

**Public Meeting
for**

**EPA's Radiological Characterization for
Area IV and the Northern Buffer Zone
at
Santa Susana Field Laboratory**

February 5, 2014



EPA SSFL Management

Jane Diamond, EPA Superfund Division Director

Michael Montgomery, EPA Assistant Director

Loren Henning, EPA Section Chief

Mary Aycock, EPA Remedial Project Manager

Andy Bain, EPA Remedial Project Manager

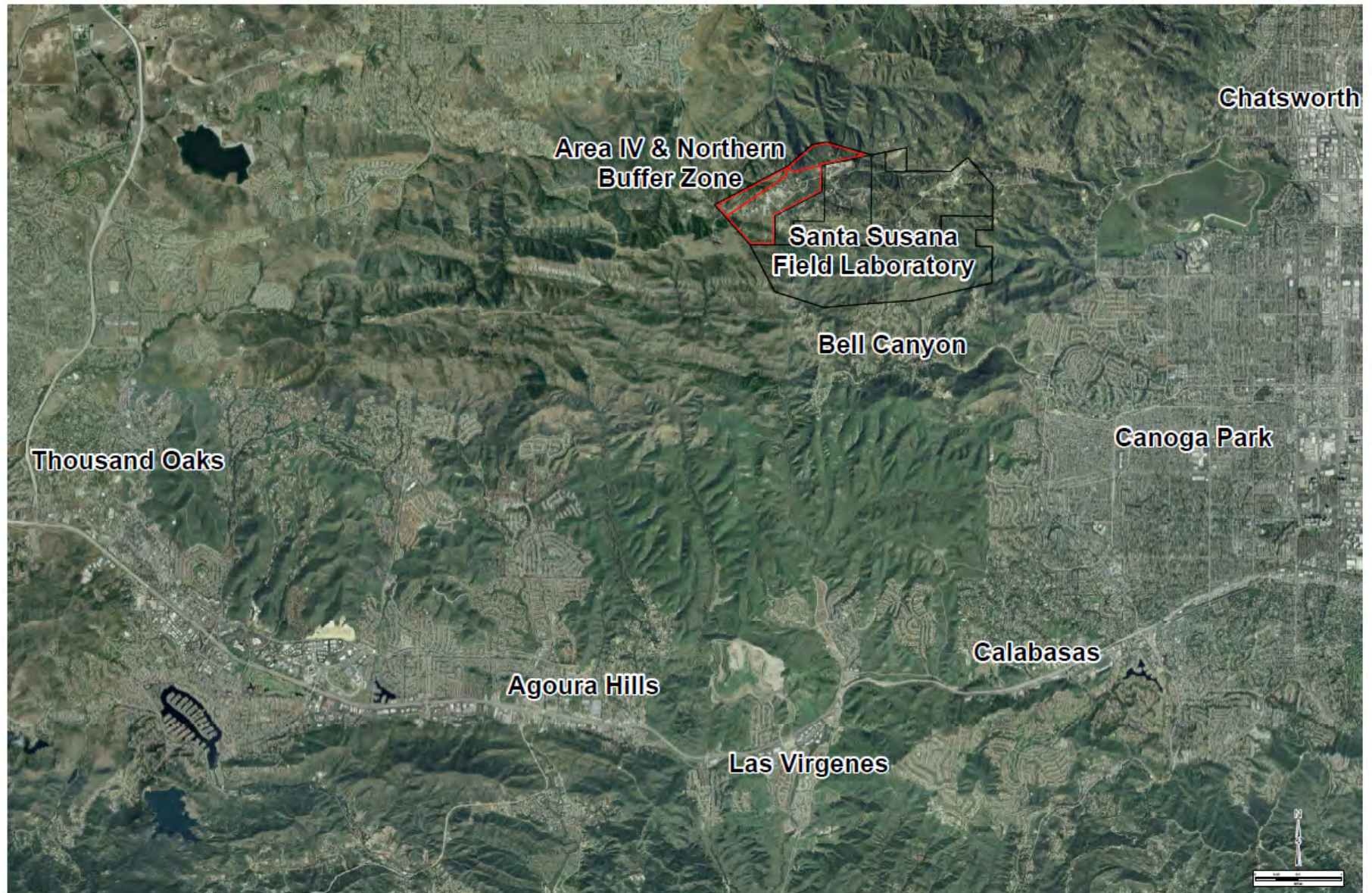
Shiann-Jang Chern, EPA Remedial Project Manager

Gregg Dempsey, Technical Advisor

<http://www.epa.gov/region09/SantaSusana>



Site Location



EPA's Role

- 2008 Federal Appropriations Law (HR2764)
- DOE and EPA Interagency Agreement (Closed)
- Comprehensive radiological site characterization of Area IV and Northern Buffer Zone (NBZ) in accordance with CERCLA/Superfund
- Department of Toxic Substances Control (DTSC) is lead regulatory agency for site clean-up under a RCRA Corrective Action



Federal Appropriations Law (HR2764)

- DOE provided EPA with \$41.5 million to do this study, including \$38.3 million under the American Recovery and Reinvestment Act of 2009 (ARRA)



Gamma Scanning 266 Acres Surveyed



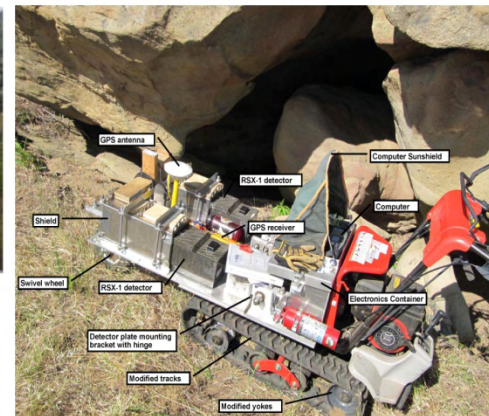
Gamma Radiation Detection Systems



Enhanced Radiation Ground Scanner II
(JCB Telehandler)



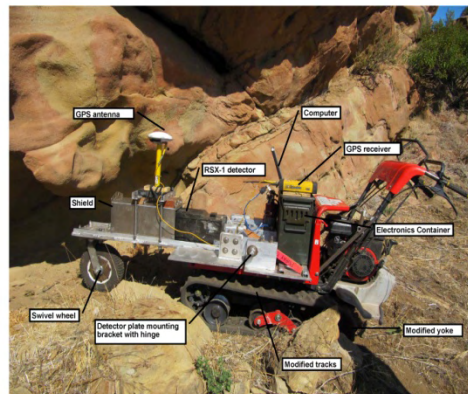
Enhanced Radiation Ground Scanner II
(SkyTrak Telehandler) Scanning
Hillside Behind RMHF



Dual Detector Track Mounted
Gamma Scanner



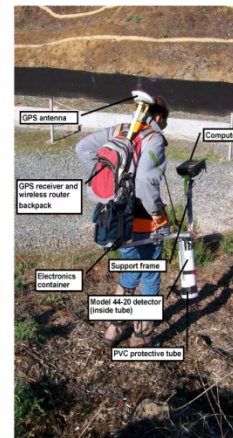
Wheel Mounted Gamma Scanner



Single Detector Track Mounted
Gamma Scanner



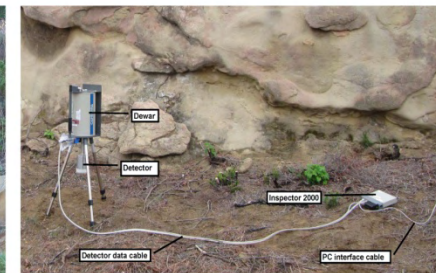
Mule Mounted Gamma Scanner



Hand Held Gamma
Scanner I



Hand Held Gamma
Scanner II



In Situ Gamma Spectrometer

Presented in order of detection capability top-left to bottom-right

Wheel Mounted Gamma Scanner



Track Mounted Gamma Scanner



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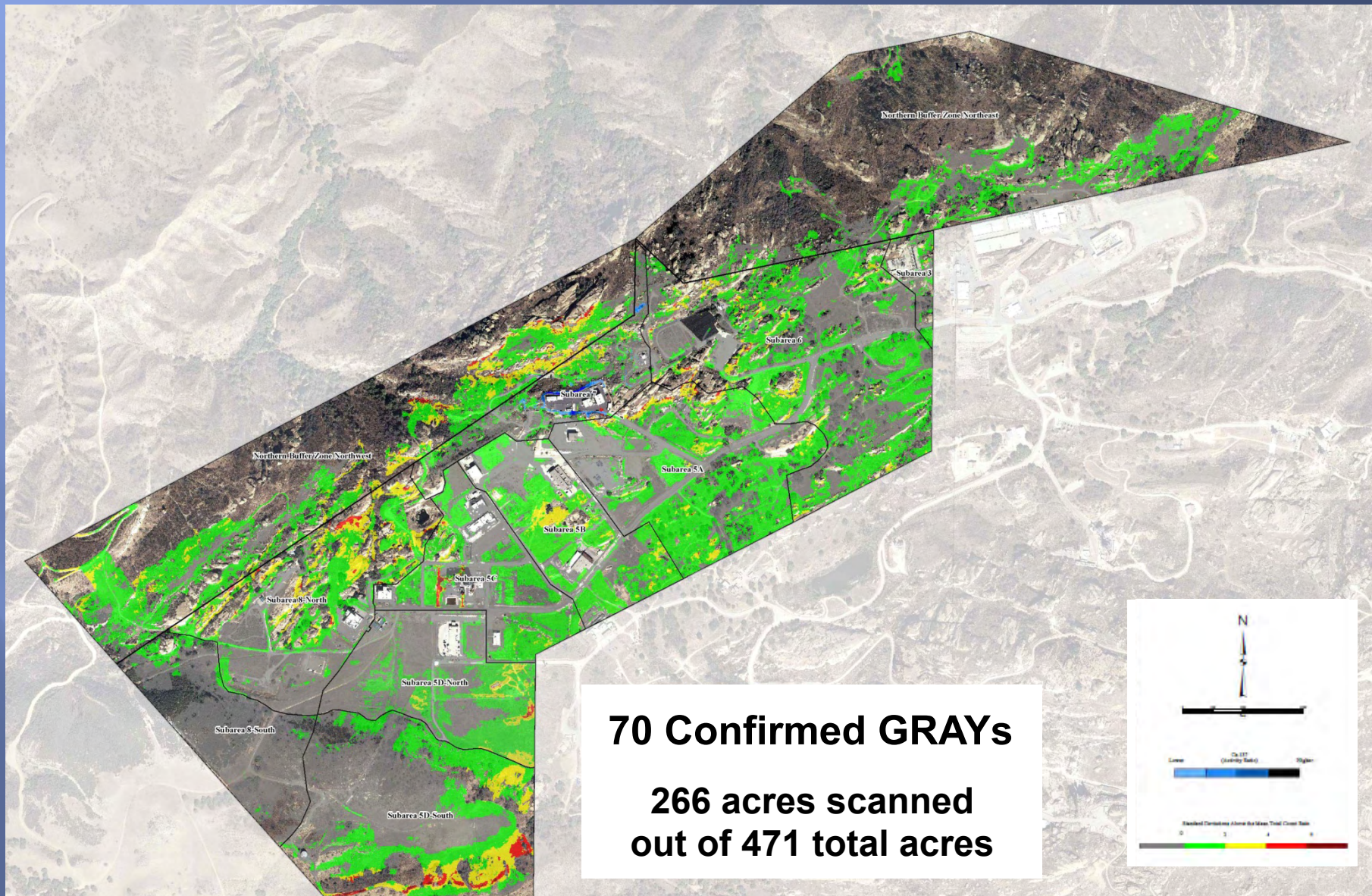
Enhanced Radiation Ground Scanner (ERGS)



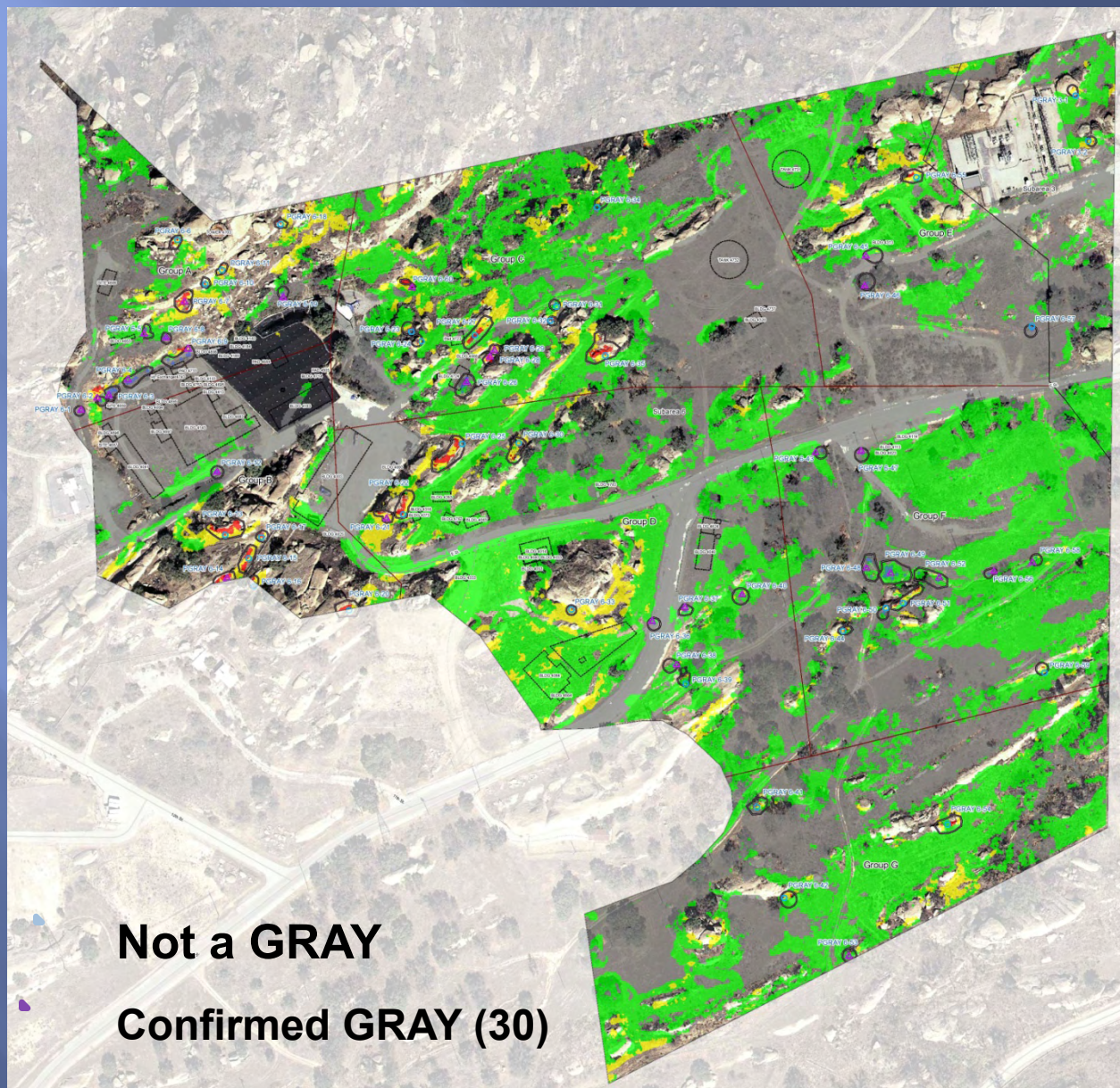
Mule Mounted Gamma Scanner



Gamma Scanning Results



Subarea 6 Results

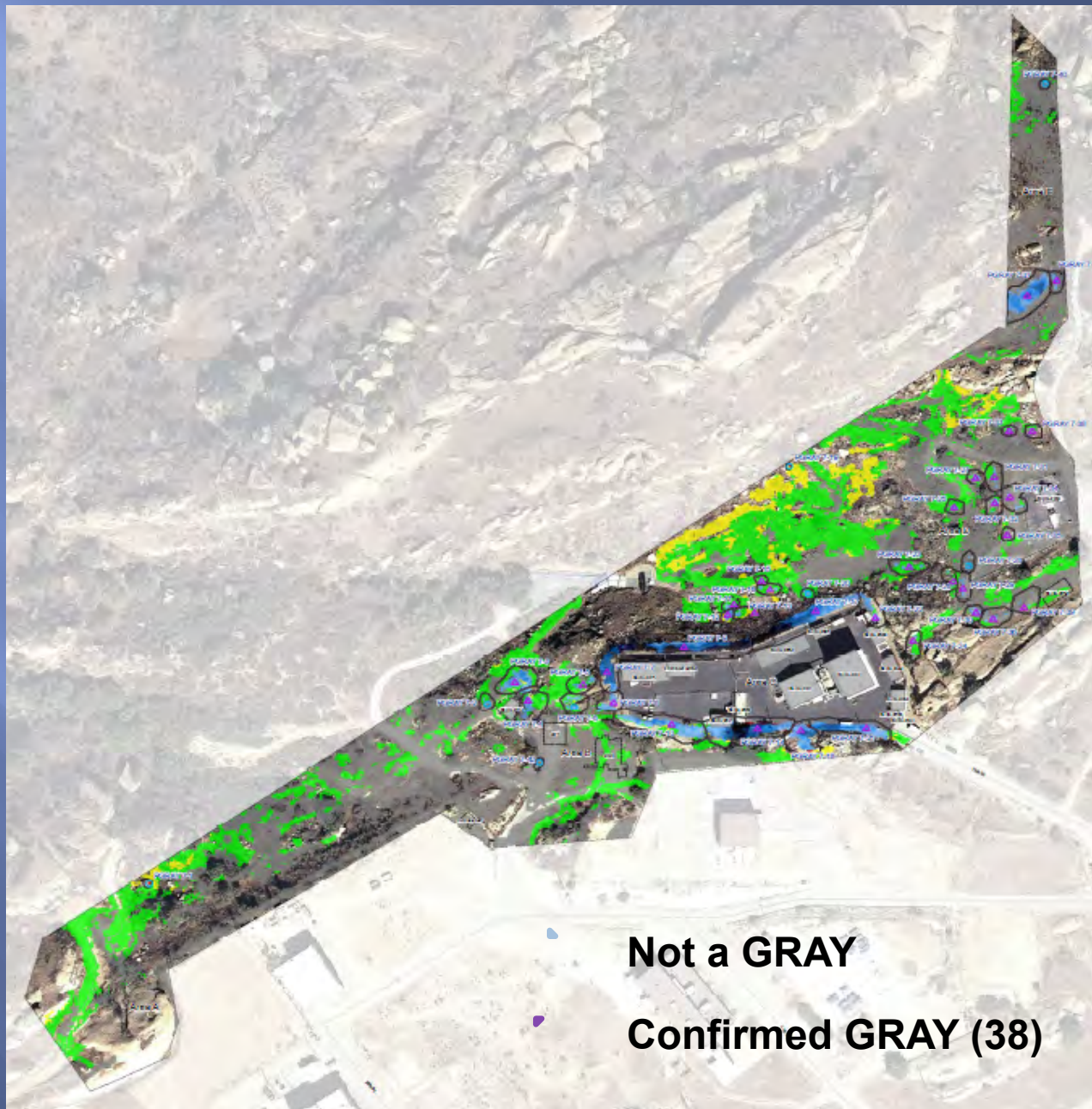


Not a GRAY

Confirmed GRAY (30)



Subarea 7 Results



Not a GRAY

Confirmed GRAY (38)

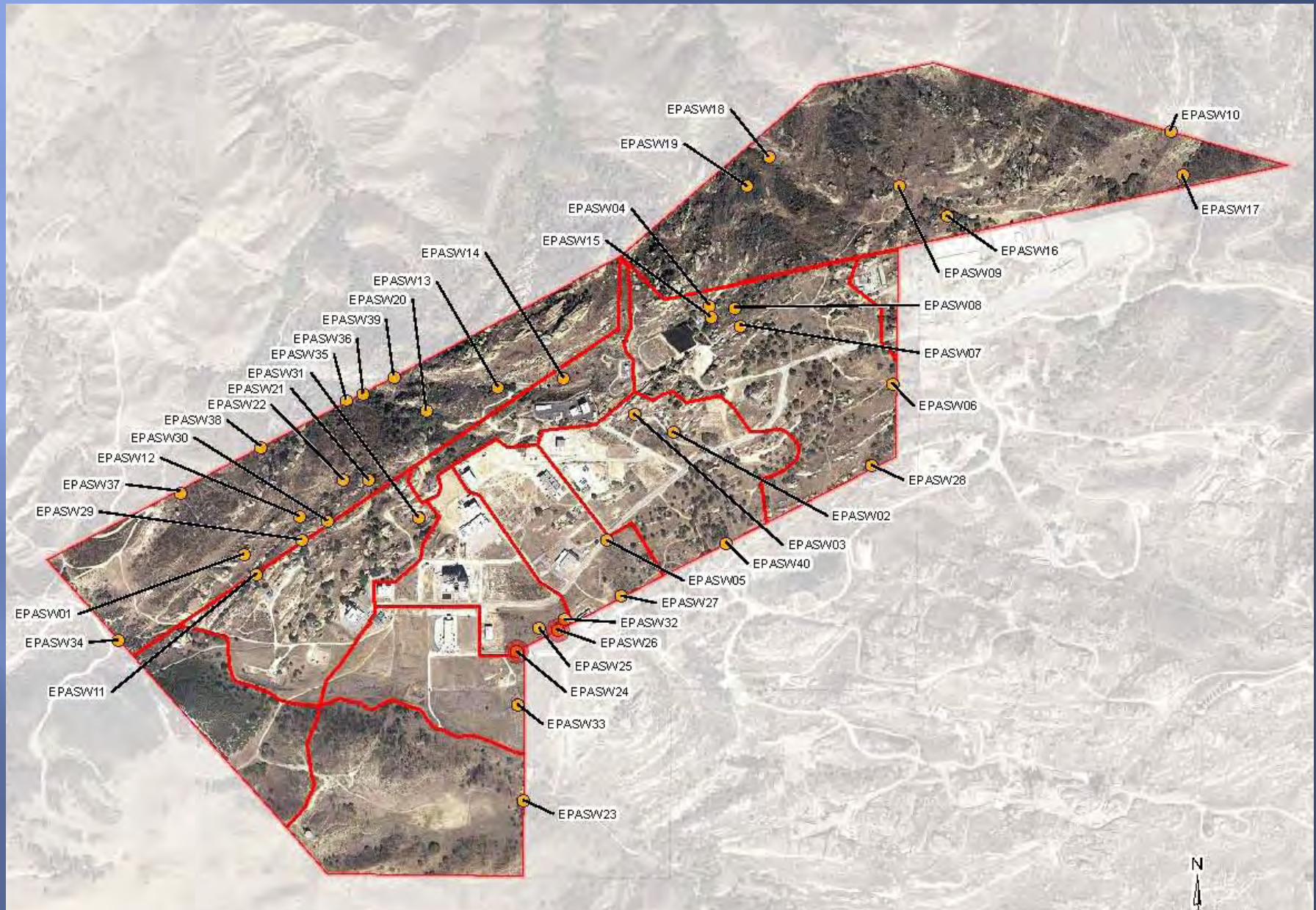


Surface Water Sampling

- Conducted in December 2010
- Collected 34 Samples
- Samples at two locations exceeded the Maximum Contaminant Level (MCL) of 50 pCi/L for total gross beta
 - Location EPASW24
 - Total gross beta (51.2 pCi/L)
 - Location EPASW26
 - Total gross beta (191 pCi/L)



Surface Water Sampling Locations

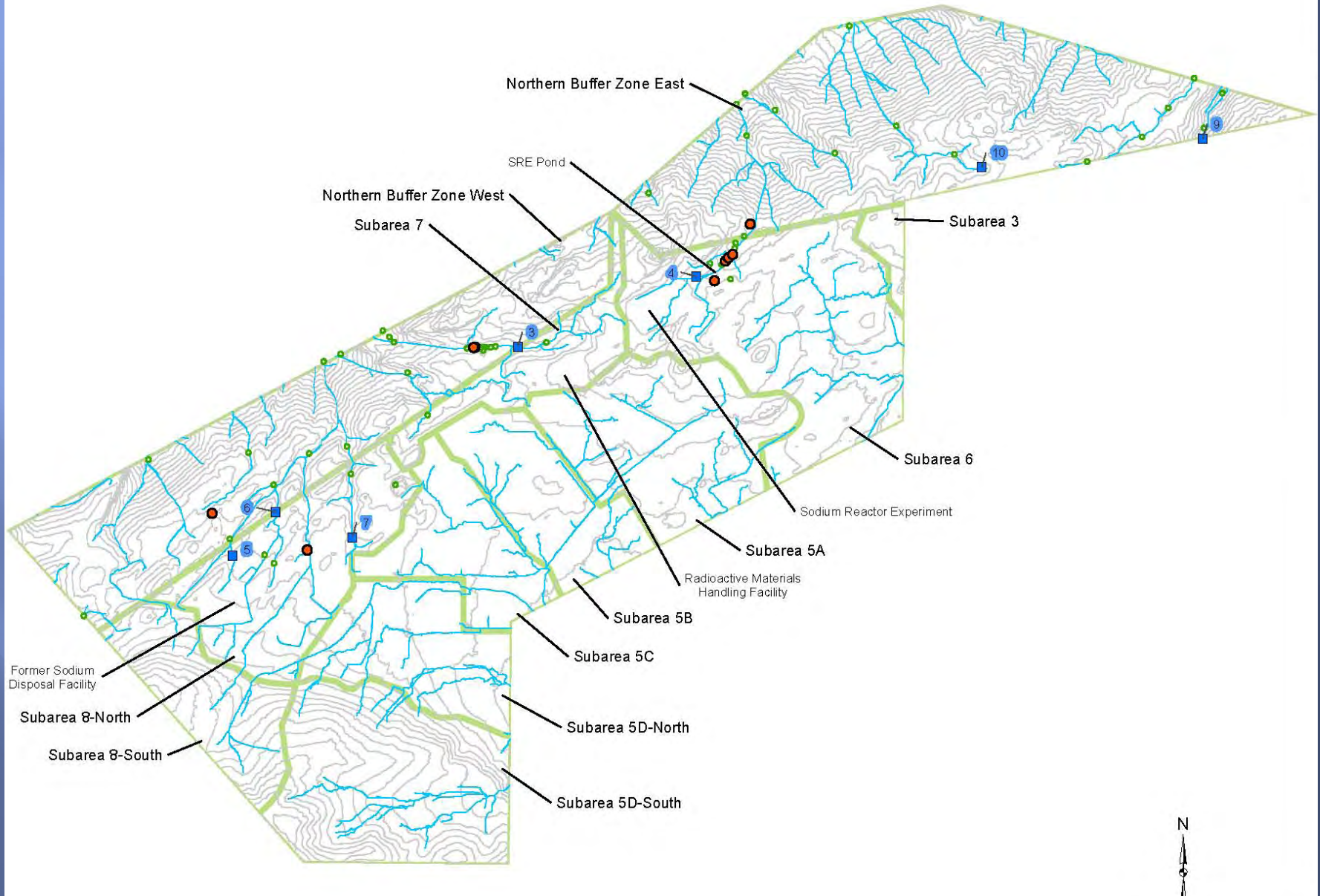


Sediment Sampling

- A total of 67 samples and four field duplicate samples were collected throughout Area IV and the NBZ.
- Radionuclide concentrations exceeded Field Action Levels (FALs) in four areas.
 - Cs-137, Sr-90, and Pu-239/240 were detected downgradient of the Sodium Reactor Experiment (SRE)
 - Sr-90 was detected downgradient of the Radioactive Materials Handling Facility (RMHF)
 - Sr-90 also exceeded FALs at one location in the western portion of the NBZ
 - Cs-137 also exceeded FALs at one location downgradient of the Building 4009 leach field



Sediment Sampling Locations



Groundwater Sampling

- Two Phases (Dry Season- August 2010. Wet Season- April 2011.)
- Sampled 80 wells in Area IV and 13 wells off-site
- Collected a total of 161 groundwater samples
- Detected tritium in three Area IV wells above the MCL
- Detected Sr-90 in one Area IV well above the MCL
- The results of EPA's characterization study confirmed Boeing's previous data





HGL-Santa Susana Field Laboratory
 Santa Ventura County, California

Area IV and Northern Buffer Zone Phase I and Phase II Groundwater Sample Locations Radionuclide Concentrations Above Maximum Contaminant Levels

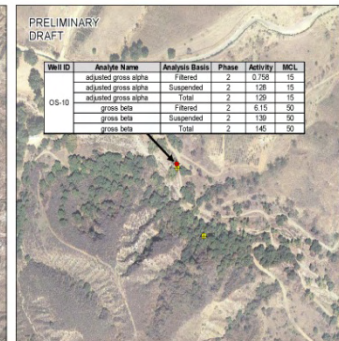
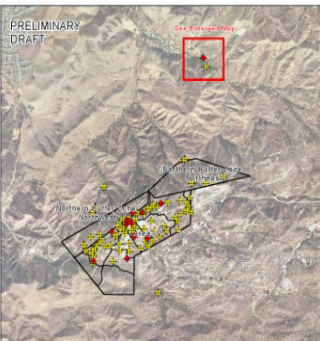
U.S. EPA Region 9



Legend

- Location of MCL Exceedance
- Groundwater Sample Location
- Subarea Boundaries

Note:
 Activity and Maximum Contaminant Levels (MCL)
 reported in picocuries per liter (pCi/L)



Surface/Subsurface Soil Investigation



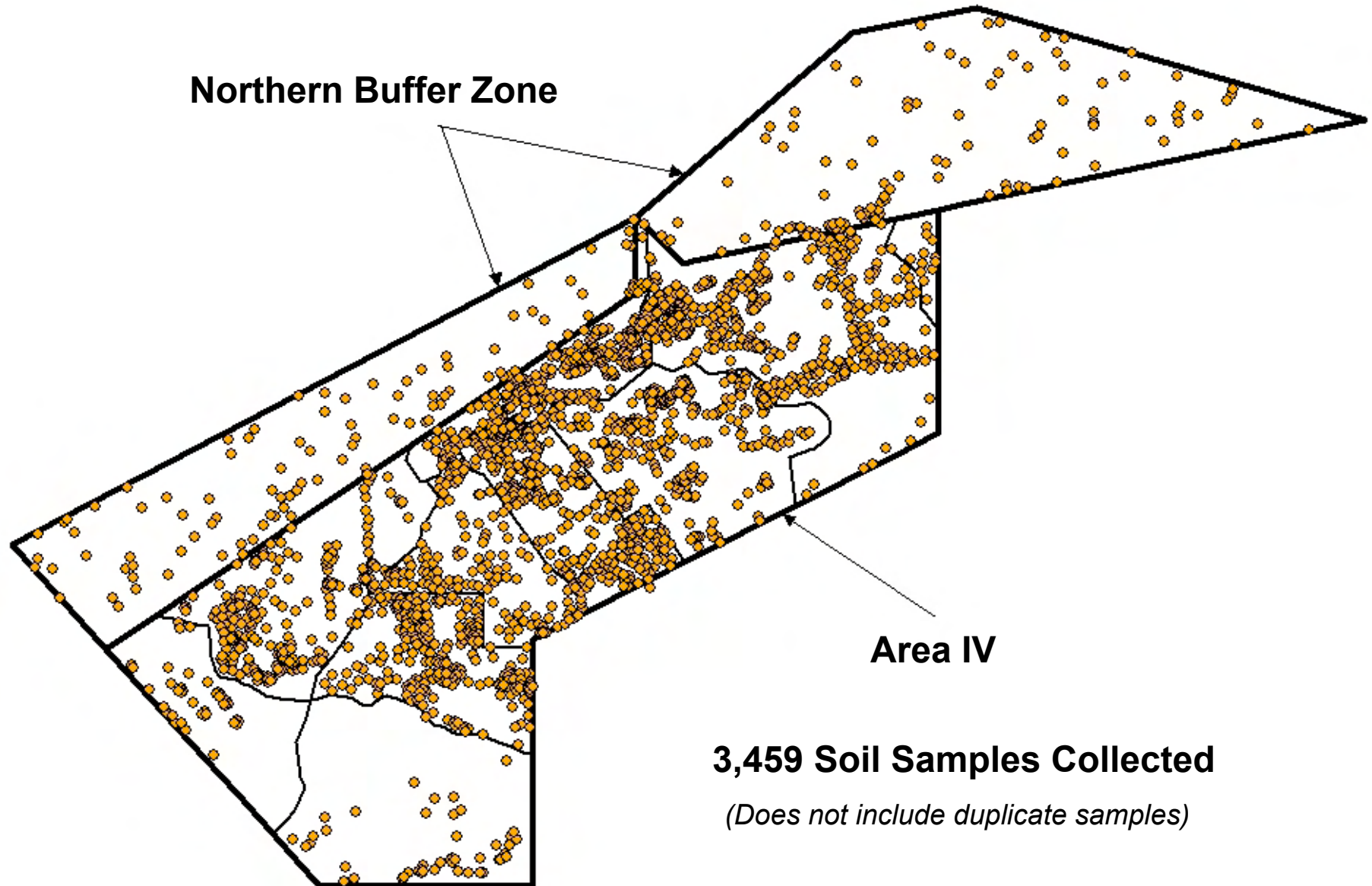
Soil Sampling

- Round 1 Soil Sampling
 - Area IV – 2,490 samples and 131 field duplicate samples collected
 - NBZ – 233 samples and 13 field duplicate samples collected
 - Deep Borehole – 18 samples and one field duplicate collected
 - Completed in May 2012
- Round 2 Soil Sampling (Step-outs)
 - 734 samples and 44 field duplicates collected
 - Complete July 2012



Soil Sample Locations

Area IV and Northern Buffer Zone



Surface Soil Sampling



Soil Sample Results Above the Field Action Level

<u>Radionuclide</u>	<u>FAL (pCi/g)</u>	<u>Exceedances</u>
Cs-137	0.193	291
Sr-90	0.075	153
Pu-239/240	0.0142	14
Eu-152	0.0459	6
Co-60	0.0252	4
Am-241	0.0410	3
Pu-238	0.00921	2
Cm-243/244	0.0162	2
Eu-154	0.1360	1
Ni-59	7.24	1
Tritium	7.38	1



Contact Information

www.epa.gov/region9/SantaSusana

