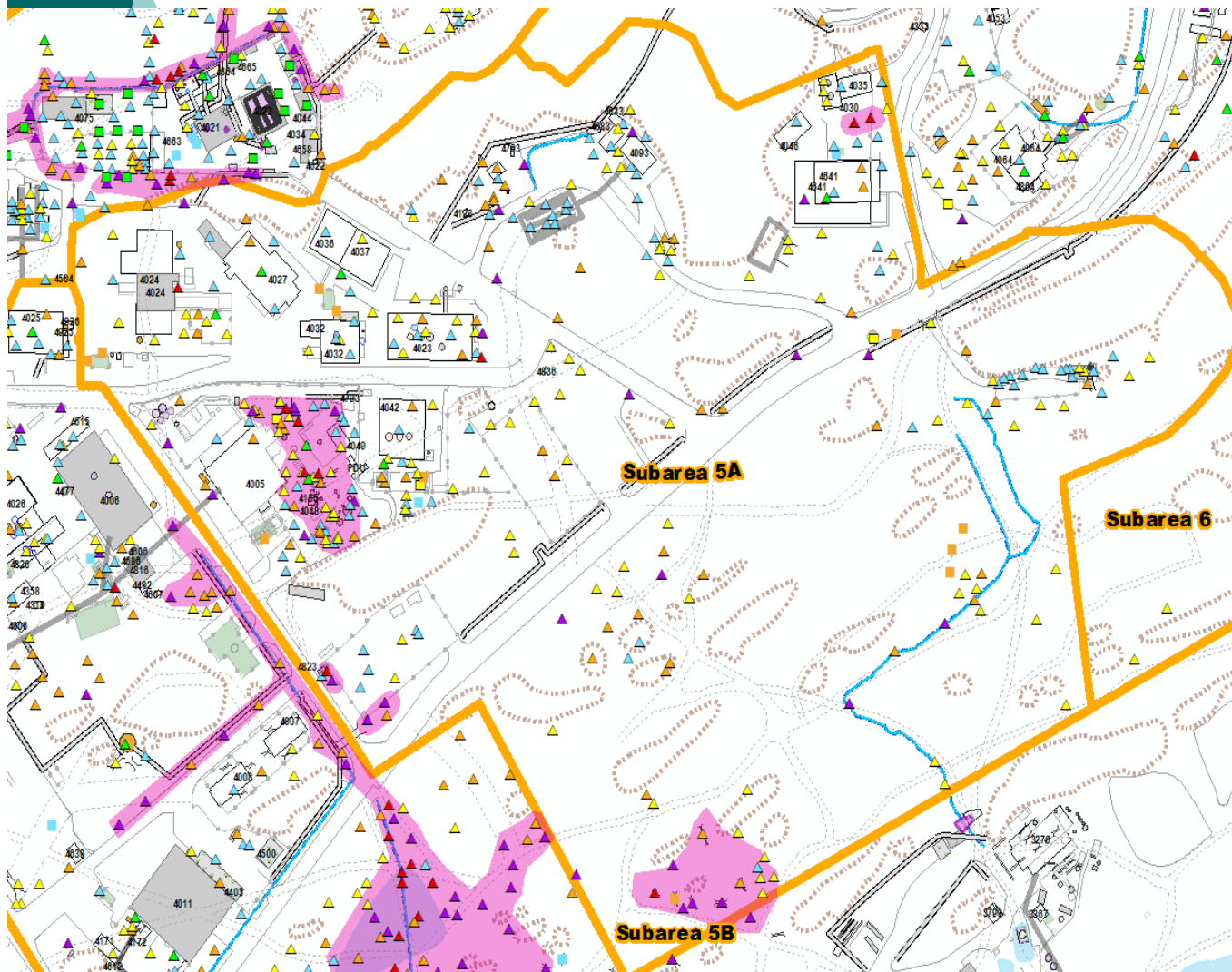


Data Gap Process Summary

- 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 5A Chemical Sampling Results

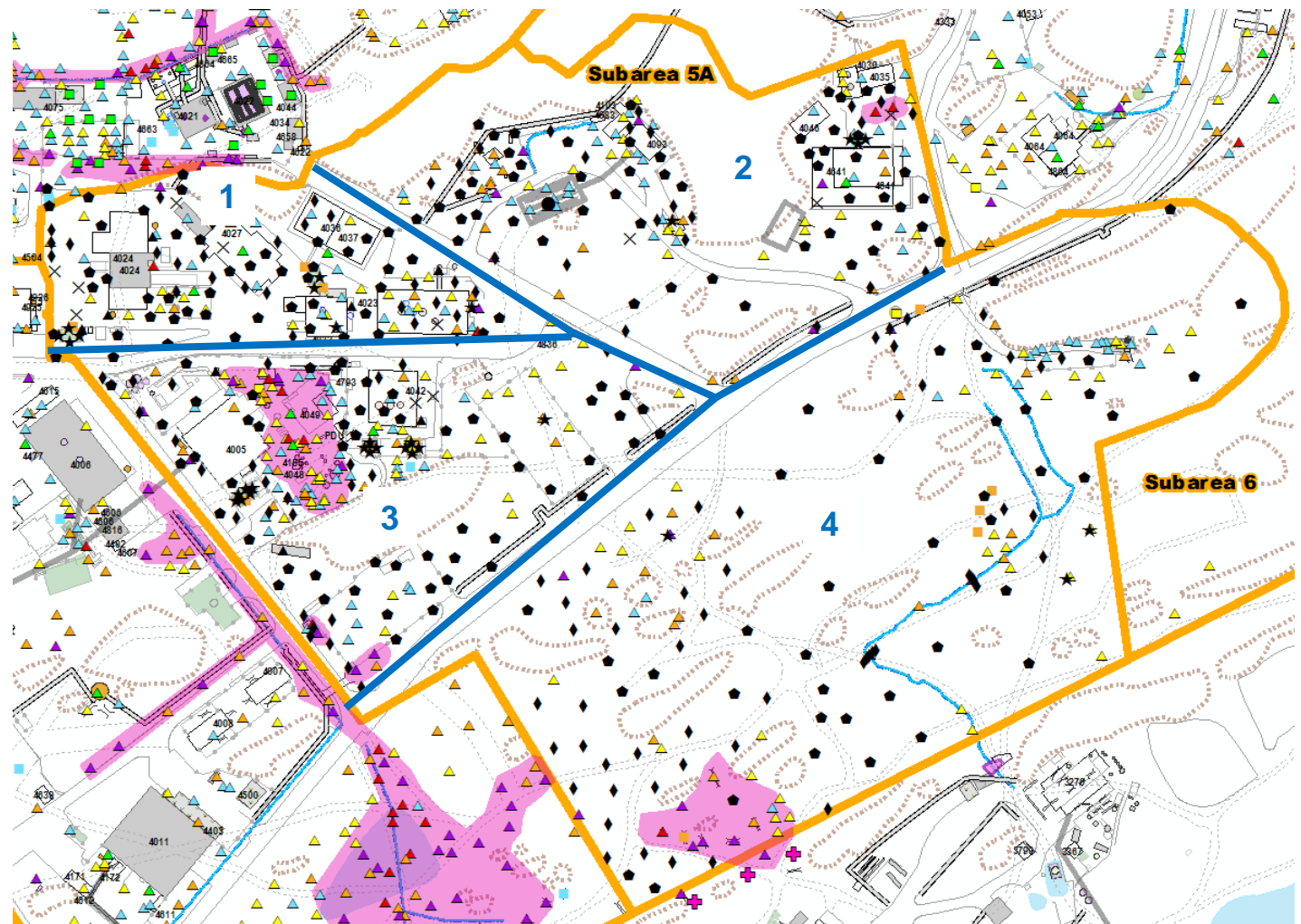


Over 360 samples previously collected

5 Clearly Contaminated Areas identified- the two largest are the PDU and Eastern Hummocky Areas

Overview of 5A Phase 3 Proposed Sampling Locations

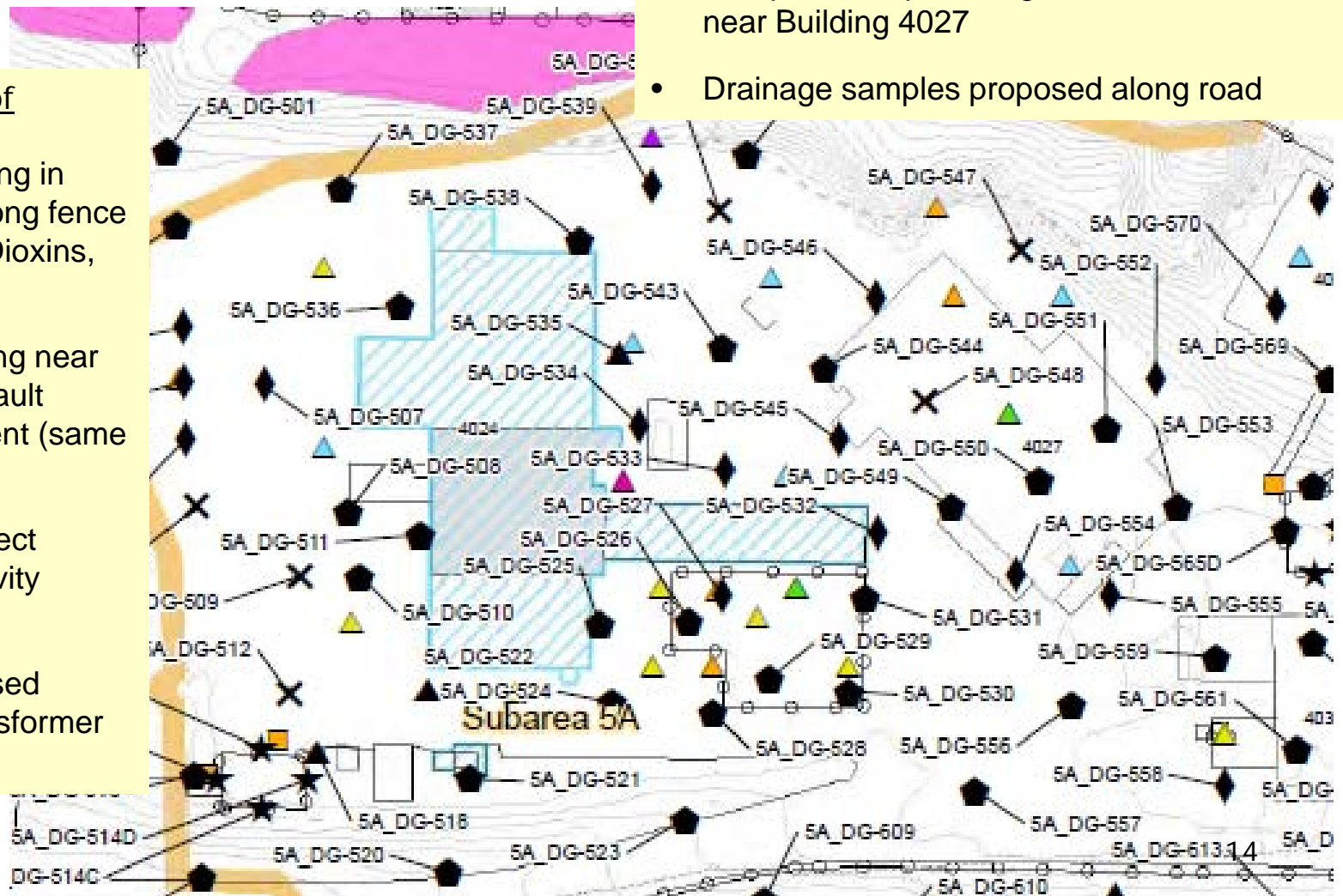
1. SNAP Environmental Test Facility (SETF) Area
2. KEWB/AE6 Building 4641 Area
3. Coal Gasification Process Development Unit (PDU) Area
4. 5A South Area



Western SETF - Building 4024 Area

West and North of Building 4024 –

- Step-out sampling in storage area along fence (PAHs, PCBs, Dioxins, Metals, TPH)
- Deep fill sampling near Building 4024 vault storage basement (same suite)
- Test pits to inspect terrain conductivity anomalies
- Samples proposed around two transformer pads for PCBs



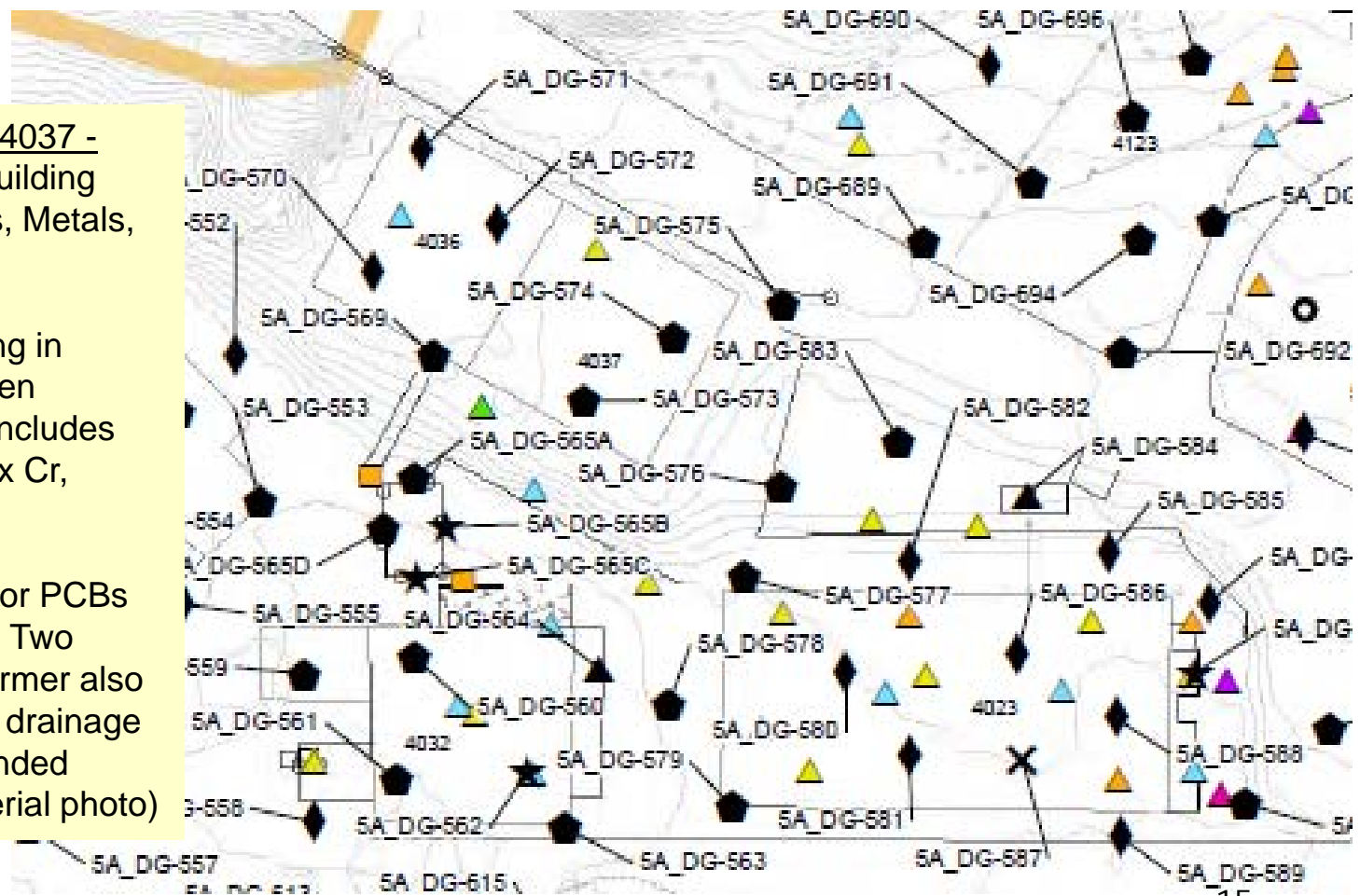
East and South of Building 4024 –

- Representative sampling in fill for former waste holdup tank area (Gantry Crane area)
- Step-outs and step-downs for chemicals detected in area (primarily PAHs, Dioxins, Metals, TPH)
- Test pits to inspect magnetometer anomalies near Building 4027
- Drainage samples proposed along road

Eastern SETF – Building 4023 Area

Buildings 4023, 4032, and 4037 -

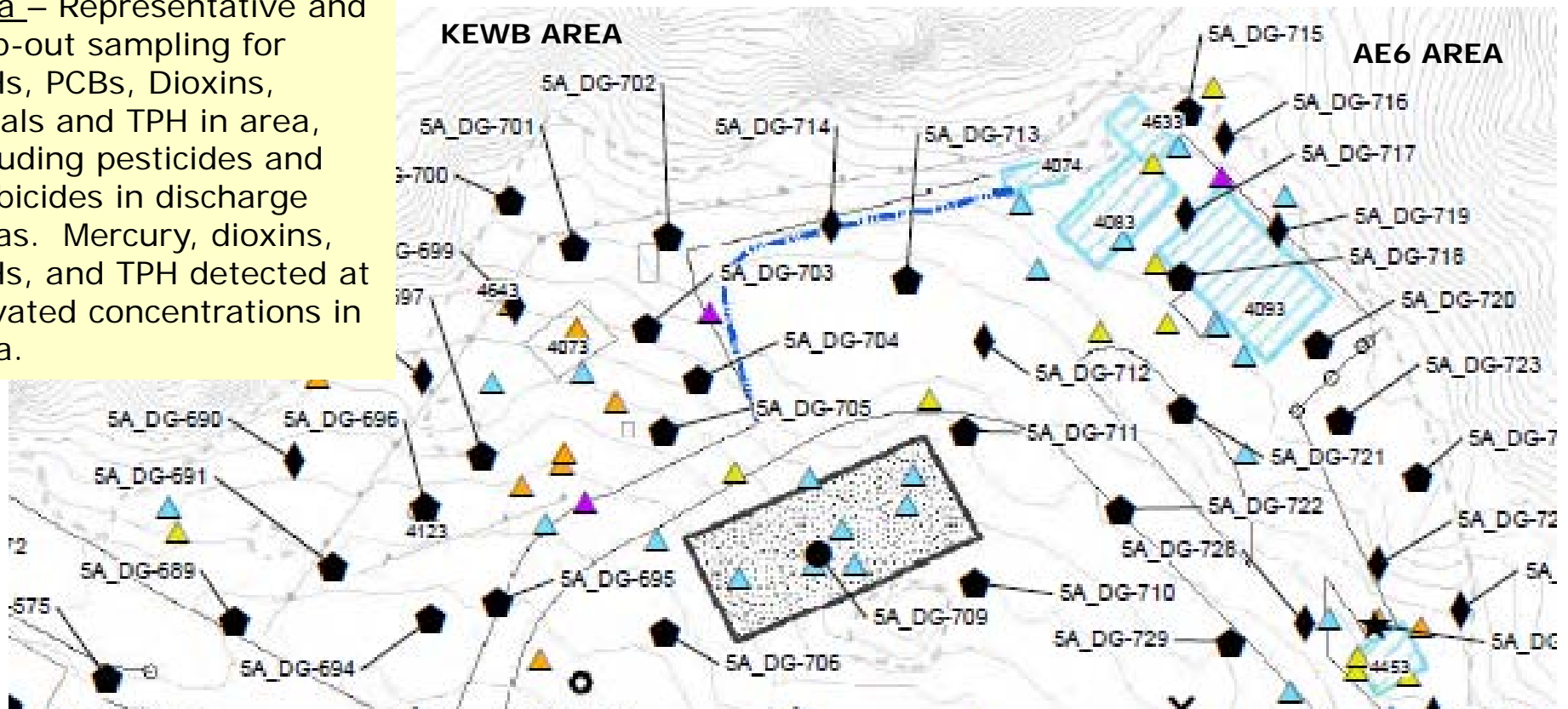
- Step-out sampling at Building 4023 for PCBs, Dioxins, Metals, and TPH
- Representative sampling in operational area between Buildings 4023 / 4032 includes cooling tower suite (Hex Cr, NDMA, Formaldehyde)
- Transformer sampling for PCBs north of Building 4032. Two locations at this transformer also target other features (a drainage pathway and light mounded material observed in aerial photo)



Western Building 4641 Area – KEWB and AE6 Reactors

Building 4073 (KEWB)

Area – Representative and step-out sampling for PAHs, PCBs, Dioxins, Metals and TPH in area, including pesticides and herbicides in discharge areas. Mercury, dioxins, PAHs, and TPH detected at elevated concentrations in area.

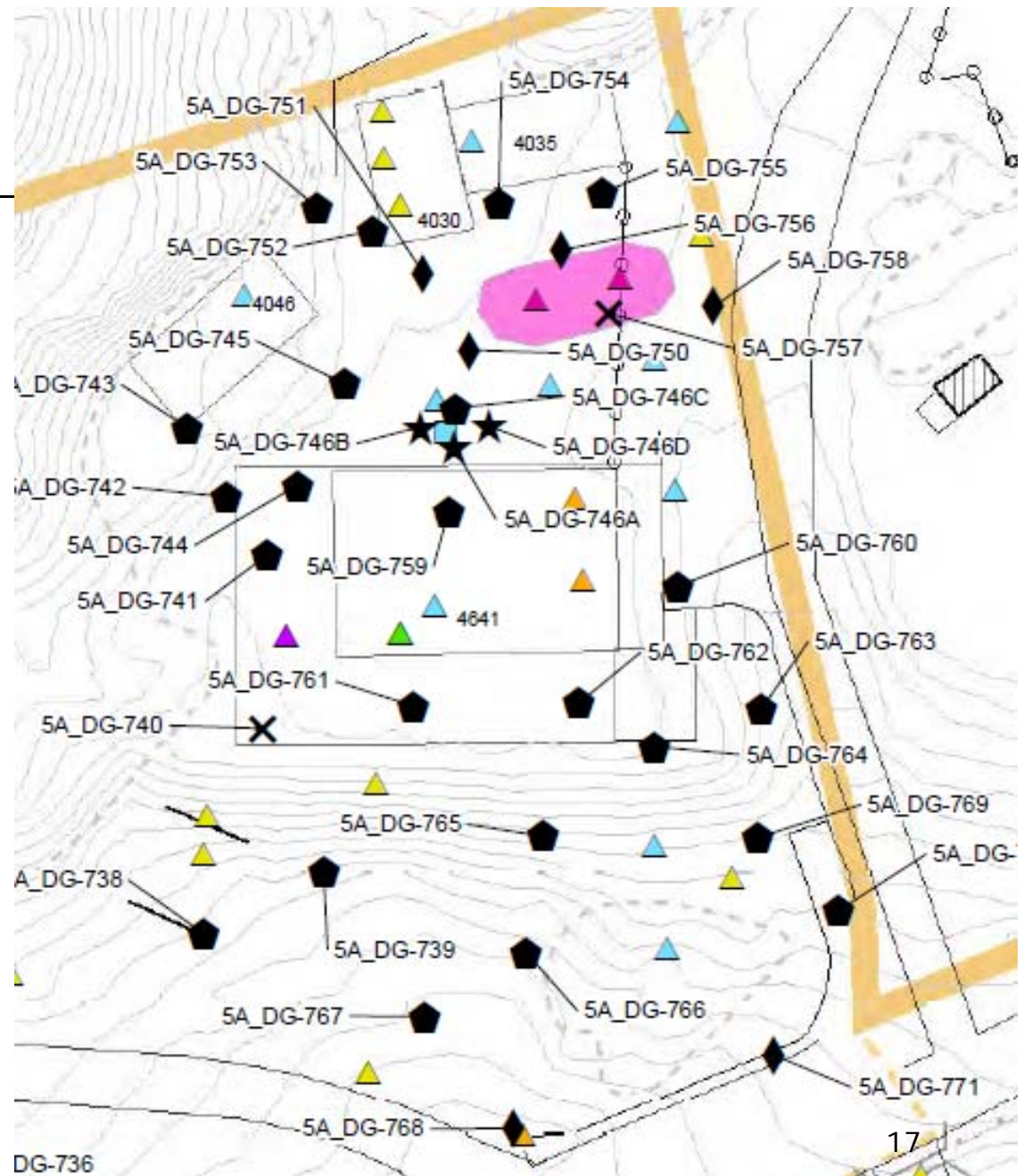


Building 4093 (AE6) Area–

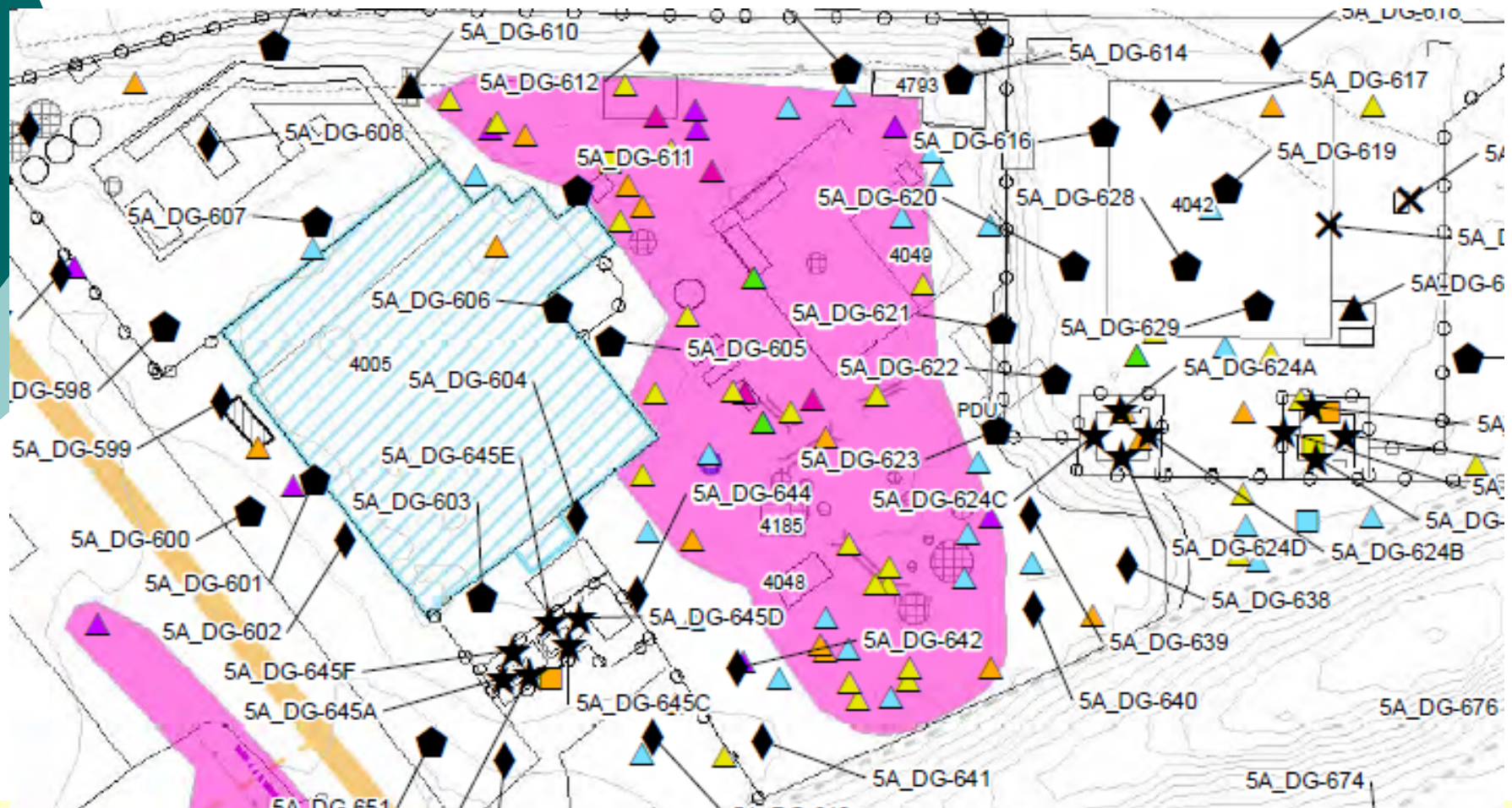
- Representative sampling in operational area, including terphenyl (former tank), and cooling tower suite (cooling water pad)
- Step-out sampling for mercury /TPH in north, and dioxins, metals, PAHs, and pesticides in south
- Sampling downslope of leach field to check for contaminant migration, also terphenyl sampling w/in leach field

Building 4641 Area

- Step-out sampling around clearly contaminated area for dioxins, metals, PCBs, and TPH
- Resampling for PCBs at former transformer
- Representative sampling for PAHs, PCBs, Dioxins, Metals, and TPH in open storage areas, fill materials and drainages
- Test pits to observe and sample linear terrain conductivity and magnetometer geophysical anomalies



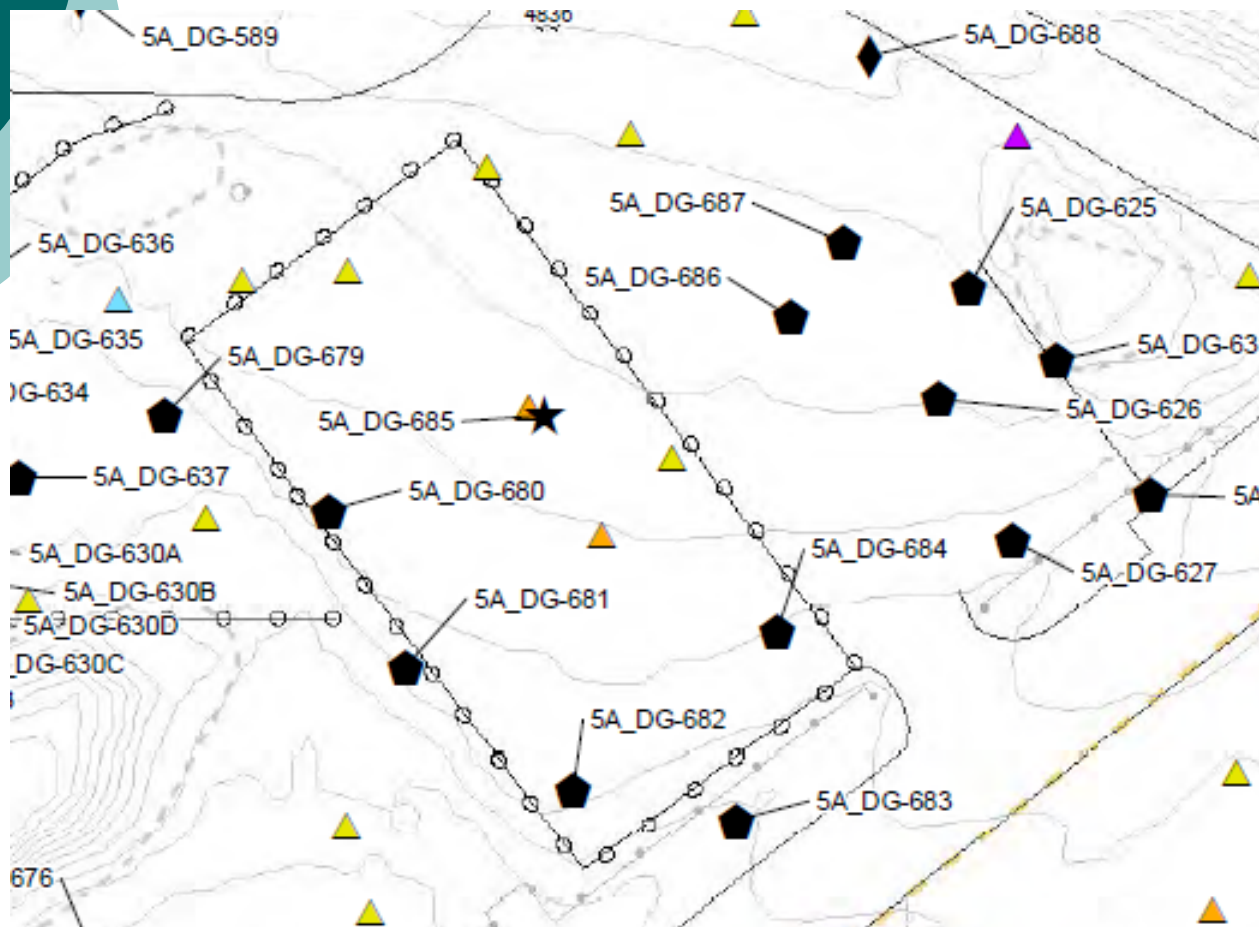
PDU Area



Building 4005 Area–

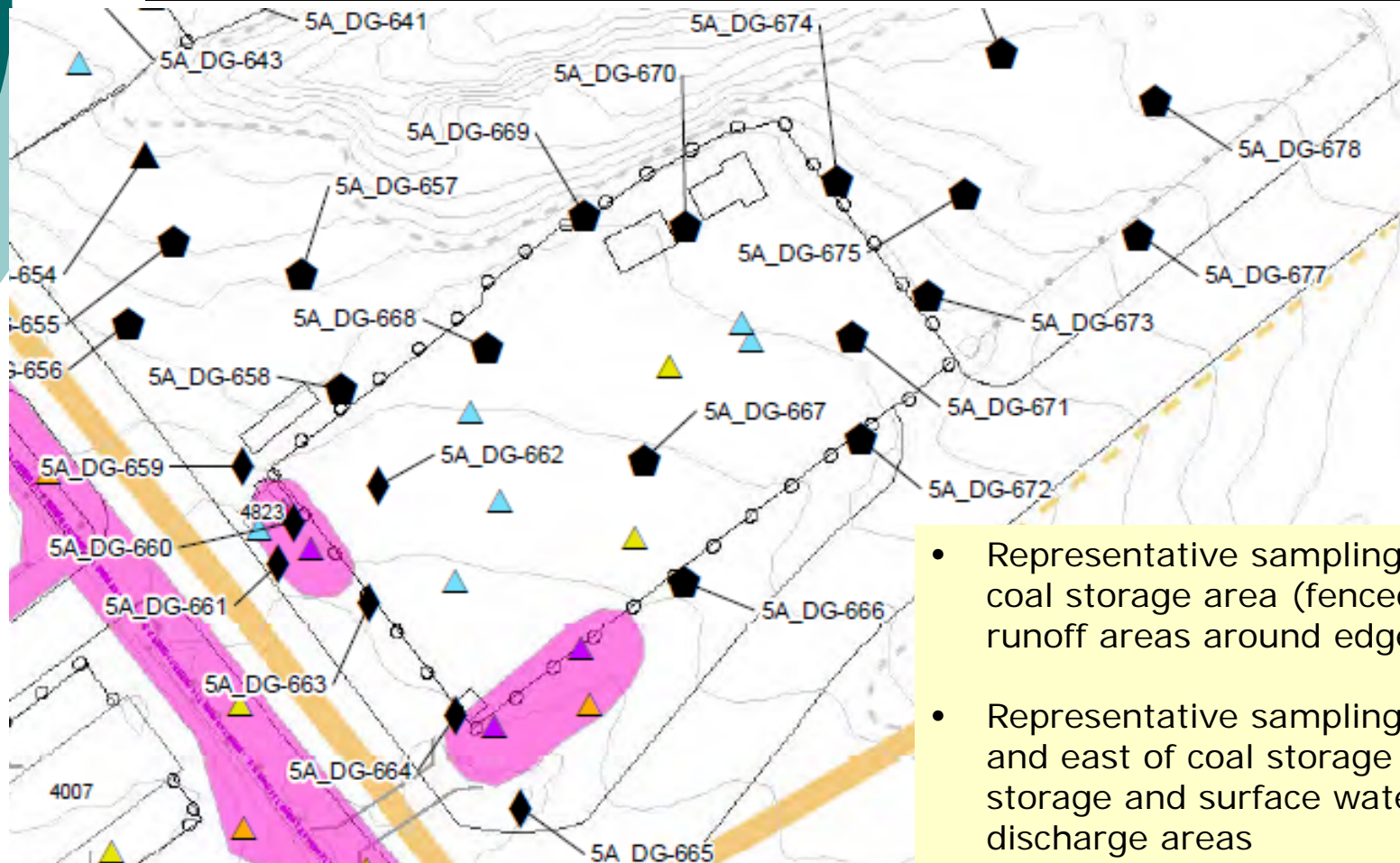
- Representative sampling in operational areas, including storage tanks, sewer line discharge pipes, floor trench locations, and possible staining locations; includes cooling tower suite for locations near cooling towers.
- Step-out sampling around clearly contaminated area for PAHs, PCBs, Dioxins, Metals, TPH
- Resampling for PCBs at former transformer locations

East of PDU



- Representative sampling in open storage area noted within fenced yard, as well as on runoff areas outside of yard
- Representative sampling of mounded materials observed in historical aerial photographs east of yard, and in adjacent drainage
- Resampling to confirm perchlorate detection within storage yard

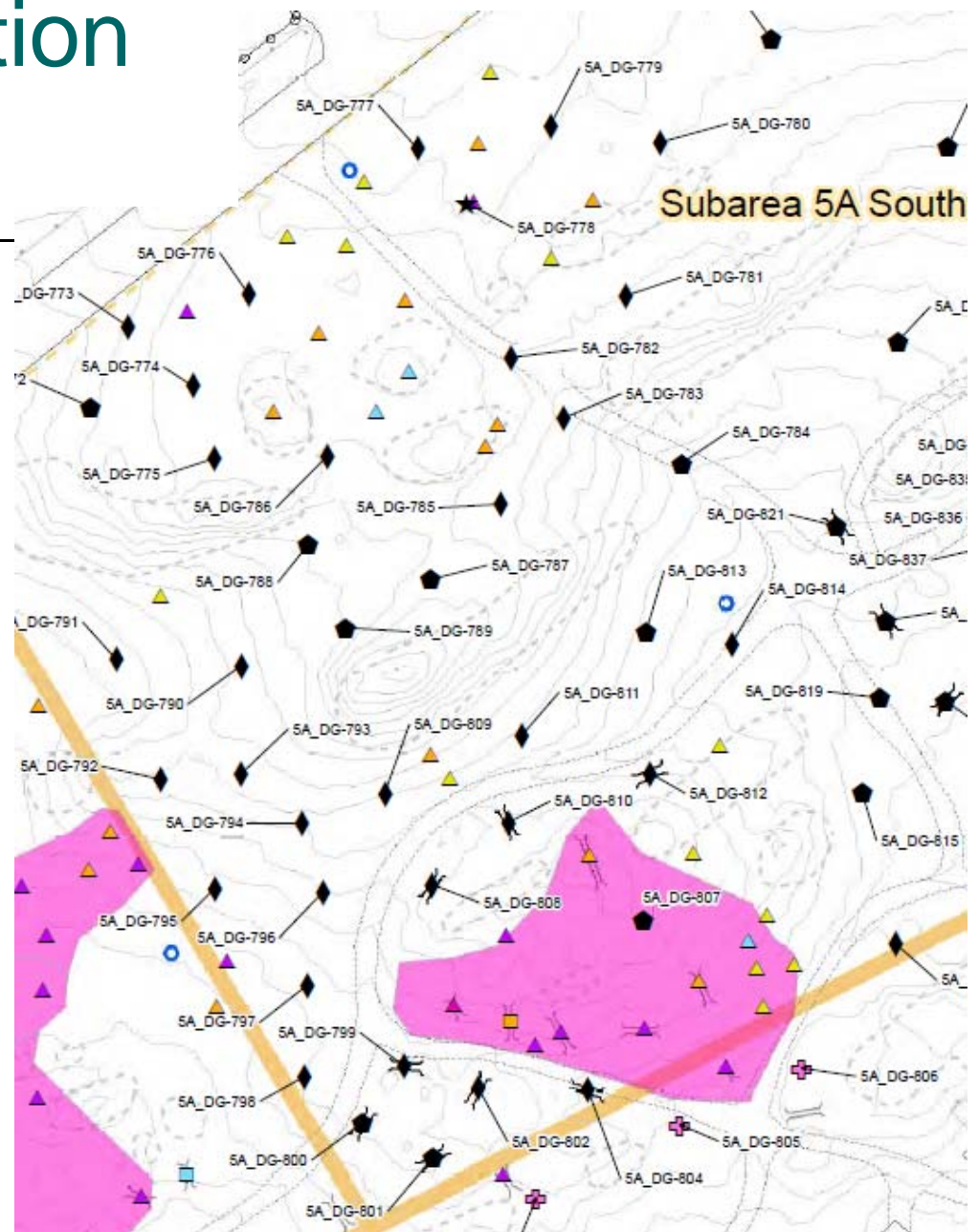
South of PDU



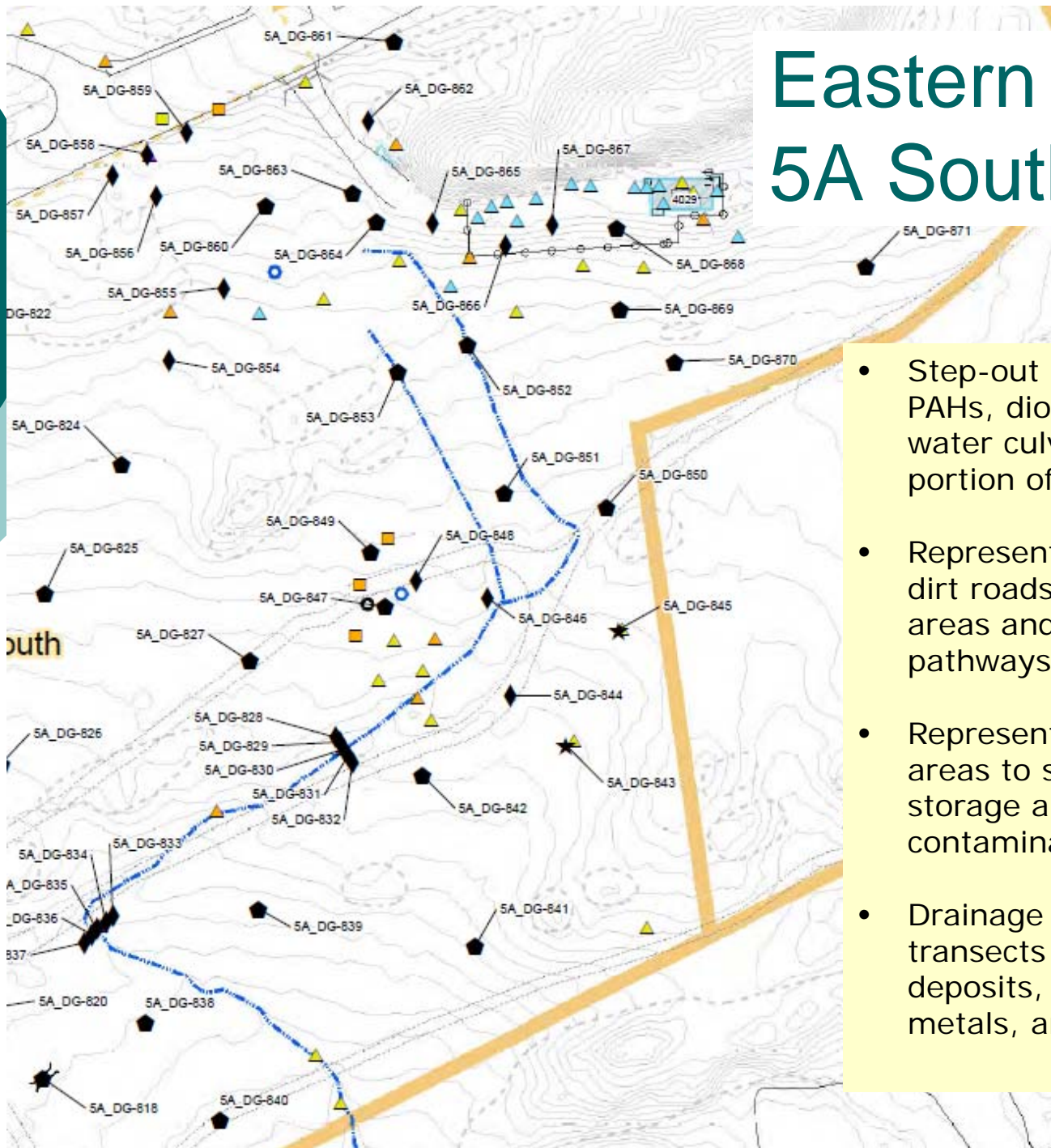
- Representative sampling within coal storage area (fenced), and in runoff areas around edge
- Representative sampling to north and east of coal storage yard for storage and surface water discharge areas
- Step-out sampling near clearly contaminated areas

Western Portion of 5A South

- Step-out sampling between Eastern Hummocky Area and 17th Street Pond clearly contaminated areas
- Trenching and representative sampling in other soil mounds identified near Eastern Hummocky Area (testing of both soil pile materials and native soils beneath); future sampling at down gradient areas in Area III
- Step-out samples in northern open storage area for PAHs, dioxins, metals, and TPH

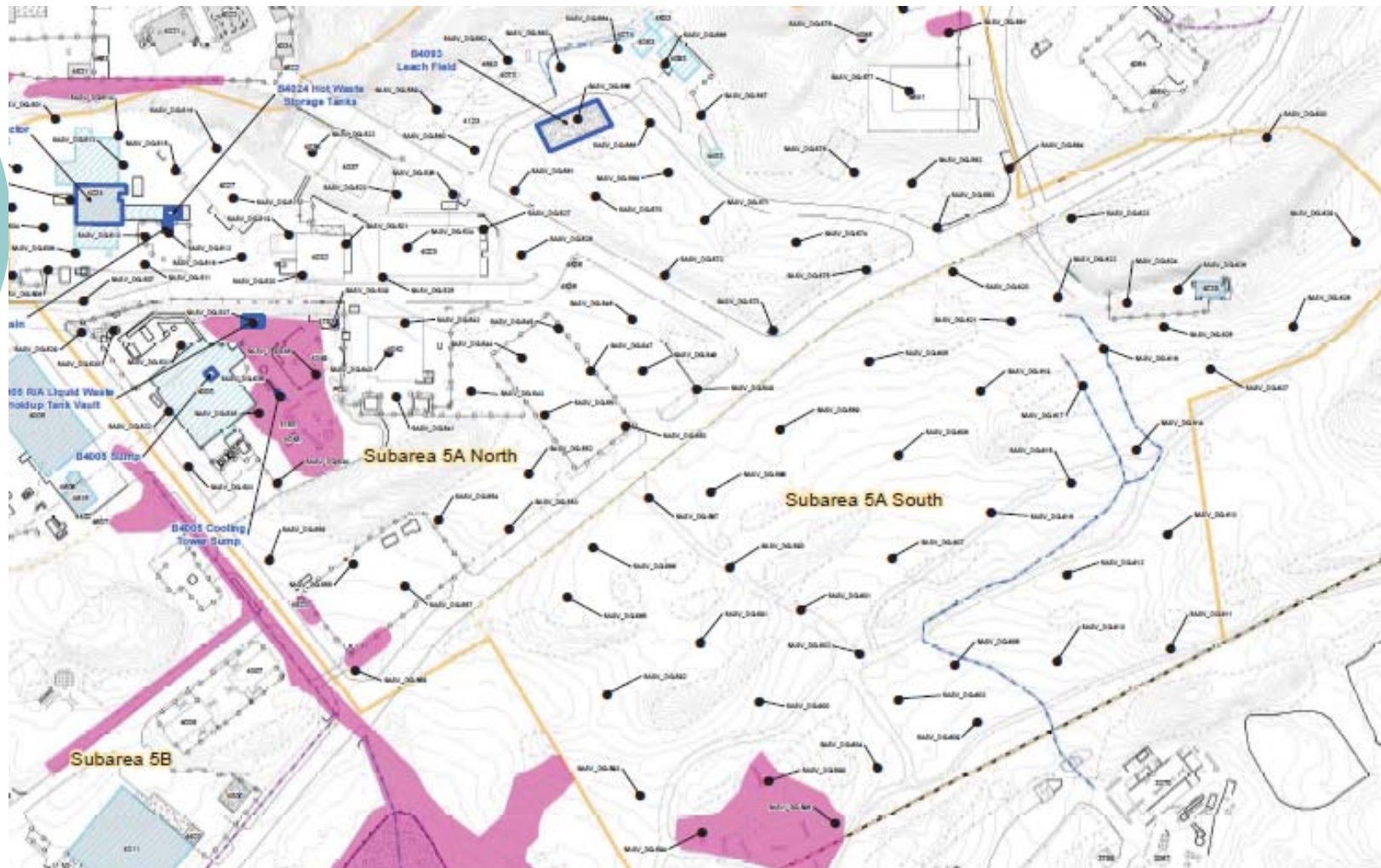


Eastern Portion of 5A South



- Step-out sampling in north for PAHs, dioxins, metals near storm water culvert from northern portion of Subarea 5A
- Representative sampling along dirt roads between operational areas and adjacent surface water pathways
- Representative sampling in open areas to screen for potential storage and migration of contaminants by sheet flow
- Drainage sampling, including transects to assess bank deposits, for PAHs, dioxins, metals, and TPH

5A Soil Vapor Sampling Locations



Soil Vapor Locations – ~ 130 locations to provide coverage throughout 5A area, forming a biased grid. Targeting selected locations within overall footprint, with more samples in the north due to density of operations. Targeted features include leach field areas, deep reactor and vault locations, subgrade conveyance trenches, open storage areas, and drainages.



Summary of 5A Proposed Phase 3 Sampling Locations

- ~350 soil matrix sampling locations proposed (~ 700 samples)
- ~130 soil vapor sampling locations proposed (~ 200 samples)
- Chemical suites proposed based on step-out requirements, or for evaluation of new and/or existing features



Coming Attractions

- DOE/DTSC Sponsored Community Field Visit
September 19
- Conduct Next Chemical Data Gap Investigation
Stakeholder Meeting – tentatively in
October/November
- Post Phase 1 Results Tech Memos
- Next Soil Treatability Study Group Meeting -
September 27
- EIS Screening Criteria Discussion meeting -
tentatively October/November

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 July 2012. 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.
Add geotechnical analysis for grain size at several proposed soil sample locations near or within the 17 th Street Pond. Additional analysis in proposed plan may not be needed if previous Phase 1 co-located samples have been archived by the laboratory and could be run instead.	4/24/12	Request deferred to Soils Treatability Investigation Group (STIG) planning since this type of data will be needed for remedial planning.
Provide stakeholder copy of ISL table and link to DTSC website.	4/24/12	Done