Co-Located Chemical Sampling Needs for HSA-8 North

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Co-Located Sampling Objectives

- Utilize opportunity to obtain additional chemical data for ultimate use in making cleanup decisions, per Administrative Order on Consent between DOE and DTSC, signed December 6, 2010.

- Take advantage of the additional information that EPA has obtained to target sampling (EPA Historical Site Assessments, Gamma Scanning Data, Geophysical logging, former worker interviews, aerial photography analysis)

Co-located Chemical Sampling Decision Process

- DTSC and DOE: Review RFI data and historical information on operations to identify "clearly contaminated" areas likely to need remediation producing "blobs" on map
- DOE: Transmit map with these areas to EPA and share with stakeholders at Technical Work Group meetings
- DOE, DTSC, and EPA: Attend Technical Work Group Meetings to understand EPA's rationale and community concerns for sampling
- DTSC and DOE: Review EPA's information (gamma scanning results, geophysical results, HSA findings, aerial photo analysis) and Technical Work Group Meeting input to determine co-located chemical sampling needs

Co-located Chemical Sampling Decision Process

- DTSC and DOE: Using DTSC decision criteria (based on clearly contaminated area and sampling density needs), determine co-located sampling for chemicals
- DTSC and DOE: Discuss proposal with community (Today's meeting)
- DTSC: After input and any modification necessary, approves sub-area co-located sampling approach
- DOE: Provides co-located sampling decisions in Addendums to the Master FSAP for each sub-area that are sent to stakeholders and distributed on EPA's Sharepoint, DTSC and DOE websites
- DTSC: Approves Master FSAP Addendum

Today's Follow-Up for HSA-8 North

- Discuss approach and application of chemical analytical suite modifications proposed for co-located program
- Review co-located sampling proposals for HSA 8 North Sites

Table of Analytes

Primary Analyses – performed on all soil samples	**Secondary Analyses – performed on selected samples**
Metals	Volatile Organic Compounds (visual staining, elevated PID reading, waste, or nearby RFI data elevated)
Mercury	1,4-Dioxane (any time VOCs collected)
Chromium VI	Formaldehyde
Semi-volatile Organic Compounds	N-Nitrosodimethylamine
Polycyclic Aromatic Hydrocarbons	Energetics
Perchlorate	Glycols
Polychlorinated Biphenyls	Alcohols
Fluoride	Terphenyls
Pesticides (surface samples only)	Nitrates
Herbicides (surface samples only)	Total petroleum hydrocarbons (gas/oil/diesel) (visual staining , historic evidence)
Dioxin/Furans	Cyanide
pH	Methyl mercury
Percent Moisture	Organic Tin

Co-Located Sampling Analytical Approach To Date

- From Co-Located Chemical Master FSAP (final):
  - Primary analyses – collected at all locations, represent known chemicals of concern at many locations onsite
  - Secondary analyses – collected at selected locations with a process history of specific chemical usage, elevated field readings, or at waste, fill, visually contaminated materials
- For HSA 5C – used primary and secondary analyses at all locations in order to meet EPA sampling schedule and 'get in the field'
- For HSA 5A and 5B – used primary analyses at all locations and full list of secondary analyses (discretion applied by location, not by analysis)

Propose to Apply Discretion for Where and How Secondary Analyses Used

- As indicated in Chemical Co-Located Master FSAP – in HSA 8 North we now propose to use site operations process history and previous sampling results to 'tailor' secondary chemical analyses for some sampling locations
- Recommendations based on using all available information to identify analytical needs
  - Recent HSA sampling results – many chemicals on secondary list rarely detected
  - Previous RFI sampling results
  - DTSC comments and public input on RFI and EPA documents
- Rationale is developed by location for analytical needs
  - What were operations at site?
  - How close is the sample to operations?
  - What is the EPA rationale and targeted feature(s)?
  - Are there multiple sources or pathways to cause chemical contamination in the area?

Summary of Proposed Discretionary Analytical Approach

Primary Analyses – performed on all soil samples	**Secondary Analyses – performed on selected samples**
Metals	Volatile Organic Compounds
Mercury	1,4-Dioxane
Chromium VI	Formaldehyde
Semi-volatile Organic Compounds	N-Nitrosodimethylamine
Polycyclic Aromatic Hydrocarbons	Energetics
Perchlorate	Glycols
Polychlorinated Biphenyls	Alcohols
Fluoride	Terphenyls
Pesticides (surface samples only)	Nitrates
Herbicides (surface samples only)	Total petroleum hydrocarbons (gas/oil/diesel)
Dioxin/Furans (considering for analysis in surface samples only unless there is an indication of potential presence)	Cyanide
pH	Methyl mercury
Percent Moisture	Organic Tin

- All locations will be sampled for all primary analyses
- All fill, waste, disposal areas and contaminated locations identified by field screening will be sampled for all secondary analyses (landfills, ponds, leach fields, down-gradient drainages, drum disposal areas, etc)
- Some locations will have selected chemicals in secondary suite added to primary suite based on historical chemical use or previous RFI detections

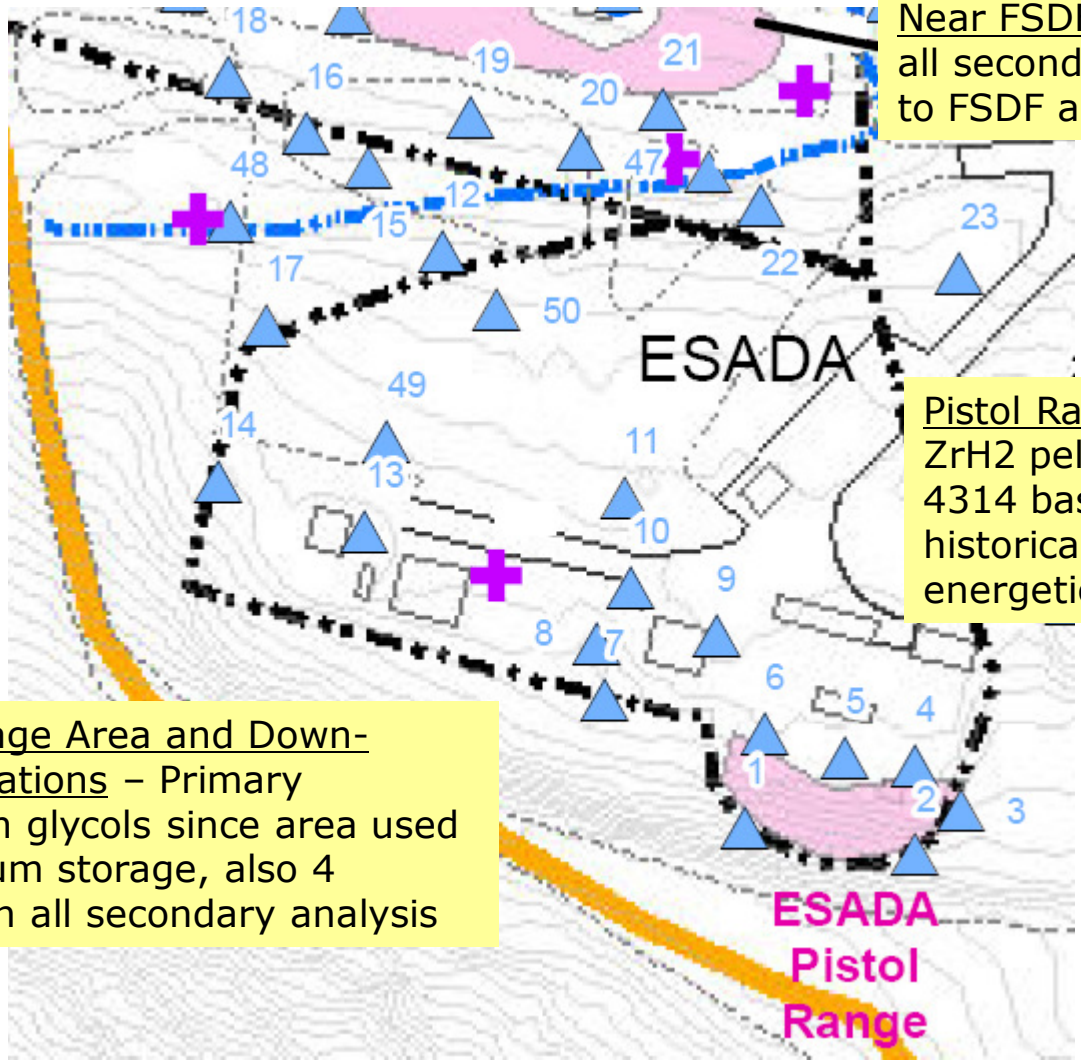
(proposal to develop criteria for focusing dioxin sampling in surface soils still being evaluated)

Today's Follow-Up for HSA-8 North

- Review co-located sampling proposals for HSA 8 North Sites -
  - ESADA (including 'soil borrow area' near the Solar Concentrator)
  - FSDF (including the FSDF Pistol Range)
  - Building 4009 Area
  - Building 56 Landfill (including East Pit Ramp)

>> Both sampling analytical and location needs were evaluated

ESADA Area

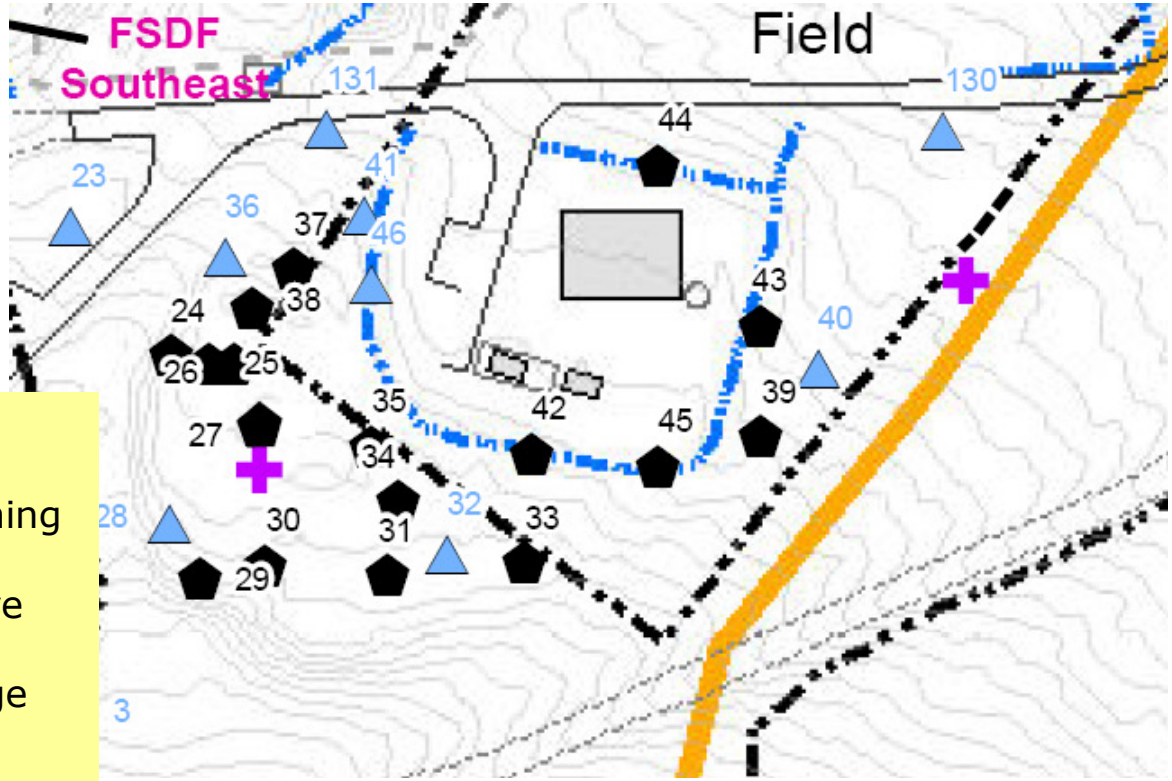


Near FSDF Southeast– primary and all secondary analyses since adjacent to FSDF and former excavation area

Pistol Range – adding energetics near ZrH2 pellet testing area and Building 4314 based on use of area and historical records mentioning energetics at Building 314

Former Storage Area and Down-Gradient Locations – Primary analyses with glycols since area used for glycol drum storage, also 4 locations with all secondary analysis

Solar Concentrator Area – 'soil borrow area'



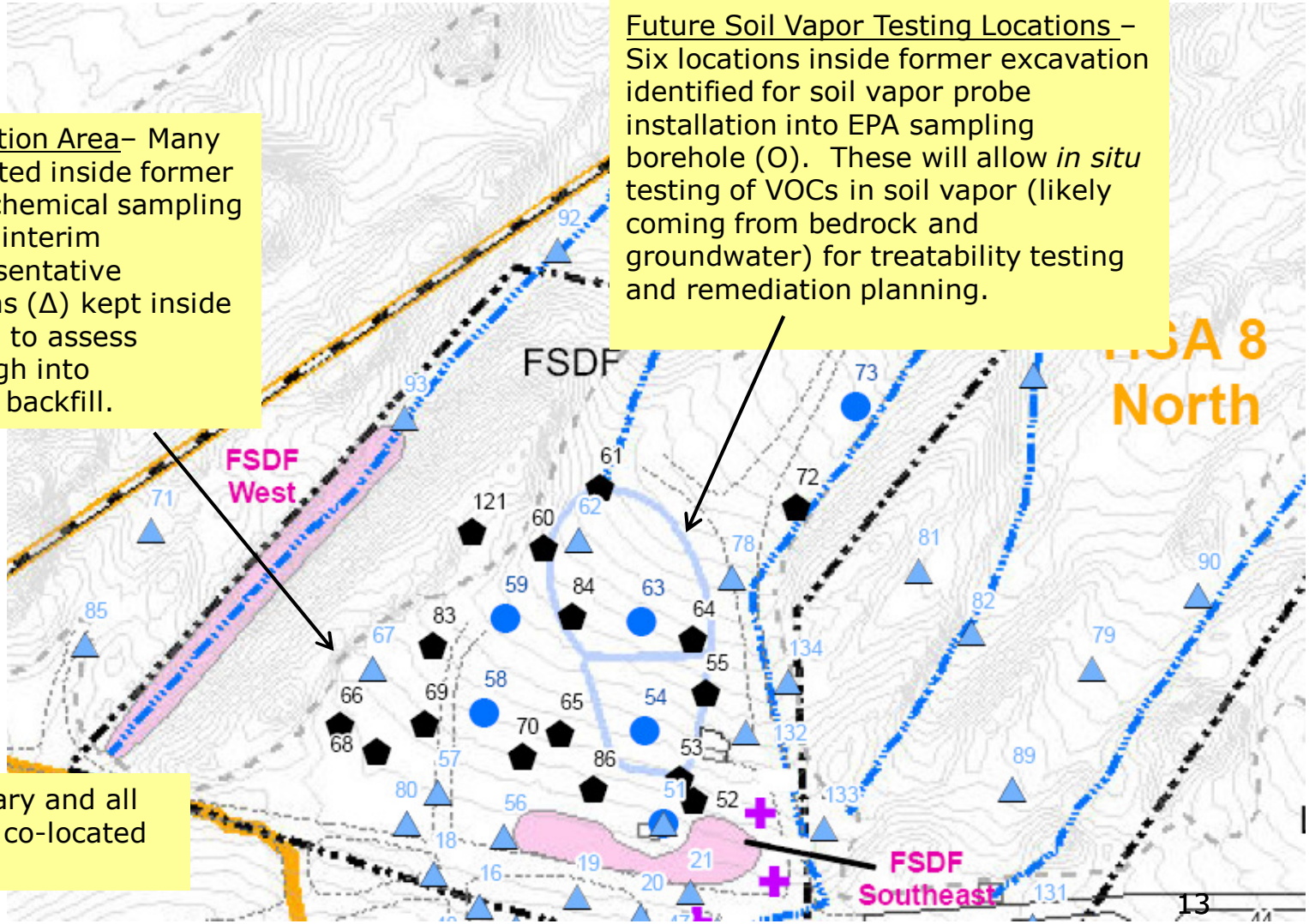
Soil Borrow / Ground Scar Area – Investigation of this area will be proposed in Phase 2 or 3 using trenching to target chemical sampling locations. For Phase 1 work, three representative locations have been selected at magnetometer anomalies and drainage ditch locations.

Locations within borrow area and ground scar analyzed with 'primary' and TPH to check for hydrocarbon release from debris noted in area

FSDF – Pond Area

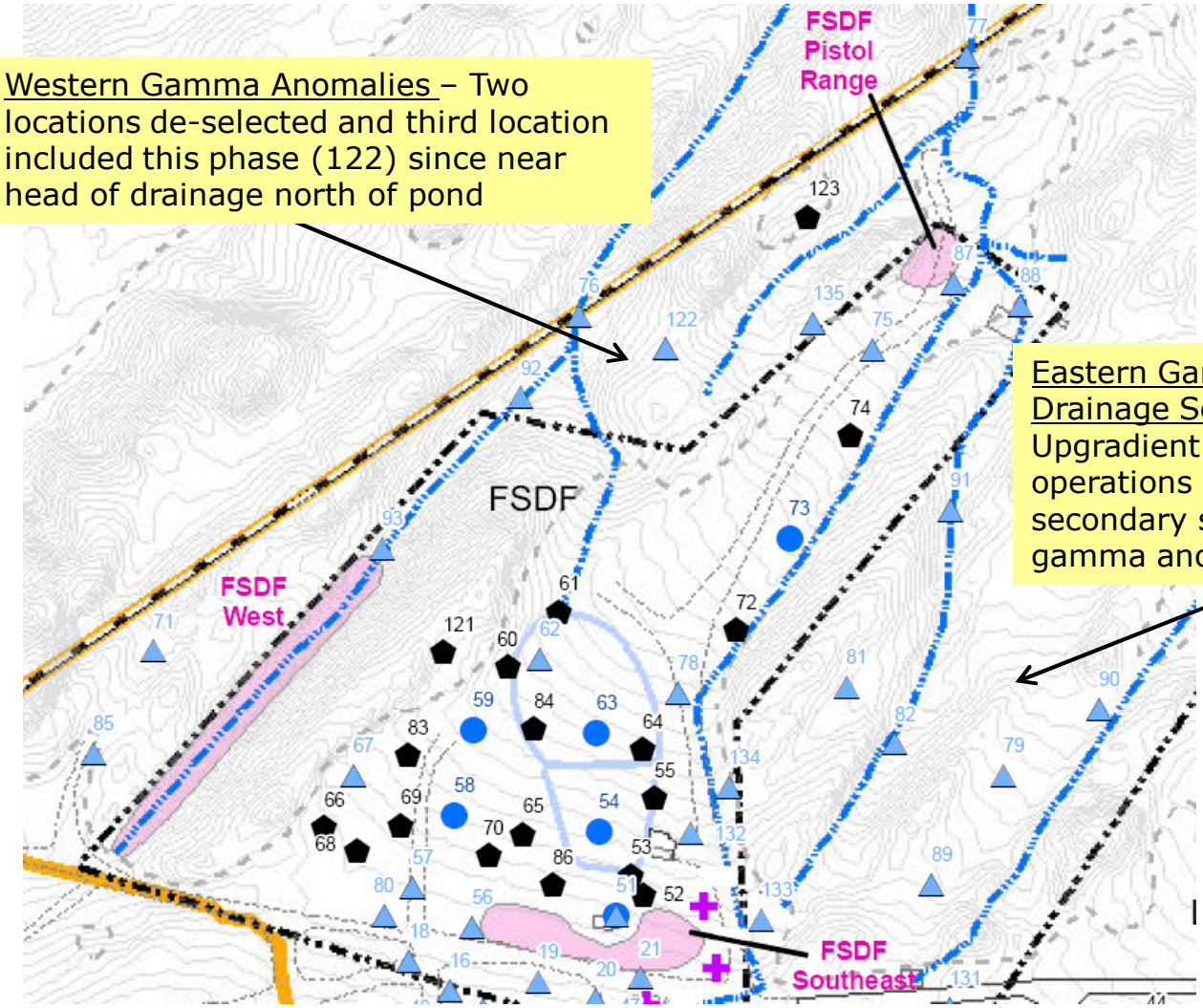
<u>FSDF IM Remediation Area</u>– Many locations de-selected inside former excavation since chemical sampling performed during interim measures. Representative perimeter locations (Δ) kept inside former excavation to assess potential soil slough into excavation during backfill.

<u>Future Soil Vapor Testing Locations</u> – Six locations inside former excavation identified for soil vapor probe installation into EPA sampling borehole (O). These will allow *in situ* testing of VOCs in soil vapor (likely coming from bedrock and groundwater) for treatability testing and remediation planning.



<u>FSDF Pond Area</u>– Primary and all secondary analytes for co-located samples

FSDF – Surrounding Area



Western Gamma Anomalies – Two locations de-selected and third location included this phase (122) since near head of drainage north of pond

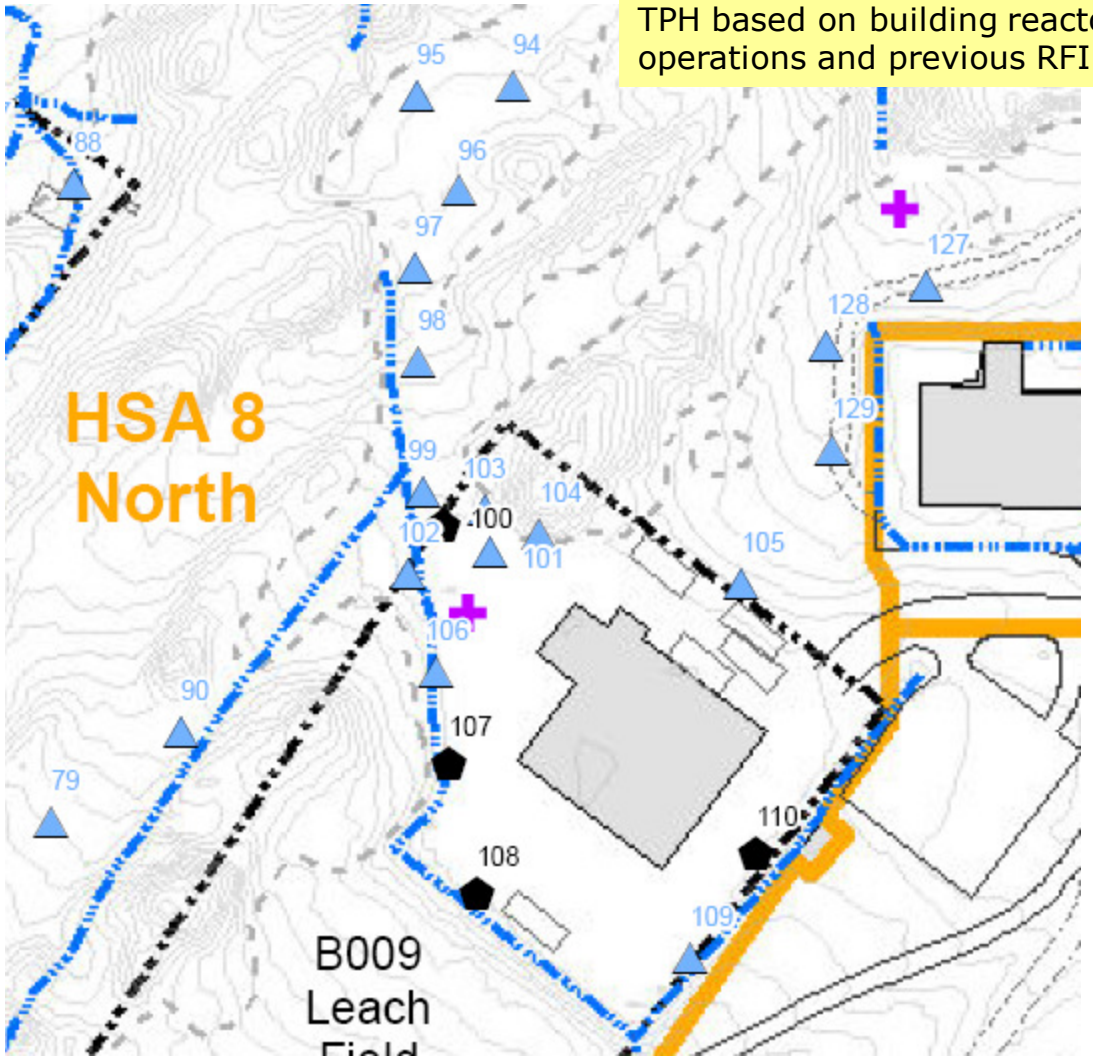
Eastern Gamma Anomalies and Drainage Screening Areas – Upgradient locations nearest operations with primary and secondary suite, down-gradient and gamma anomaly with primary suite

Building 4009 Area

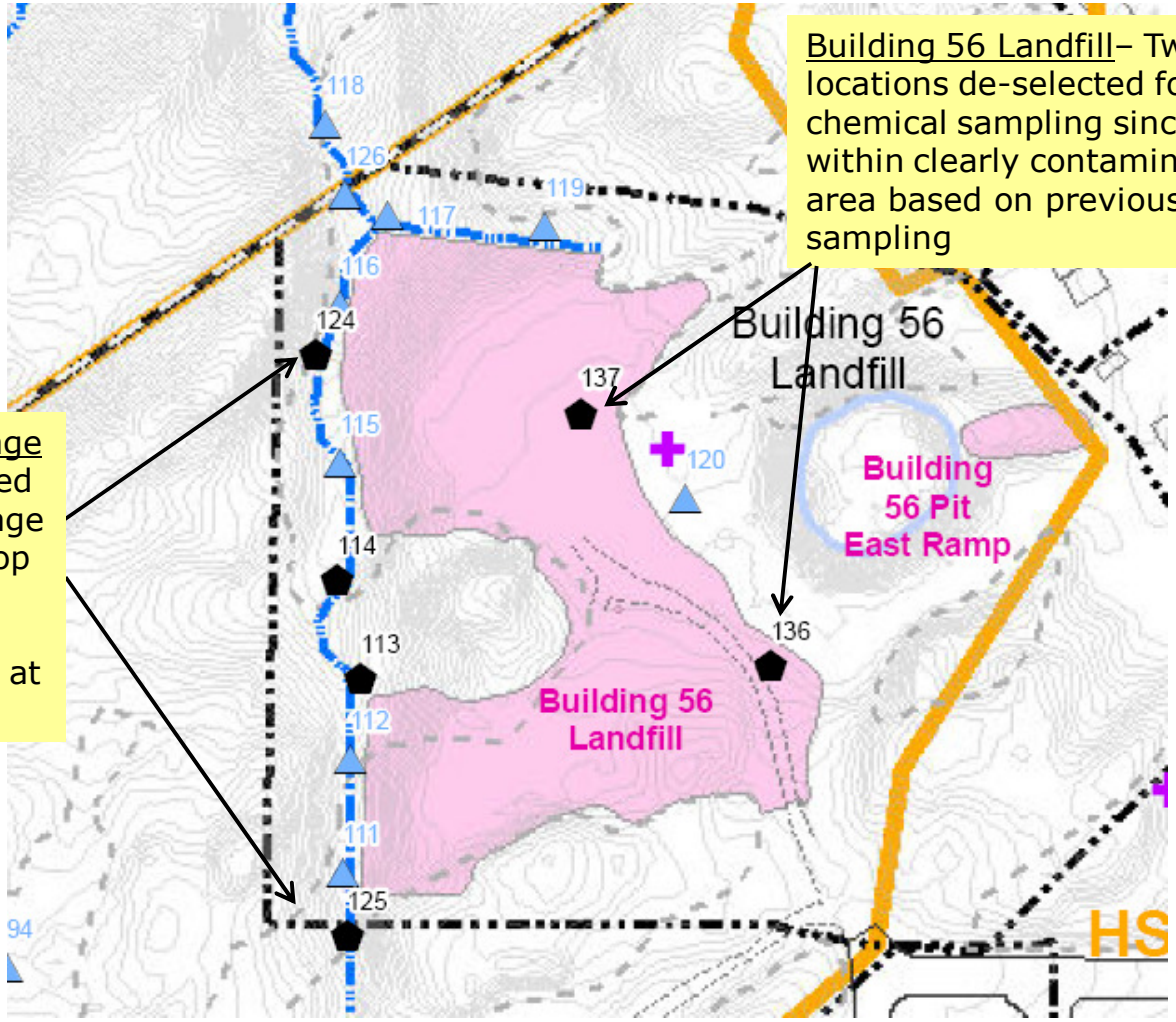
Building 4009 Leachfield and Northern Area – One location in leachfield 'leachate' area de-selected based on radiological sampling density of feature. Primary and secondary analyses in leachfield area.

To north, 'primary' suites needed during first phase of work based on distance from operations

Building 4100 Area – 'Primary' and TPH based on building reactor operations and previous RFI data



Building 56 Landfill Area



Building 56 Landfill– Two locations de-selected for chemical sampling since within clearly contaminated area based on previous RFI sampling

Building 56 Landfill Drainage – Four locations de-selected based on density in drainage and location of rock outcrop feature.

Primary and all secondary at all locations.

Discussion and Finalizing the Plan

Questions ??