Technical Stakeholders Meeting

Characterization Study of Area IV and the Northern Undeveloped Lands

Santa Susana Field Lab

February 2, 2011

Radisson Hotel Conference Room
Chatsworth, CA

Soil Sample Managment

February 2011

EPA's Soil Sample Program Goals

- Conduct a high quality study of radiological soil contamination in Area IV and NBZ
- Use good science, best technology and multiple lines of evidence to target samples
- Strike a balance between targeting samples at both likely and less likely locations
- Maintain sufficient reserve for Round 2
- Track soil sample allocation strategy and update and adjust as necessary
- Maintain collaboration with Stakeholders

EPA's Soil Sample Cost Estimate: December 2008

- Sample density based on EPA Study Area acreage and Boeing's MARSSIM Classification.
- Assumed:
  - conservative cost per sample
  - two subsurface for every surface sample
- Resulted in approximately 3,300 sample locations and a total of 10,000 samples
- Intended solely as an EPA costs estimate and negotiating a funding amount with DOE

EPA's Original Soil Sample 2010 Program Budget

- Sample density based on EPA Study Area acreage and EPA's MARSSIM Classification.
- Assumed:
  - Cost per sample based on Background Study
  - Round 1 (targeted) and Round 2 (step-out and random) samples strategy
- Surface and subsurface samples based on technical criteria in EPA Master Soil Plan
- For planning purposes, 10,000 samples are estimated

EPA's Increase in Area IV MARSSIM Class Areas

	Class 1 (acres)	Class 2 (acres)	Class 3 (acres)
Boeing (293 acres including inaccessible areas)	48	27	218
EPA (274 acres excluding inaccessible areas)	105	54	115

EPA's MARRSIM Classification is subject to change based on findings of the HSA.

EPA's Revised Soil Sample Program Budget: 2011

- Same as our original strategy except:

  - Introduce an adjustment in Class 1 sample density

  - Uses the likely average cost per sample (default and add-ons) and will update again once lab procurement is complete

- For planning purposes, 10,000 soil samples are estimated

EPA's Adjustment For Areas With Increased Potential of Residual Contamination

- Not all Class 1 areas are created equal.
- EPA made increases to sample density for certain Class 1 areas to account for known activities such as:
  - Reactor Locations
  - Critical Facility Locations
  - Incidents
  - Total Activity
- EPA also uses best professional judgment when it recommends the actual number of samples for Round 1 and 2
- As a result, some Class 1 areas will get more samples and some will get less

Sample Allocation Table

This figure is being used for planning purposes only. The number of soil samples ultimately necessary for EPA to complete its study may be higher or lower than 10,000 samples.

HSA Subarea	Sampling Phase	Estimated Number of Samples/Area/Class			
		Class 1 Areas	Class 2 Areas	Class 3 Areas	Total Samples
3	Allocation	0	40	0	40
	Round 1	0	12	0	12
	Round 2	0	28	0	28
5A	Allocation	1356	40	86	1482
	Round 1	407	12	26	444
	Round 2	949	28	60	1037
5B	Allocation	779	148	0	927
	Round 1	234	44	0	278
	Round 2	545	104	0	649
5C	Allocation	1180	17	10	1207
	Round 1	354	5	3	362
	Round 2	826	12	7	845
5D-North	Allocation	1338	0	34	1372
	Round 1	401	0	10	412
	Round 2	937	0	24	960
5D-South	Allocation	183	43	237	463
	Round 1	55	13	71	139
	Round 2	128	30	166	324
6	Allocation	1150	122	155	1427
	Round 1	345	37	47	428
	Round 2	805	85	109	999
7	Allocation	985	0	0	985
	Round 1	295	0	0	295
	Round 2	689	0	0	689
8	Allocation	825	247	16	1088
	Round 1	247	74	5	326
	Round 2	577	173	11	762
8-South	Allocation	0	0	150	150
	Round 1	0	0	45	45
	Round 2	0	0	105	105
NBZ-E	Allocation	0	0	494	494
	Round 1	0	0	148	148
	Round 2	0	0	346	346
NBZ-W	Allocation	0	0	368	368
	Round 1	0	0	110	110
	Round 2	0	0	258	258
Total Samples		7611	614	1163	10000
	Round 1 Total	2283	184	349	3000
	Round 2 Total	5328	430	814	7000

Sample Tracking Table

HSA Subarea	Totals and Round Summary	Allocated Samples	CURRENT STATUS		
			Soil Samples Collected		
			Surface Soil Samples	Subsurface Soil Samples	Total Soil Samples
3	**Total**	**40**	**0**	**0**	**0**
	Round 1	*12*			*0*
	Round 2	*28*			*0*
5A	**Total**	**1482**	**0**	**0**	**0**
	Round 1	*444*			*0*
	Round 2	*1037*			*0*
5B	**Total**	**927**	**227**	**283**	**510**
	Round 1	*278*	*227*	*283*	*510*
	Round 2	*649*			*0*
5C	**Total**	**1207**	**83**	**122**	**205**
	Round 1	*362*	*83*	*122*	*205*
	Round 2	*845*			*0*
5D-North	**Total**	**1372**	**0**	**0**	**0**
	Round 1	*412*			*0*
	Round 2	*960*			*0*
5D-South	**Total**	**463**	**0**	**0**	**0**
	Round 1	*139*			*0*
	Round 2	*324*			*0*
6	**Total**	**1427**	**0**	**0**	**0**
	Round 1	*428*			*0*
	Round 2	*999*			*0*
7	**Total**	**985**	**0**	**0**	**0**
	Round 1	*295*			*0*
	Round 2	*689*			*0*
8-North	**Total**	**1088**	**0**	**0**	**0**
	Round 1	*326*			*0*
	Round 2	*762*			*0*
8-South	**Total**	**150**	**0**	**0**	**0**
	Round 1	*45*			*0*
	Round 2	*105*			*0*
NBZ-E	**Total**	**494**	**0**	**0**	**0**
	Round 1	*148*			*0*
	Round 2	*346*			*0*
NBZ-W	**Total**	**368**	**0**	**0**	**0**
	Round 1	*110*			*0*
	Round 2	*258*			*0*
All Subreas	**Total**	**10000**	**0**	**0**	**0**
	Round 1	*3000*			*715*
	Round 2	*7000*			*0*

Collabrative Approach with Stakeholders

- EPA is following a technical approach per our Master Soil Field Sampling Plan (Master Soil FSP).
- Per the Master FSP, EPA produces a FSP Addendum with a map indicating the location and type soil samples per Subarea
- EPA collaborates with Stakeholders on both rounds of soil sampling in every subarea
- The Sample Allocation Table is intended only as a guide and will be revised and updated as each Subarea Addendum is complete.

Summary: EPA Soil Sampling Program Budget

- Attain All Program Goals
- Manage Soil Sampling Program

  - Continue to implement our technical approach per Master Soil Sampling Plan

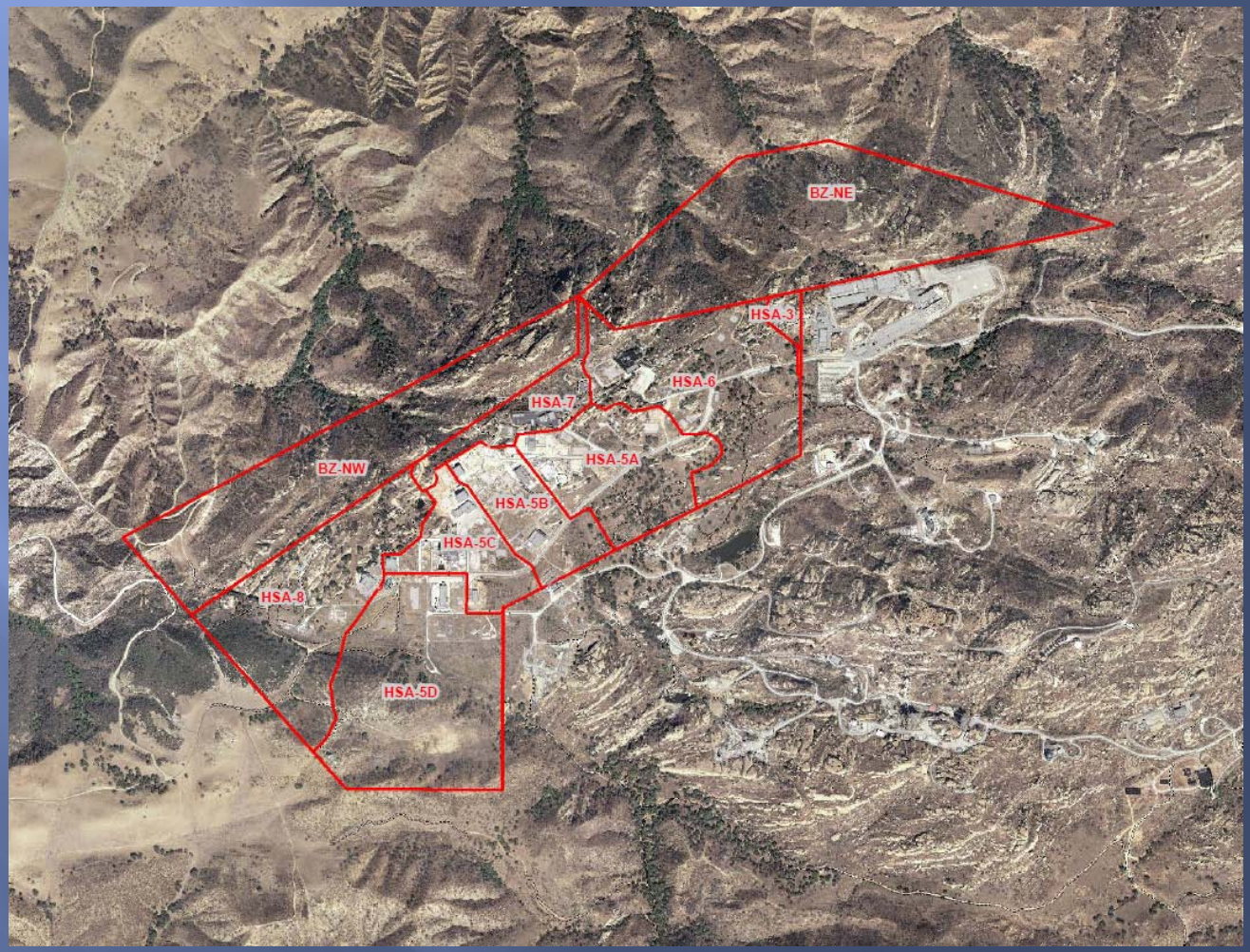
  - Update Sample Allocation Table and Sample Tracking Table

  - Collaborate with Stakeholders at every Tech Meeting

Overview of the Historical Site Assessment For Subarea 5A

February 2, 2011

Site Layout for Area IV/HSA Subareas



Subarea 5A Overview

- Approximately 38 acres
- Current drainage is generally to the south and southwest
- Divided in 5 groups based on facility operation history
- Contained 22 buildings, 2 parking lots, 1 nitrogen storage tank, and 1 concrete pad (comprising 26 sites)
- Of the 26 sites, only 2 buildings remain standing today
- Six Key Facilities

Technical Memorandum HSA-5A
Overview of Groups

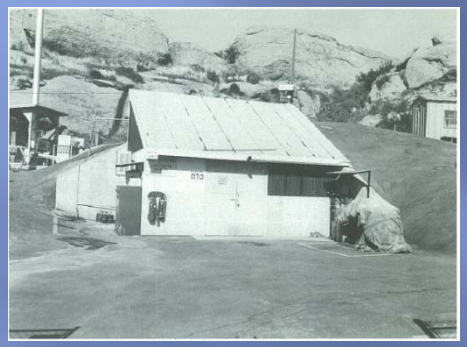
Key Facilities

- Group 1 – Building 4024 (SNAP Environmental Test Facility)
- Group 2 – Buildings 4073 (KEWB Reactor) and 4093 (AE-6/L-85 Reactor)
- Group 3 – Building 4030 (Van de Graff Accelerator)
- Group 4 – Building 4005 (Uranium Carbide Fuel Pilot Plant)
- Group 5 – Building 4029 (Radiation Measurement/ Calibration Facility)

Building 4024 SNAP Env. Test Facility

- Built in 1959 and expanded in 1962
- Used to test SNAP reactors in a simulated operational environment
- Tests conducted in 2 heavily shielded below grade test vaults
- Reactor test operations ended in 1971
- After 1971, used to store SNAP-10FS-5 and for Hot Lab D&D staging
- Outside of building footprint, included 3 rad. gas holdup tanks, 8 solid rad. waste storage vaults, and 2 liquid rad. waste holdup tanks
- 3 documented incidents (personnel exposures)
- No historical documented releases to environment
- Portions of building demolished in 2005, vaults and original above-grade structure remain

Building 4073 KEWB Reactor Building



- Built in 1955
- Support Building 4123 (fuel/waste storage) and Building 4643 (exhaust blower bldg)
- KEWB reactor was a small graphite-encased research reactor that used a water solution of uranyl sulfate as fuel
- Operation ended in 1966
- 3 documented incidents (personnel overexposure), 1 incident documented in log book involving spilled oil from EG&G experiment
- D&D was completed in 1976, with potentially contaminated concrete and asphalt rubble buried in place

Building 4093 AE-6/L-85 Reactor Bldg

- Built in 1958
- The AE-6 reactor (later renamed L-85 reactor) designed to provide a thermal neutron source for evaluation of neutron behavior in subcritical assemblies
- In operation 1958 – 1980
- Building demolished in 1995 leaving an interior concrete wall and foundation in place
- 4 documented incidents (fission gas release, alarm malfunction, spilled rinse water, and contaminated filter)
- Building 4643 used for fuel handling and storage

Building 4030 (Van de Graaf Accel)

- Built in 1958
- The Van de Graaf accelerator provided an adjustable energy proton beam to bombard a tritium target to produce neutrons from 1960 to 1964.
- Building had multiple other uses – AE-6 counting room, AE-6 office annex, site purchasing office, and traffic and warehousing.
- No documented incidents
- Building demolished in 1999

Building 4005 (UraniumCarbide Fuel Pilot Plant)

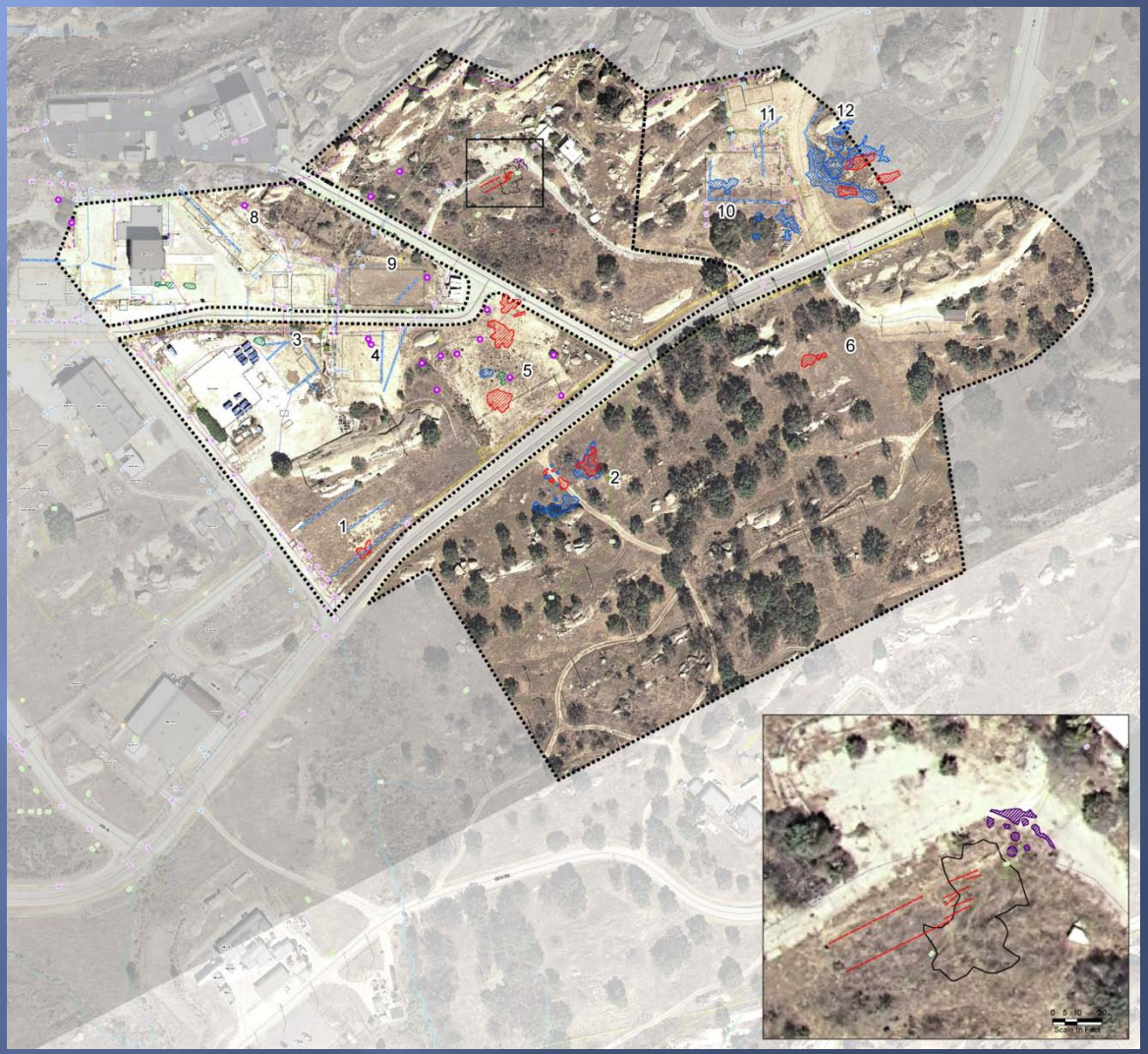
- Built in 1958 to test thermodynamic characteristics of coolants for the Organic Moderated Reactor Experiment and Piqua reactors (1958 – ~1965)
- In 1965 converted to Uranium Carbide Fuel Pilot Plant
- After 1972 used as the Molten Salt Test Facility and Process Demo Unit
- 8 documented incidents (employee exposure and fires)
- Building demolished in 1997
- Building concrete slab left in place

Building 4029 (Radiation Measurement/Calibration Facility

- Built between 1962 and 1965 to store radioactive source materials for instrument calibration
- All source material removed in 1974 and partial D&D performed
- After 1974 used to store reactive metal waste such as NaK and Na under a DHS and later DTSC storage permit
- 4 documented incidents (personnel exposure and source mishandling)
- Building remains unoccupied

Plate 1 HSA Subarea 5A

Geophysical Update



Gamma Radiation Scanning Update

Agenda

- Gamma Scanning Progress and Accomplishments
- Scanning Coverage by Subarea
- Subarea 5A Potential GRAYs (Gamma Radiation Anomalies) and Initial Evaluation
- Next Steps

Accomplishments in Subarea 5A

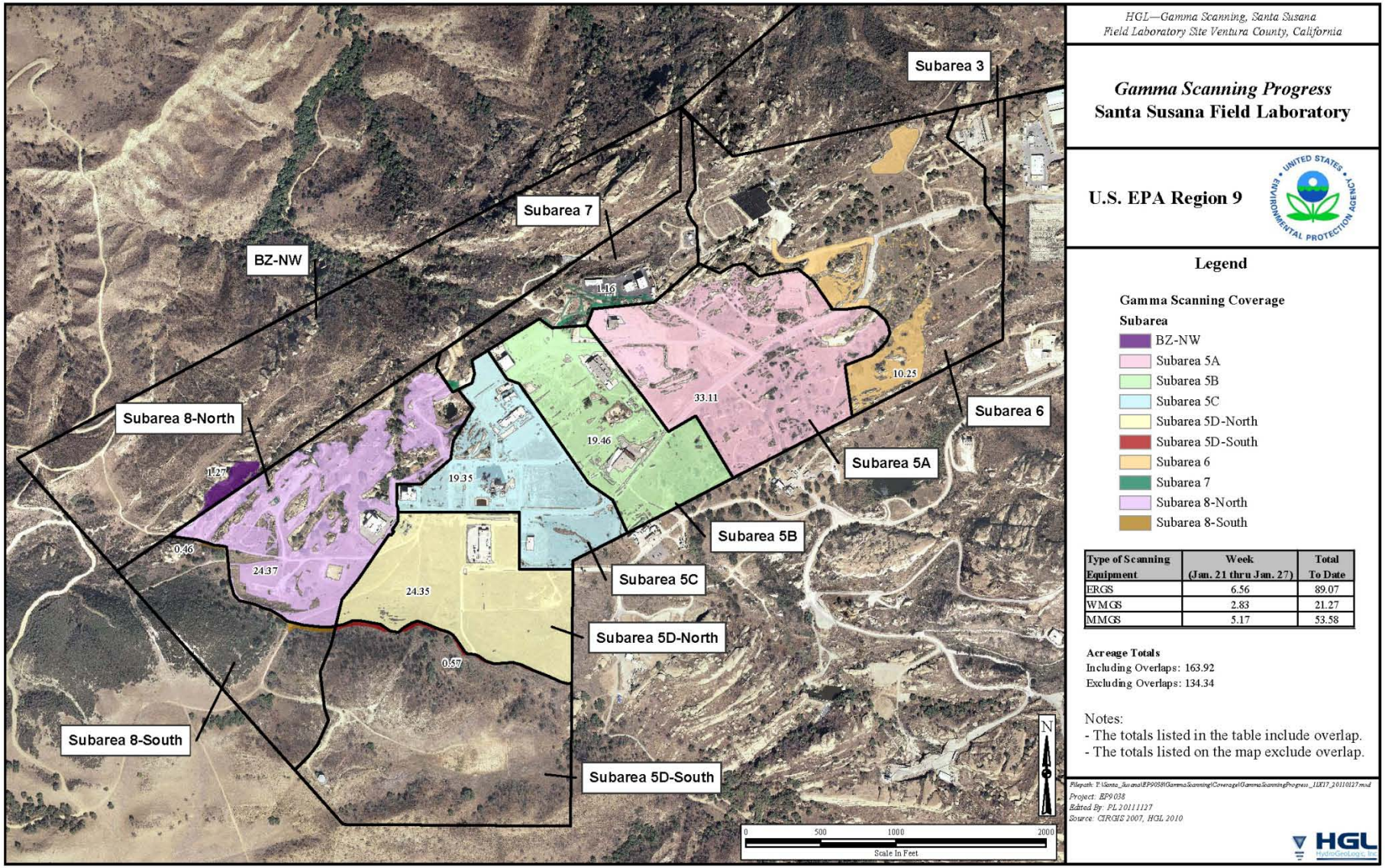
Scanned 97% of the accessible areas

Completed Subarea 5A gamma data evaluation

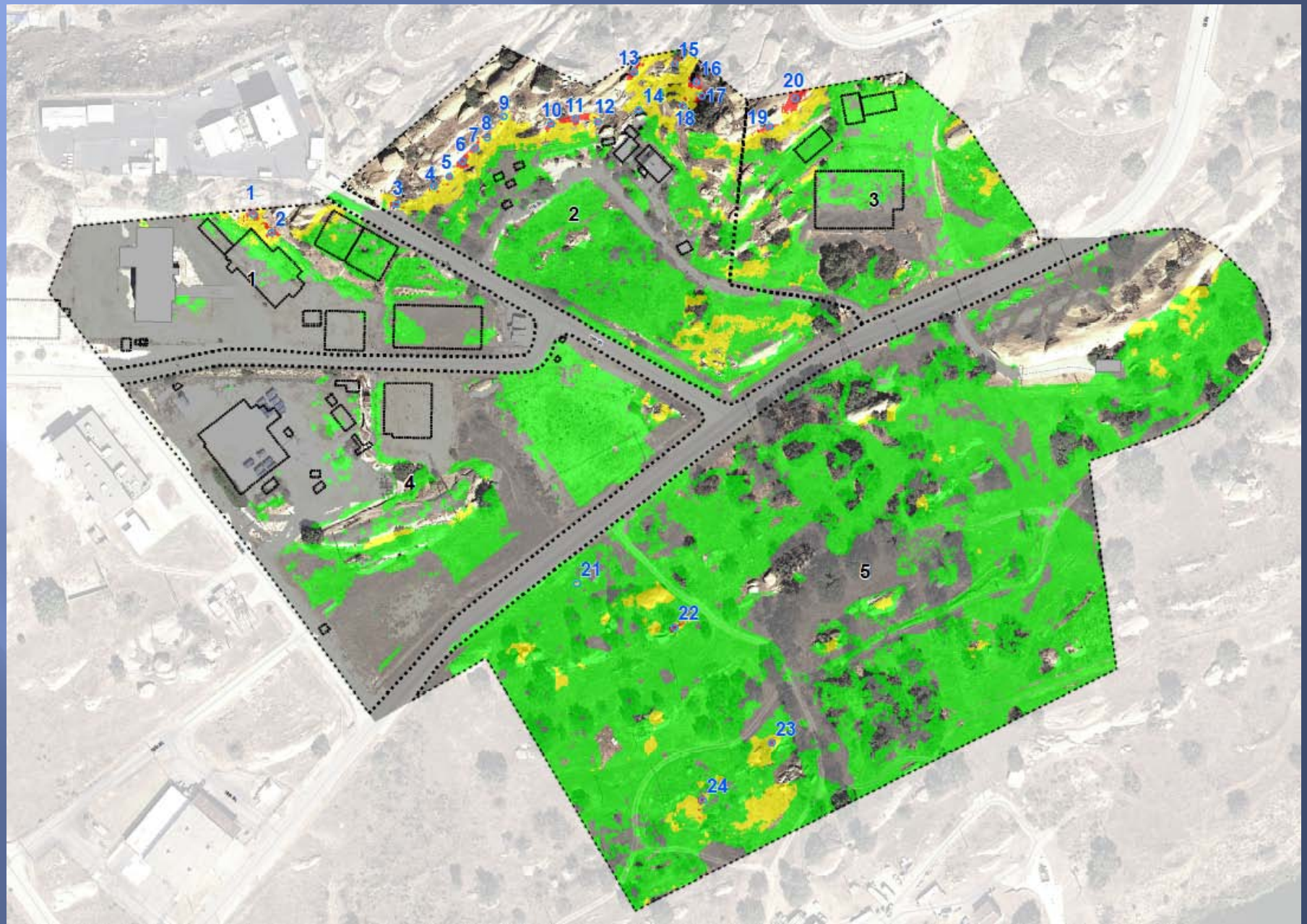
Identified 24 potential Gamma Radiation Anomalies

Verified and evaluated 23 of 24 potential anomalies

Gamma Scanning Progress

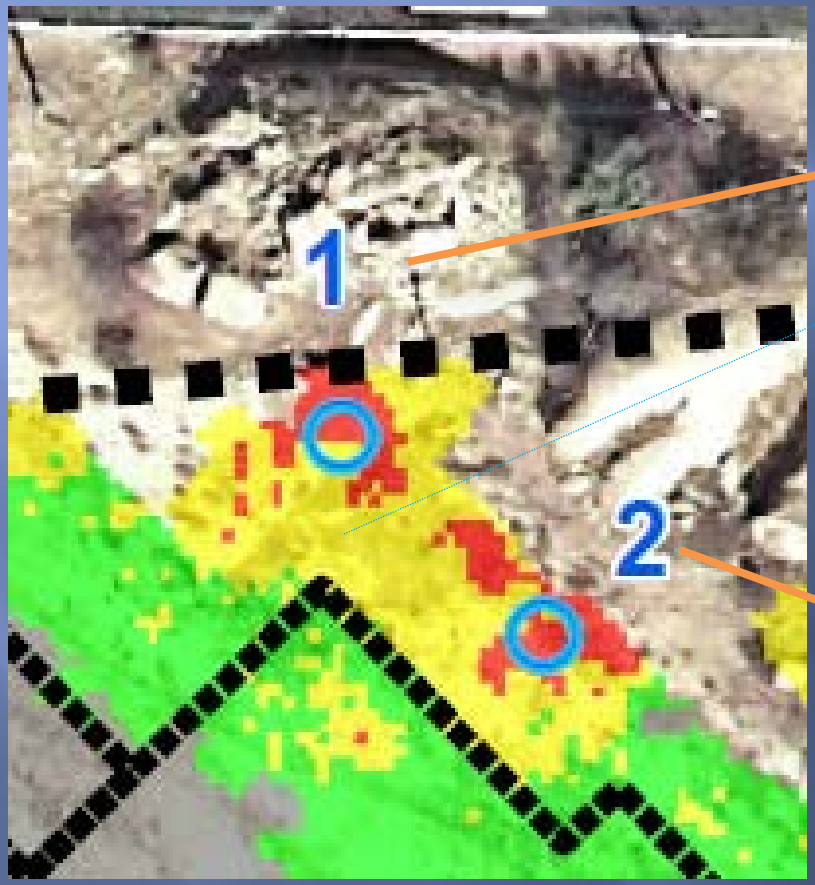


Subarea 5A Potential GRAYs



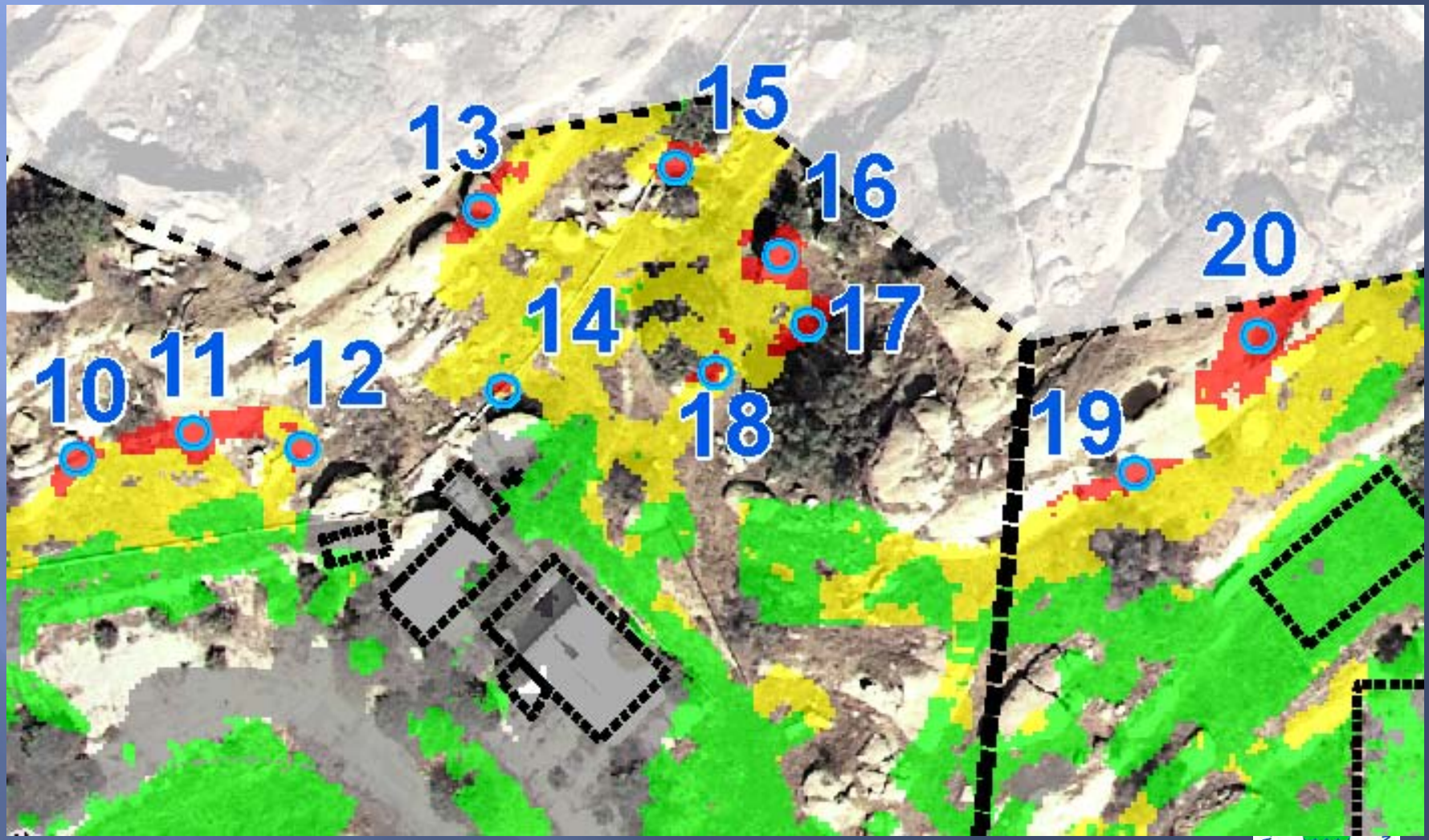
5A Potential GRAYs 1-9

Subarea 5A Potential GRAYs 1 & 2

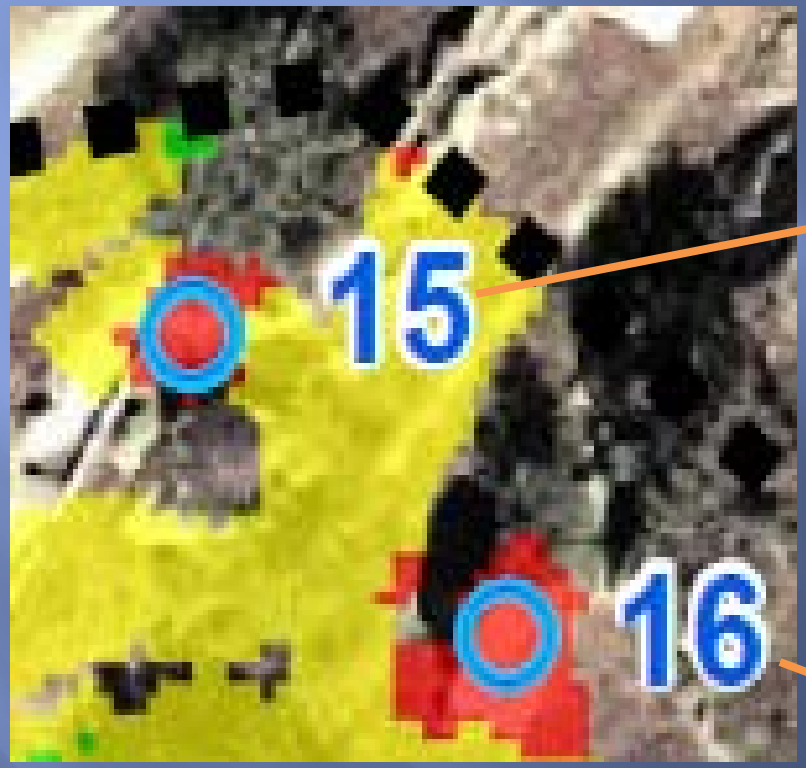


5A Potential GRAYs 4-9

5A Potential GRAYs 10-20

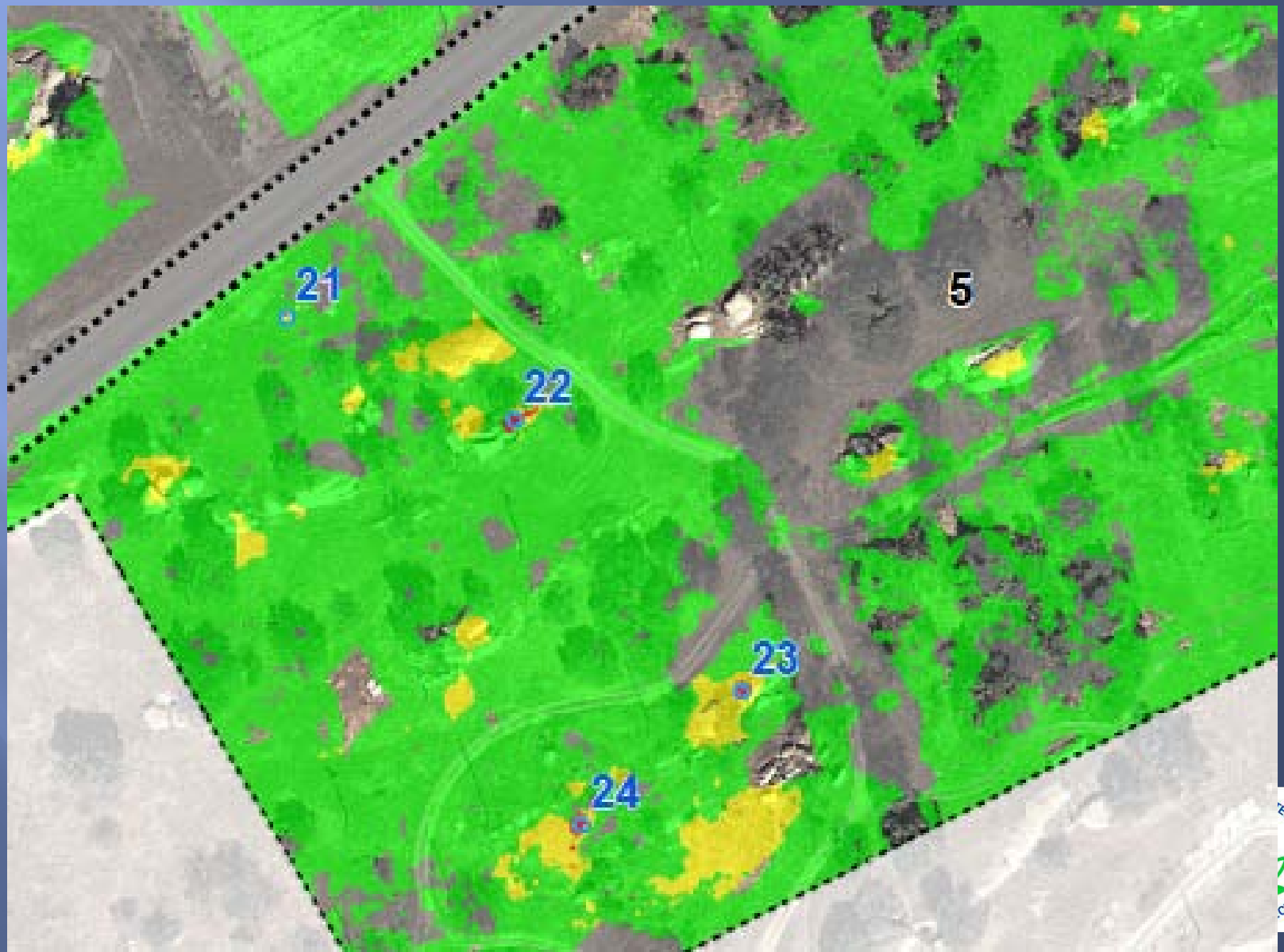


5A Potential GRAYs 15 & 16



5A Potential GRAYs 17 & 18

5A Potential GRAYs 21- 24



5A Potential GRAY 22

Preliminary Evaluation
5A Potential GRAYs

Potential GRAY	Evaluation
1-15, 17-21, 23,24	NORM
16	Site still too wet to verify
22	Suspect due to physical evidence at the location
NORM is Naturally Occurring Radioactive Materials (Uranium, Thorium, and Potassium-40)	

Next Steps

- Complete Subarea 5D-North, move into Subarea 8-North
- Install borehole for gamma soil depth testing

Questions?

SOIL SAMPLING STATUS
January 28, 2011

HSA Subarea	Planned Samples	Surface Soil Samples	Subsurface Soil Samples	Drainage Samples	Total Samples
5C	205	70	119	13	202
5B	510	169	174	25	368
Total	715	239	293	38	570

Co-Located Chemical Sampling Planned Sampling Approach

Laura Rainey
Department of Toxic Substances Control
February 2, 2011

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)

Update on Sampling in Subarea 5B

- Field Work
  - Sediment Sampling nearly complete
  - Soil sampling continues to proceed, but there is a growing need for efficiencies to complete the work.

- Lab work:
  - Soil chemical analyses are proceeding well and lab achieving analytical goals presented in October, but we are reaching lab capacity.
  - Working closely with laboratory to meet aggressive schedule and avoid data quality problems

Agency Coordination and Oversight

Collaborative effort between DOE and DTSC involves:

- Weekly coordination calls (DTSC's lab personnel and technical staff, DOE, CDM and contracted lab);
- DTSC's weekly field oversight of sampling activities;
- Ongoing DTSC site visits and coordination between DTSC, DOE and EPA;
- Ongoing feedback/review/approvals provided by DTSC lab and technical staff

Co-Located Sampling Process

- Chemical data collection should be driven by need to make cleanup decisions:
  - During review of EPA's proposed sample locations for Subarea 5B, three scenarios were identified that may allow discretionary co-located chemical sampling
  - For each identified scenario, criteria were developed to use for decisions involving discretionary sampling

Co-Located Sampling Process

Based on review, identified scenarios that may allow for discretionary sampling for chemicals:

1. Clearly Contaminated Areas (example: 17th Street Drainage, discussed at 11/19/2010 Stakeholder meeting)
2. High-density radiological sampling areas due to elevated gamma survey results
3. High-density radiological sampling of features

Discretionary Sampling Scenario

Scenario #1: “Clearly contaminated” area that will require cleanup.

Discretionary sampling criteria:

1. “Clearly contaminated” = Detected chemical concentrations obviously exceed current background (BG) and/or Method Reporting Limits (MRLs)
2. “Clearly Contaminated” = High frequency and number of chemical constituents that exceed BG and MRL
3. DOE agrees to cleanup of contaminated area

>> Potential discretionary decision: do not collect chemical samples at some EPA locations where sufficient chemical data already exist

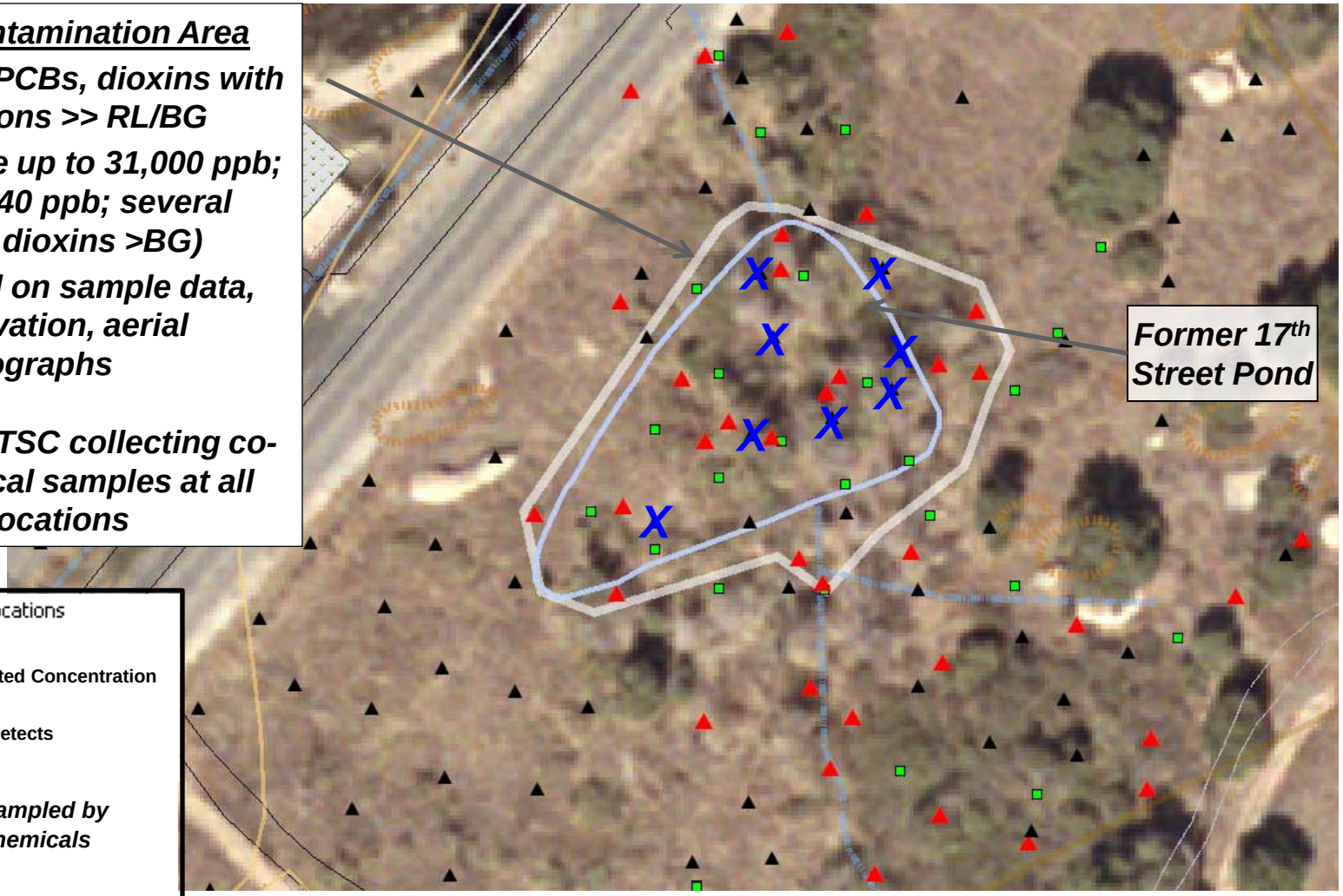
>> Co-located sampling will still be conducted near area, as needed, to adequately define extent of contamination

Scenario #1: Clearly Contaminated Area = 17th Street Drainage

17th Street Contamination Area

- ***Metals, PAHs, PCBs, dioxins with concentrations >> RL/BG***
- ***Benzo(a)pyrene up to 31,000 ppb; PCBs up to 340 ppb; several metals and dioxins >BG)***
- ***Extent based on sample data, site observation, aerial photographs***

Other Areas - DTSC collecting co-located chemical samples at all other locations



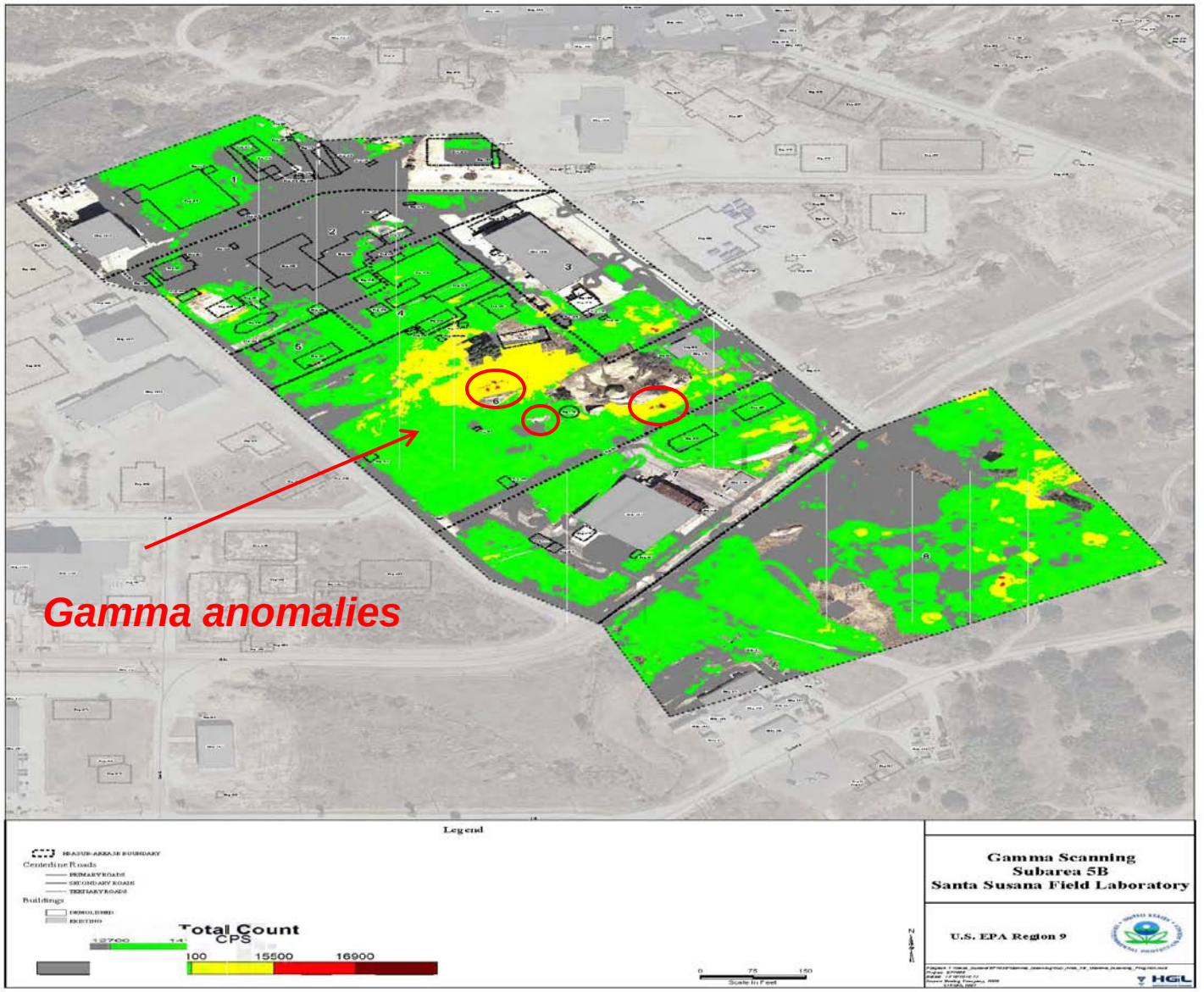
Discretionary Sampling Scenario #2

Scenario #2: High-density radiological sampling area due to elevated gamma survey results

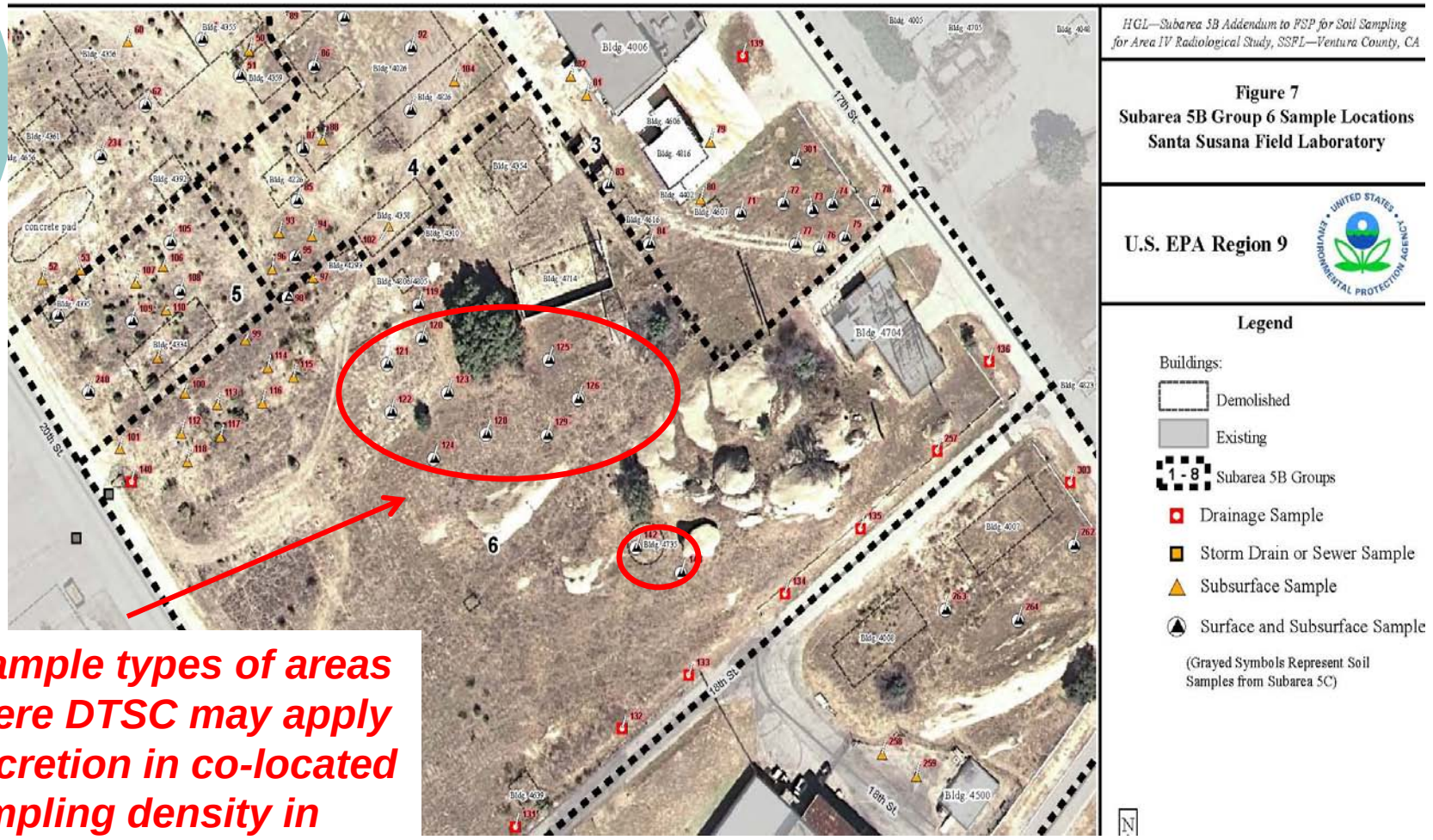
Discretionary Sampling Criteria:

1. No known and/or identified chemical operations and/or releases (subject to field observations)
2. Non-point source, no preferential pathways identified, open/flat area
3. Site is sufficiently distant from known potential chemical sources

>> Potential discretionary decision: do not collect chemical samples at some EPA locations so that sample spacing is consistent with RFI approach (~50 to 100 feet)


Gamma anomalies
Legend
Total Count
CPS
100
15500
16900
Gamma Scanning
Subarea 5B
Santa Susana Field Laboratory
U.S. EPA Region 9

Scenario #2: High-Density Radiological Sampling Due to Gamma Survey Results



Example types of areas where DTSC may apply discretion in co-located sampling density in future HSAs

Discretionary Sampling Scenario #3

Scenario #3: High-density radiologic sampling of historic features

Discretionary Sampling Criteria:

1. Feature has known chemical and/or rad impacts, and/or identified data gaps
2. Targeted sampling density should be based on feature characteristics and historical use (e.g., holdup tanks, septic tanks, sumps, test areas, etc.)

>> Potential discretionary decision: using professional judgment, do not collect chemical samples at some EPA locations so that sample spacing is consistent with RFI approach

Additional Potential Scenarios

The following additional scenarios will be evaluated using existing RFI data and new co-located sampling results:

- Discretionary depth selection for certain analytes, based on known distribution (example: dioxins)
- Discretionary reduction of analyte list based on known historical chemical usage and chemical breakdown rate

Communication Process

- Identified scenarios for potential discretionary chemical sampling will be communicated to stakeholders in advance for discussion.
- As criteria are developed for each approved scenario, they will be applied to subsequent subareas for determination of discretionary sampling.
- Decisions made based on applied criteria for each scenario will be clearly described in each subarea technical memorandum.

Where do we go from here...

- Analytical data will soon be available.
- Data validation has begun.
- Technical memorandums will be prepared for each subarea, starting with 5C in late spring.
- Tech memos will be posted on EPA's Sharepoint web site.

United States Environmental Protection Agency
(USEPA)

Analytical Laboratory Procurement Update;

Area IV and Northern Buffer Zone Radiological Study;
Santa Susana Field Lab

February 2, 2011

General Overview of the Laboratory Procurement Process

- Step 1: Conduct Request for Information (RFI) to determine which laboratories are technically qualified.
- Step 2: Request cost information and measurement quality objective (MQO) information from the most qualified laboratories.
- Step 3: Conduct laboratory audits and provide performance evaluation (PE) samples to the selected laboratories.
- Step 4: Request best and final offers (BAFOs) from laboratories, based on information obtained during the laboratory audit and PE sample process.
- Step 5: HGL formally requests and receives EPA consent to subcontract with laboratories recommended by HGL.
- Step 6: HGL negotiate and awards subcontract(s) as approved by EPA.

Overview of the Procurement Process: Coordination with EPA

- EPA and HGL created a team of analytical lab experts including technical assistance from EPA radiation labs in Las Vegas and Alabama
- HGL has routinely briefed EPA project managers on its progress on during each procurement step
- HGL cannot proceed with subcontracts with selected laboratories without EPA consent.

Criteria to be considered "Technically Qualified"

- Experience
- NELAP/DOECAP Accreditation
- Description of how the lab will meet the MDC and QC sample requirements
  - Sample data package
  - Demonstrations of Capability (DOCs)
  - Proposed analytical geometries
- Qualifications of Key Personnel
- Laboratory quality control documentation

Criteria to be considered "Technically Qualified" – cont'd

- Laboratory capacity assessment
  - Numbers and types of instruments to be used
  - Adequate fume hood space
  - Amount of bench space in sample preparation area
- Anticipated turnaround time (TAT) for data delivery
- Identification of any lower tier subcontractors
- Technical exceptions to the Statement of Work

Lab Procurement Status Summary

- Step 1 is complete. Seven proposals were received. Five laboratories were considered "technically qualified" and selected to proceed to Step 2.
- Step 2 is complete. Cost and MQO information has been received from the 5 laboratories.
- Step 3 is complete. Onsite lab audits and PE sample analyses for the 5 laboratories is done. Three laboratories successfully completed this step.

Lab Procurement Status Summary

- Step 4 is complete: The Best and Final Offers from the 3 remaining laboratories were received and reviewed.
- HGL has requested EPA consent to subcontract with two selected labs.
- Next Steps:
  - HGL receives EPA consent.
  - HGL negotiates and awards subcontracts with selected labs
  - Samples can be sent to selected labs for analysis.