DTSC / DOE Planning and Strategy Meeting for Chemical Soil Sampling

Technical Working Group Presentation
December 14, 2011

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This morning's agenda

Welcome and introductions	9:00 - 9:15 am
Where we are in the process	9:15 - 9:30 am
Approach to Phase 3 and Selection of sample locations	9:30 - 10:45 am
Break	10:45 - 11:00 am
Preview of coming attractions	11:00 - 11:10 am
Input from the community	11:10 - 11:50 am
Next step and action items	11:50 - 12:00 noon

DOE budget and priorities

- DOE is committed to full compliance with the 2010 Administrative Order on Consent
- The budget situation for all federal agencies is gruesome
- Things have changed; opportunities provided by the stimulus money will not continue
- ETEC is not immune

Funding priorities for 2012

1. Complete soil sampling in Area IV and the Northern Buffer Zone
2. Continue Soil Treatability Study
3. Ongoing environmental and groundwater monitoring
4. Ongoing community involvement activities
5. EIS, building sampling, and groundwater treatability studies

Work to be accomplished beyond 2012

- Ongoing environmental & groundwater monitoring and community involvement activities
- Complete Soil Treatability Study
- Complete NEPA compliance
- Building demolition
- Soil sampling under the buildings
- Soils Remedial Action Implementation Plan
- Support DTSC's CEQA compliance
- Cleanup

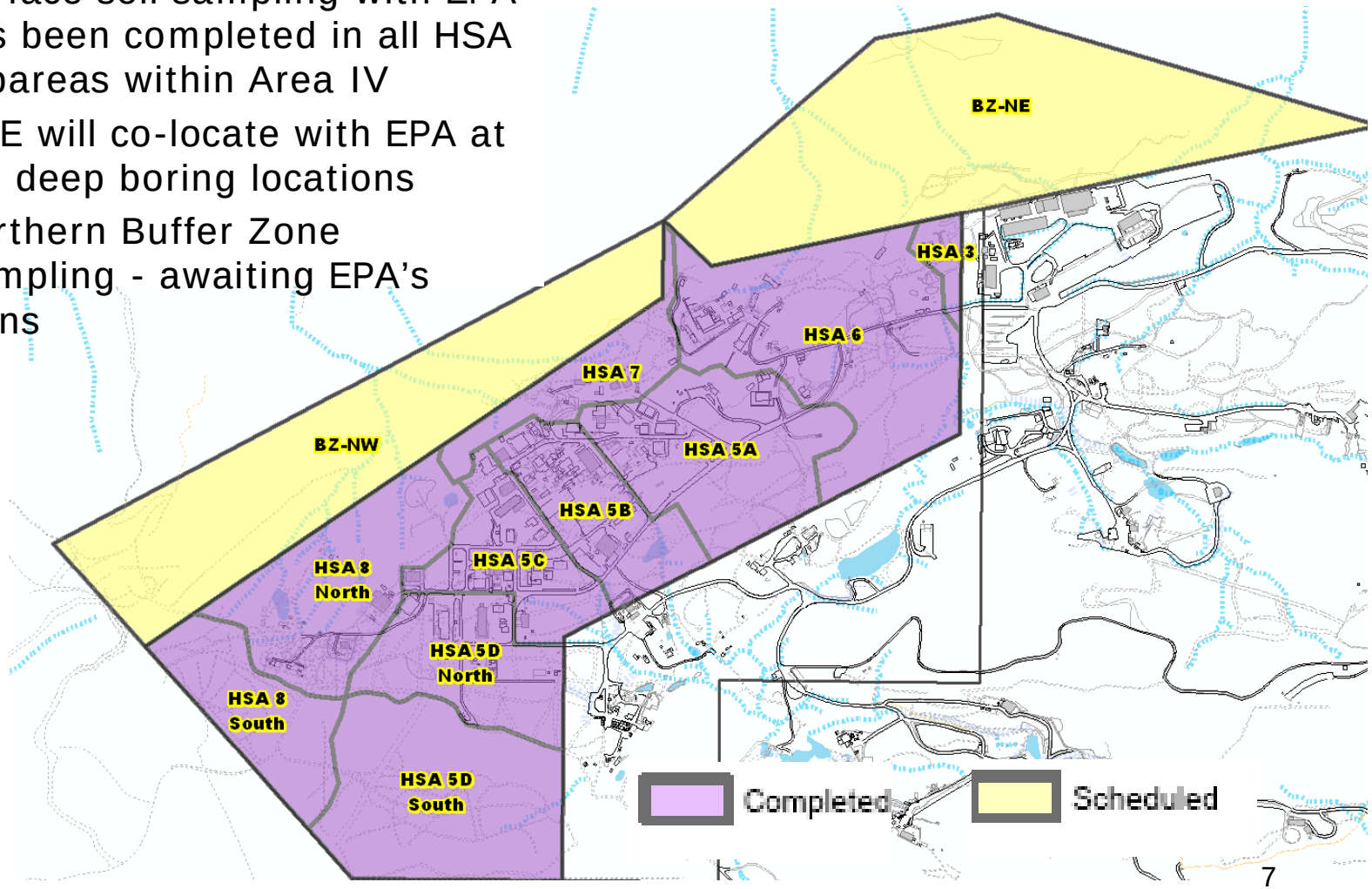
Budget is expected to remain tight

Today's discussion

- Our planned approach and strategy for conducting Phase 3 of the soil sampling
- After the presentation, we would like input on:
  - Proposed approach to Phase 3 sampling
  - Our funding priorities

Status of Co-Located Sampling

- Surface soil sampling with EPA has been completed in all HSA subareas within Area IV
- DOE will co-locate with EPA at the deep boring locations
- Northern Buffer Zone Sampling - awaiting EPA's plans



Phase 1 Co-Located Chemical Soil Sampling Status

HSA	Soil Samples Collected	Data / Reporting Status
5C	264	Report prepared/on website
5B	512	Report in preparation
5A	288	Report in preparation
8 North	171	Data review completed
5D North	441	Data review completed
6	352	Receiving data from lab

Phase 1 Co-Located Chemical Soil Sampling Status

HSA	Soil Samples Collected	Data / Reporting Status
7	261	Receiving data from lab
5D South	59	Receiving data from lab
8 South	35	Receiving data from lab
3	13	Receiving data from lab
Drainage	40	Report under review
	2,436 samples to date	

Where we are going – Phase 2 / 3 Chemical Soil Sampling

- In addition to Phase 1, the AOC identifies 2 additional chemical sampling phases:
  - Phase 2 will be co-located random sampling to be performed with EPA
  - Phase 3 will be samples where a chemical data gap analysis indicates the need for more characterization data
- Planning for Phase 2 is pending evaluation of random sampling needs
- Phase 3 planning by HSA subarea has started using currently available validated sampling results, and is the focus of the remainder of today's meeting

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

- Data gaps exist where more information is needed for 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

1. Existing sampling results are compared to criteria to answer several questions —
   - Are the data adequate to define the extent of soil contamination? That is: What is the areal extent? How deep does it go?
   - Where are additional data needed?
   - What types of chemical data are needed?

>> 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

>> Data Screening Technical Memos are being prepared to present the screening results to help answer the questions above

Examples of 5C Data Screening – Combined Chemicals

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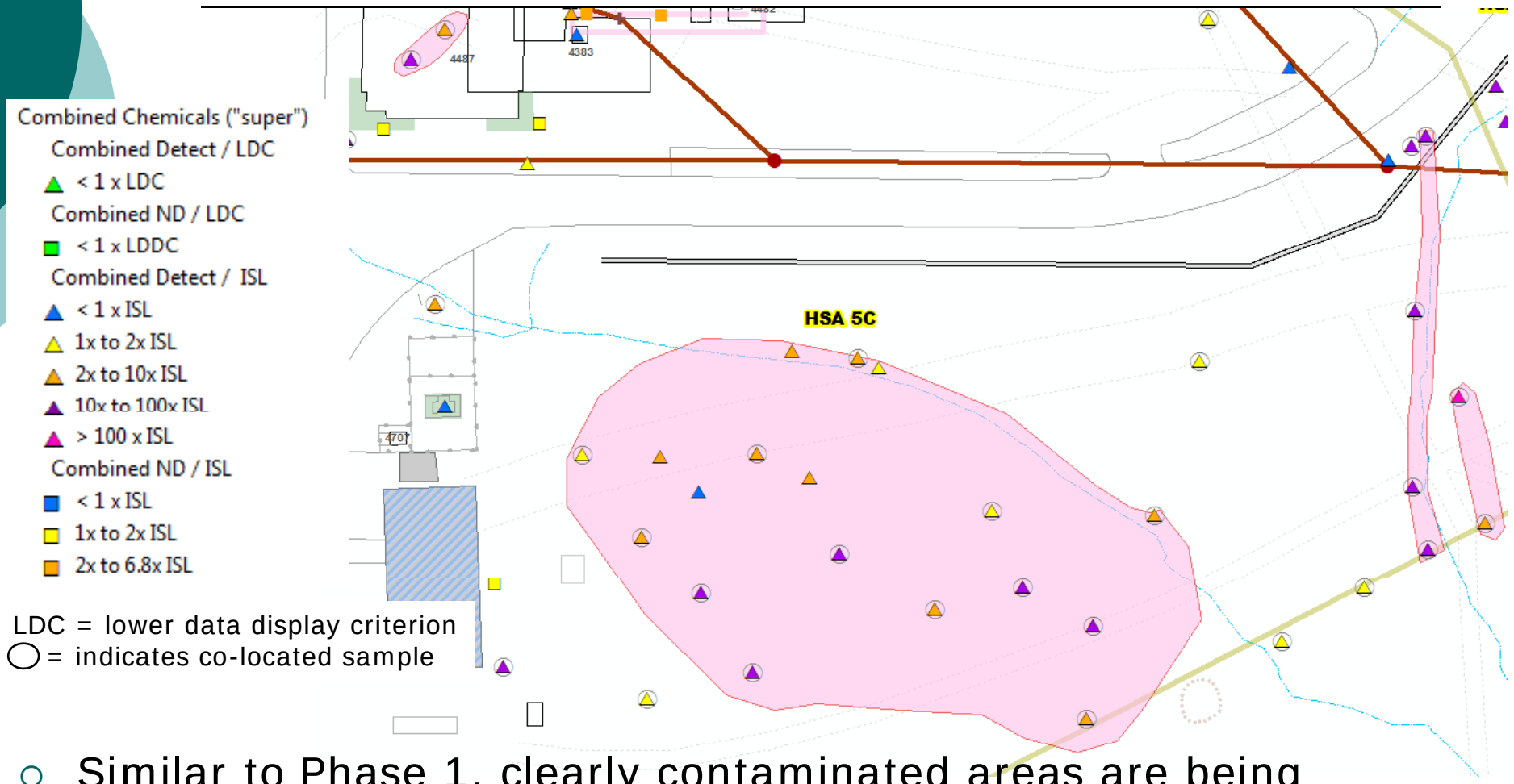
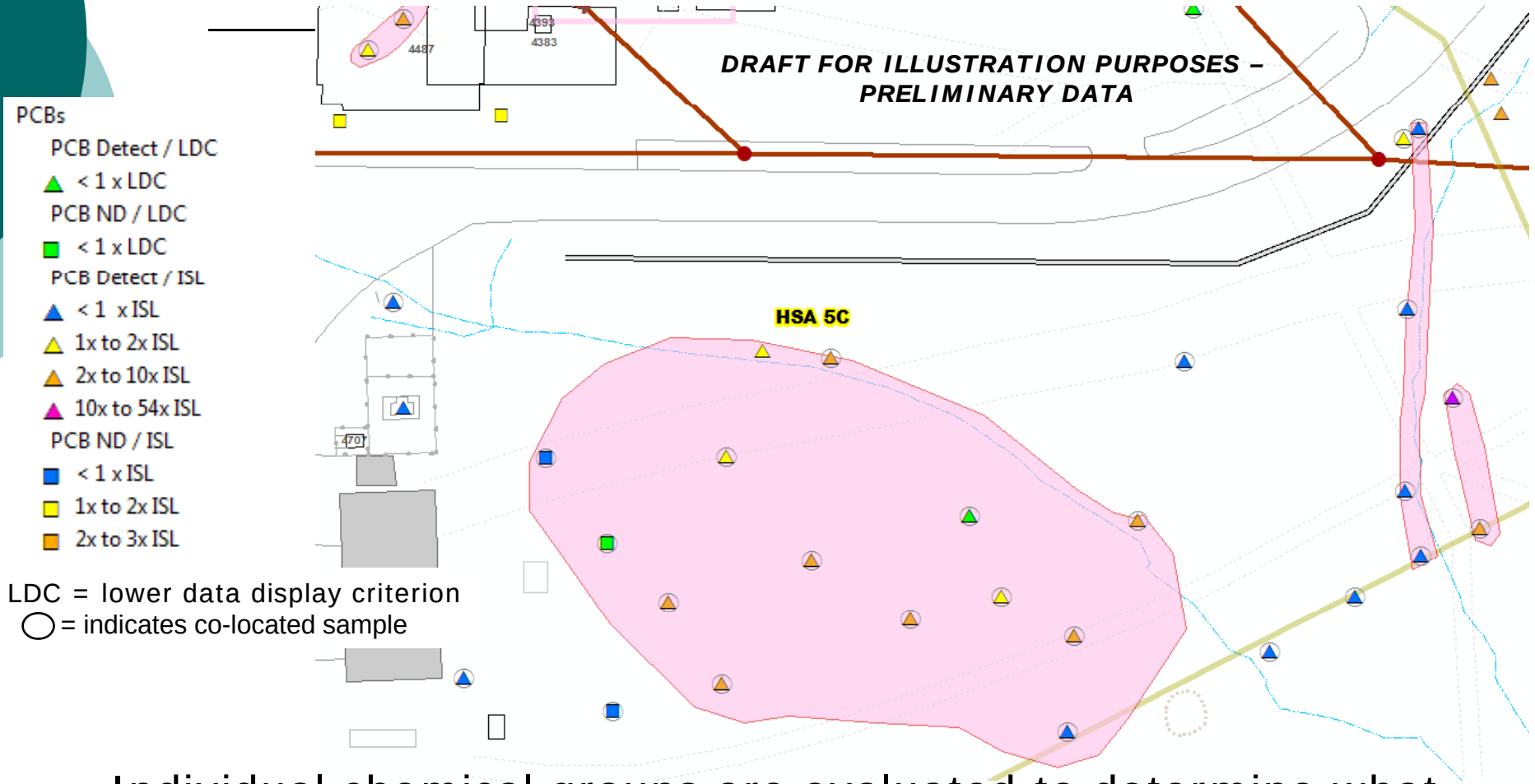
PRELIMINARY DATA



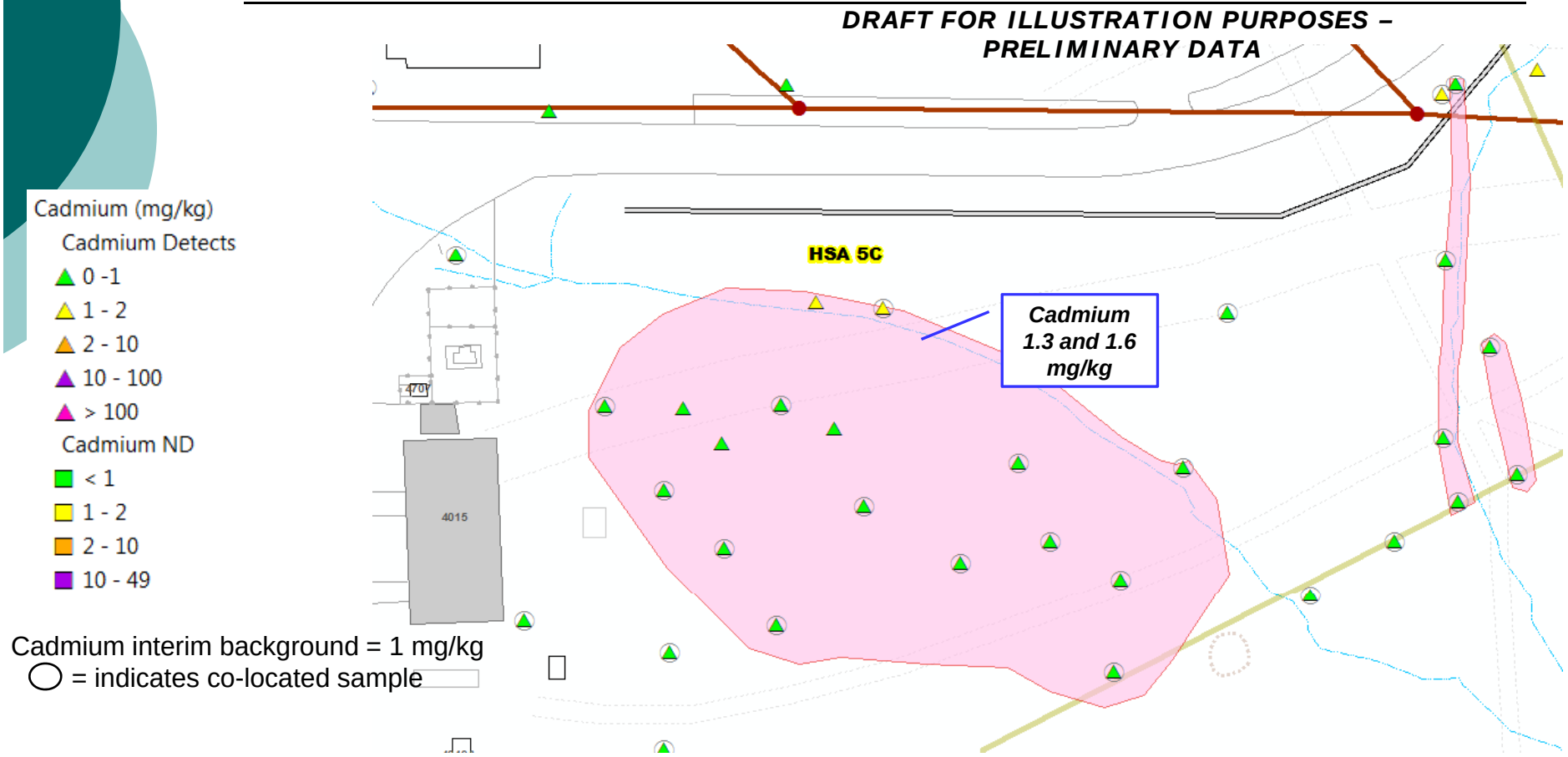
- Similar to Phase 1, clearly contaminated areas are being identified - these are new contamination areas near Building 4015. During Phase 3, we need to define the area's extent.

Examples of 5C Data Screening – PCBs



- Individual chemical groups are evaluated to determine what chemicals to sample for. Proposed sampling analytical suites are selected to define the extent of results > ISLs

Examples of 5C Data Screening – Individual Chemicals (Cadmium)



- Individual chemical maps, like this one for cadmium, provide more detail on contaminant distribution, and potential sources or migration routes

Examples of 5C Data Screening – Chemical Datasets

Easting Coord	Northing Coord	Samp Name	Top Depth	Bottom Depth	Analyte	Result Value	Result Value Units	Lab Qual Code	Val Qual Code	ISL Value	Max Ratio ISL
6346436	1906643	SL-120-SA5C-SB-4.0-5.0	4	5	CADMIUM	0.272	mg/kg		J	1	0.27
6346436	1906643	SL-120-SA5C-SB-9.0-10.0	9	10	CADMIUM	0.533	mg/kg		J	1	0.53
6346436	1906643	SL-120-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.413	mg/kg		J	1	0.41
6346484	1906695	SL-121-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	1.62	mg/kg		J	1	1.6
6346671	1906692	SL-122-SA5C-SB-9.0-10.0	9	10	CADMIUM	0.0947	mg/kg	J	J	1	0.09
6346671	1906692	SL-122-SA5C-SB-4.0-5.0	4	5	CADMIUM	0.197	mg/kg		J	1	0.20
6346671	1906692	SL-122-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.383	mg/kg			1	0.38
6346789	1906721	SL-123-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.722	mg/kg			1	0.72
6346813	1906673	SL-124-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.321	mg/kg			1	0.32
6346813	1906673	SL-124-SA5C-SB-4.5-5.5	4.5	5.5	CADMIUM	0.14	mg/kg			1	0.14
6346298	1906526	SL-125-SA5C-SB-4.0-6.0	4	6	CADMIUM	0.0934	mg/kg	J	J	1	0.09
6346298	1906526	SL-125-SA5C-SB-7.0-9.0	7	9	CADMIUM	0.0917	mg/kg	J	J	1	0.09
6346298	1906526	SL-125-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.373	mg/kg			1	0.37
6346370	1906506	SL-126-SA5C-SB-4.0-5.0	4	5	CADMIUM	0.131	mg/kg		J	1	0.13
6346370	1906506	SL-126-SA5C-SB-9.0-10.0	9	10	CADMIUM	0.122	mg/kg		J	1	0.12
6346370	1906461	SL-127-SA5C-SB-4.0-5.0	4	5	CADMIUM	0.0707	mg/kg	J	J	1	0.07
6346370	1906461	SL-127-SA5C-SB-7.5-8.5	7.5	8.5	CADMIUM	0.0376	mg/kg	J	J	1	0.04
6346370	1906461	SL-127-SA5C-SS-0.0-0.5	0	0.5	CADMIUM	0.463	mg/kg		J	1	0.46

- GIS 'colored dots' are checked to determine which chemicals are causing the exceedance, the depth that they occur, and what other chemicals are also present to determine how best to propose step-out samples

Chemical Data Gap Analysis

2. Migration pathways are evaluated to answer several questions —
   - Where would potentially contaminated soil be moved by surface water flow?
   - Where would contaminants in subsurface soils migrate? Could groundwater be affected by the soil contamination?
   - Were chemicals released into the air and dispersed by wind?

We will coordinate with the DTSC/DOE groundwater teams to address outstanding groundwater needs in the groundwater program

Chemical Data Gap Analysis

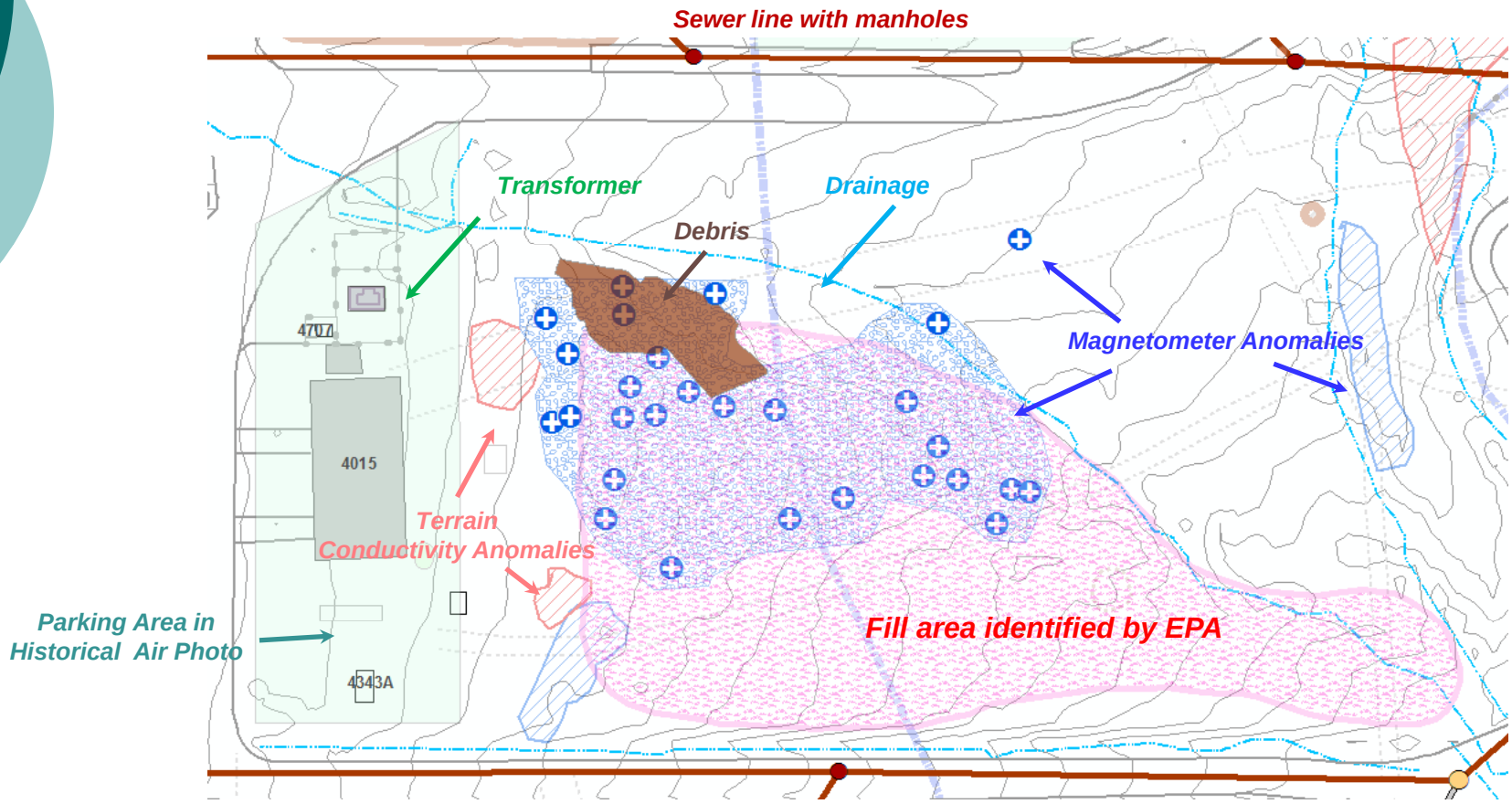
3. Historical and site survey information are used to answer several questions -
   - Are there any potential release areas or features that have not been sampled?
   - If an area or feature has already been sampled, are additional analyses needed to complete characterization?

Historical and site survey information are available from EPA's comprehensive historical assessment and recent RFI work

Data Gap Analysis and Phase 3 Sample Planning Approach

- Site information includes various site features or survey information that is mapped using a coordinate system (similar to latitude and longitude)
- Buildings, geophysical surveys, historical aerial photos, tanks, storage areas, debris/disposal areas, chemical use areas, and surface water flow paths are all example layers
- Site information is shown as layers in GIS that can displayed individually or together with the sampling results

Examples of 5C Historical, Site Survey and Migration Pathway Information



- Features compiled from historical documents, aerial photo review, and site surveys are evaluated using existing data to see if sampling is complete, or if more sampling is warranted

Site Features and Survey Information Reviewed Systematically

BaseMap Layers
Tanks (and Sitewide Tank Inventory table)
Transformers
Structure
Sumps
Vaults
Pipes
Undefined features
Chemical Use Areas (RFI)
streams/ditches
Leachfields
Storage Yard Areas
Roads
Soil Disturbance (Veg clearance, excavation, grading, etc.)

Aerial Photo Review

EPA Layers
Gamma Scan
PGRAY
Tank Points
HSA Line Layer (HSA linear features)
HSA Photo Layer (HSA aerial photo review features)
Historical Use Data (chem use, storage, leach fields, releases, etc.
Area IV Conduit (pipelines)
Geophysical Survey (EM, GPR, TC)

Other
Building Feature Documentation - process info reviewed
Groundwater Impacts/threat to GW Evaluated

Sitewide Infrastructure
IWW - spray fields
Natural Gas Pipelines
Sewer

- A checklist is used to ensure available information from multiple sources is considered during data gap review
- In addition to these items, boring and trench log information is used to inspect for debris, staining, 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

Example 5C Proposed Sampling Locations

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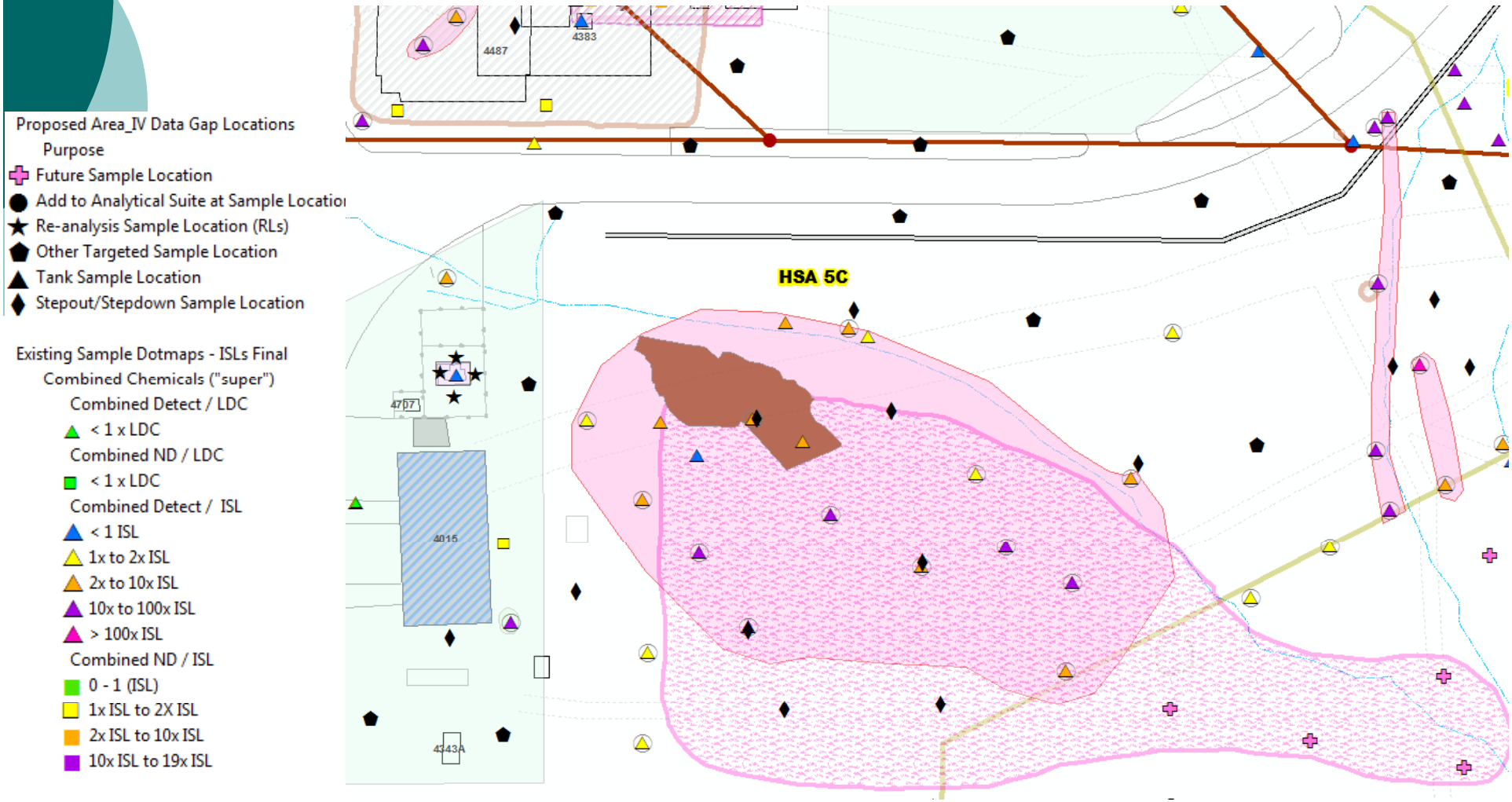

Coming Attractions

- Continue to publish Phase 1 Co-located Results Technical Memos
- Publish Draft Phase 3 Chemical Data Gap Investigation Work Plan, including
  - Master Field Sampling Plan – describes field sampling procedures
  - Quality Assurance Project Plan – provides laboratory analytical procedures, and reporting limit requirements
  - Health and Safety Plan – describes field sampling work safety procedures
- Publish Data Screening Technical Memoranda – first is for HSA 5A/B/C areas, anticipate in January 2012

Coming Attractions

- Publish Draft Phase 3 Field Sampling Plan Addenda – first will be for HSA 5C area
- Conduct chemical data gap investigation scoping meetings
  - First meeting planned in February (date TBD), to discuss plan for HSA 5C and get input on master planning documents
- Finalize Master Work Plans and HSA 5C Field Sampling Plan Addendum, and prepare for field work
- Begin field work as soon as possible – planning Feb
- Update screening levels as more information becomes available (chemical background, RLs, Lookup Table values)

Update for Action Items

Action Item	Date Requested	Progress
Answer stakeholder question why chemical background field work got delayed.	10/18/11	DTSC lead (Yvette) - completed
When providing documents for review in email, provide context for what the document is and where it fits into the program	10/18/11	Ongoing
Have outlier analytical results been discovered and how have they been treated in data screening?	10/18/11	All analytical results, including high concentrations, are evaluated during characterization. The data gap evaluation addresses the full range of concentrations. "Outliers" are relevant to statistical analysis.
Provide more speakers around room for participants on phone during next public stakeholder meeting.	10/18/11	Ongoing
Make sure slide numbers show in final presentation materials.	10/18/11	Ongoing; slides checked

Feedback