

# WELCOME

## Draft Gap Analysis Report Meeting

June 10, 2008



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)

# Meeting Objectives

- Present Data Gap Analysis
- Introduce CDM-SAIC Team
- Answer Initial Questions



# Agenda

- Welcome – Thomas Johnson
- Agenda and Process – Ann Marshall
- DOE Overview – Stephanie Jennings
- Overview of Data Gap Process – John Wondolleck
- Radioactive Materials and Radionuclides – Tom Rucker
- Break
- Soil Chemical Assessment – Lynne France
- Groundwater – Aaron Frantz
- Surface Water and Biological Resources – John Wondolleck
- Wrap Up and What's Next – Stephanie Jennings



# SSFL Land Ownership

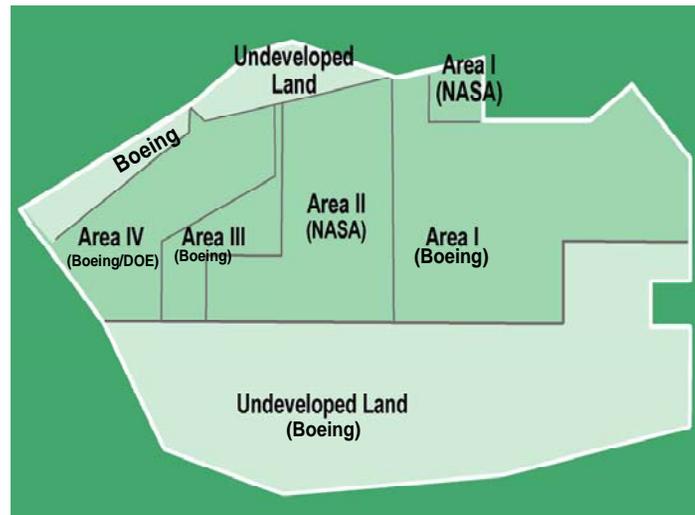
- Santa Susana Field Laboratory (SSFL) is divided into 4 Administrative Areas and Undeveloped Land owned by:

- Boeing:

- Part of Area I (670.6 acres)
- All of Area III (114.2 acres)
- All of Area IV (289.9 acres)
- Undeveloped Land to the North (182 acres)
- Undeveloped Land to the South (1143 acres)

- NASA:

- Part of Area I (41.7 acres)
- All of Area II (409.5 acres)

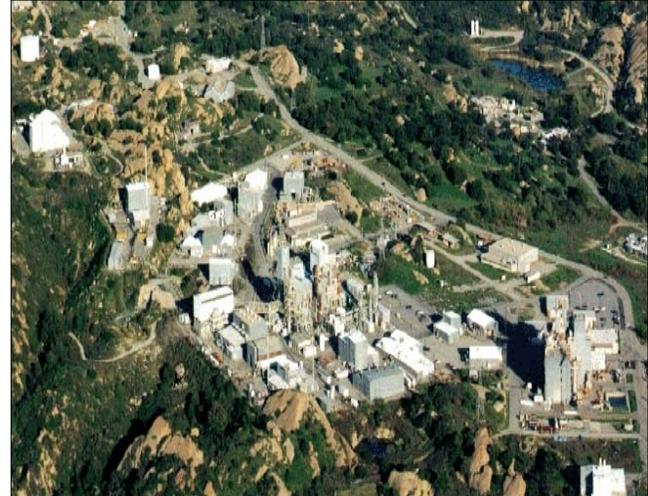


SSFL totals 2850.5 acres



# Brief History of DOE's SSFL Mission

- The primary DOE activities at Area IV SSFL were:
  - Nuclear research
    - There were ten research reactors.
    - Reactor operations ended in 1980.
    - All nuclear research completed in 1988.
  - Liquid metal research
    - Sodium component test facilities.



Area IV Circa 1985

# Prior Area IV Cleanup Activities

- DOE began cleanup activities in Area IV in the 1960s
  - Approximately 250 structures have been removed.
- DOE issued an Environmental Assessment in 2003
  - Finding of No Significant Impact.



Area IV 2005

# Environmental Impact Statement for Remediation of Area IV SSFL

- Objective:
  - To define path forward for cleanup in Area IV that is publicly acceptable, protective of the environment and adjacent communities, and implementable
- What we are doing for the EIS is unique



# Why the Data Gap Analysis?

- Concerns expressed regarding adequacy of data for Area IV
- Purpose of the Guide to the *Draft Gap Analysis Report*
- Purpose of public review and importance of their feedback of the Data Gap Study
  - Questions on what we've done
  - Feedback on what we may have missed
  - Input for the future sampling program

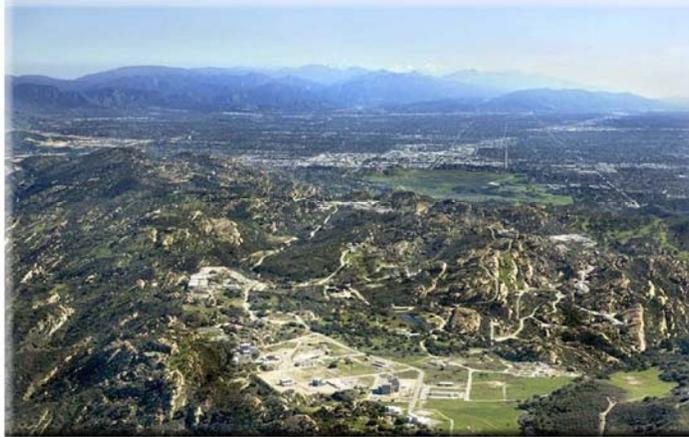


# Technical Team

- CDM
  - Overall management
  - Lead on gap analysis
  - Lead on field investigation report
- SAIC –
  - Radioactive materials investigation
  - EIS lead
  - Public Participation Lead
- Diverse Strategies for Organizing
  - Local Community Support

# CDM/SAIC Presentation

## Toward Cleanup at Santa Susana



A Guide to the *Data Gaps Study*

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# Santa Susana Field Laboratory Area IV EIS Development

Data Gap Analysis Report  
Presentation

Simi Valley, California

June 10, 2008



# Data Gap Analysis Purpose

- Identification of data necessary to evaluate risk-based cleanup alternatives in a manner consistent with CERCLA and NEPA
- Independent review of existing data adequacy
- Determination of additional data needs for all of Area IV

# Address Comments on ETEC EA

- Perform a risk assessment using CERCLA guidelines
- Address both chemical and radioactive contaminants
- Address risks to plants and animals
- Complete groundwater characterization for cleanup evaluations
- Address risks due to building demolition

# Data Gap Philosophy

- Total independent review of data and reports
- No presumptive evaluations of thoroughness of existing data
- Questioned all aspects of prior investigations
- Conclusions based on the professional qualifications and experience of the data gap scientists

# Data Gap Scientists

- Risk Assessment Specialists
- Geologists
- Groundwater Hydrologists
- Biologists
- Chemists
- Health Physicists
- Data Managers

# Conceptual Site Model

- Developed separate models for Human Health and Ecological pathways
- Land Uses Considered
  - Residential
  - Rural Residential
- Sources
- Pathways
- Receptors

# Data Quality Objectives

- Standardized process for developing Data type, quality, and quantity
- Overview of steps

# Data Gap Approach

- Addresses Data for all Media
  - Surface Soil/Subsurface Soil/Bedrock
  - Radiation Walkover Surveys
  - Surface Water/Sediment
  - Groundwater/Seeps
  - Building Material
  - Air
  - Biota

# Data Sources

- Boeing GIS Data Base used as data source for soil and groundwater data
- NPDES data reviewed for surface water
- Evaluated data and reports for air, buildings and radiological surveys
- Numerous reports reviewed to identify chemical use (chemicals) and process use (radioactive materials) areas

# Data Gap Steps

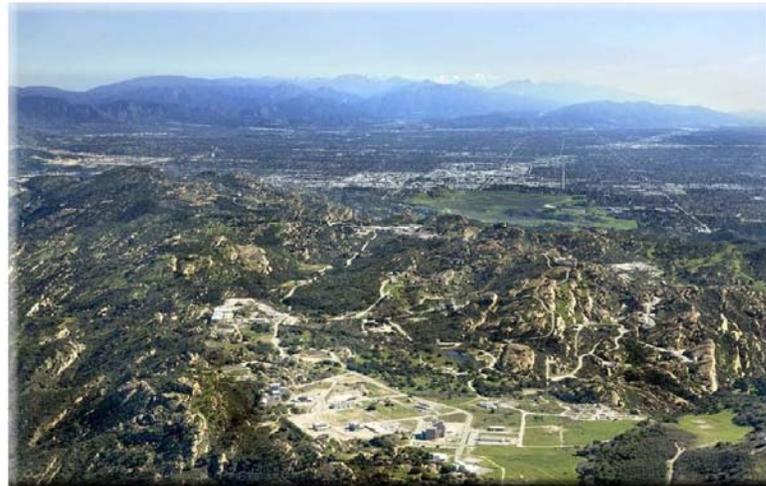
1. Database development for soil, groundwater, surface water, air, building material, walkover surveys
2. Review of numerous reports for chemical use and process history – identification of initial Contaminants of Interest
3. Development of screening criteria – background, human health and ecological risk
4. Screening of data to remove “non-detects” when laboratory analysis was not sensitive enough
5. Screening of data versus background and health criteria to identify areas of contamination

# Data Gap Steps

6. Subdividing Area IV into Exposure Units
7. Plotting of data to illustrate distribution of screened results
8. Conducting statistical analyses of number of samples required for risk assessment
9. Determining numbers of samples for contamination extent determination
10. Comparison of data needs with available data – which becomes the data gap
11. For chemicals, reconcile with RFI program

# Questions on Data Gap Approach

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# Soil Data Gap Approach – Radionuclides

- Radionuclide investigation incorporates EPA “Scoping Document” MARSSIM approach
- Multi-Agency Radiological Survey and Site Investigation Manual (MARSSIM)
  - Agencies Involved
    - EPA, NRC, DOE, DOD
  - Purpose of Manual
    - Final Status Surveys of Surface Soils and Buildings
- MARSSIM adapted as a basic guidance for characterization survey

# Soil Data Gap Approach – Radionuclides

- Boeing Radionuclide Data Base Review and Formatting
- Developed an expanded list of Radiological Contaminants of Interest
- Developed Radionuclide Preliminary Remediation Goals (PRGs)
  - Residential
  - Rural Residential
  - Ecological
- Background
  - Used Existing Off-Site Data Set for Surface Soil
  - Statistical Evaluation for Appropriateness

# Soil Data Gap Approach - Radionuclides

- All of Area IV is addressed in the study
- Area IV was subdivided into Exposure Units and Survey Units
- Survey Unit classification is based on historical knowledge and plotting of existing sample results
- Statistical analysis for number of samples needed for a risk assessment consistent with CERCLA
- All of Area IV addressed for sampling; additional samples to aid in defining extent of contamination

# Soil Data Gap Results – Radionuclides

- Data Gap = Data Needed – Valid Existing Data
- The Data Gap for surface, near surface, and subsurface soils is approximately 1,800 samples
- Bedrock will also be sampled where data are needed for characterization

# Gamma Walkover Survey

- Evaluation
  - Goal: Provide complete area coverage and identify additional locations for sampling
  - Evaluated all prior surveys for adequacy meeting current MARSSIM compliant standards
  - Identified inadequate surveys not meeting standards
- Recommendation
  - Survey all accessible portions of Area IV and potentially impacted areas of undeveloped land, seeps and drainages

# Soil Radionuclide Background Study

- Findings
  - No background data for subsurface and bedrock
- Recommendations
  - Collect additional background surface samples for each geologic zone
  - Collect subsurface and bedrock background samples

# Data Gap for Buildings

- Methods
  - Evaluated all remaining buildings for residual radionuclide contamination
  - Evaluated the existing surface contamination and radionuclide identification data
  - Evaluated usability of existing data for purpose of risk assessment

# Findings for Buildings

- Findings
  - 17 of 24 remaining structures have a radiological process history
  - Data for some buildings is deemed adequate
  - For some buildings characterization of surface contamination is incomplete
- Recommendations
  - Additional surface scans, timed measurements and sampling of dust and residue are proposed

# Data Gap for Air

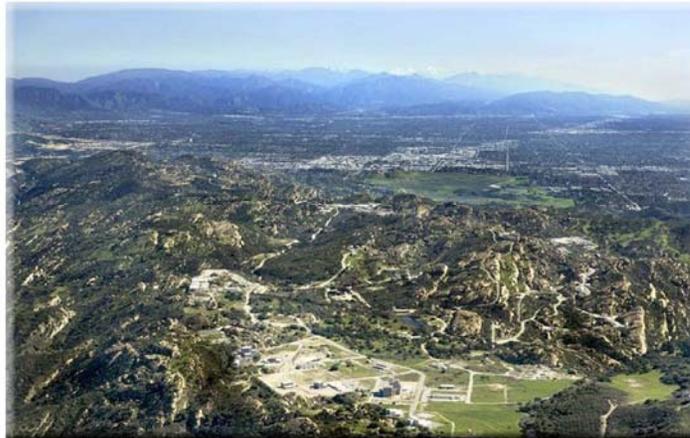
- Methods
  - Radiological air data were reviewed from annual Site Environmental Reports
  - Existing onsite and offsite air monitoring data was reviewed for identification of radionuclides of interest
- Findings
  - The existing monitoring data is not applicable for a future risk assessment

# Data Gap for Air

- Recommendations
  - The risk assessment will model the inhalation pathway for radionuclides based on their concentration in site soils and on building surfaces rather than using air monitoring data.
  - Use existing EPA's National Emission Standards for Hazardous Air Pollutants data to address potential exposures to offsite receptors

# Questions on Radionuclides Approach and Findings

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# Soil Data Gap Approach – Chemicals

- Methods
  - Reviewed and Formatted Boeing GIS Data Base
  - Preliminary Remediation Goals (PRGs)
    - Residential
    - Rural Residential
    - Ecological
  - Reviewed Soil Background Report

# Soil Data Gap Approach – Chemicals

- Methods
  - Identified Chemicals of Interest through evaluation of existing data and chemical use information
  - Plotted data to identify locations of samples exceeding PRGs and/or background levels

# Soil Data Gap Approach – Chemicals

- Methods
  - Evaluated additional samples needed to characterize chemical use areas
  - Identified number of samples required to define extent of known contamination
  - Evaluated number of samples required to characterize areas with no chemical use history
  - Statistically determined samples needed for risk assessment

# Data Gap Findings – Chemicals

- Findings:
  - Additional soil samples needed for:
    - Risk assessment
    - Characterization of chemical use areas
    - Determining extent of known contamination
    - Characterizing Area IV overall
  - Most data needs for chemical use areas may be addressed by the RCRA program

# Data Gap Recommendations - Chemicals

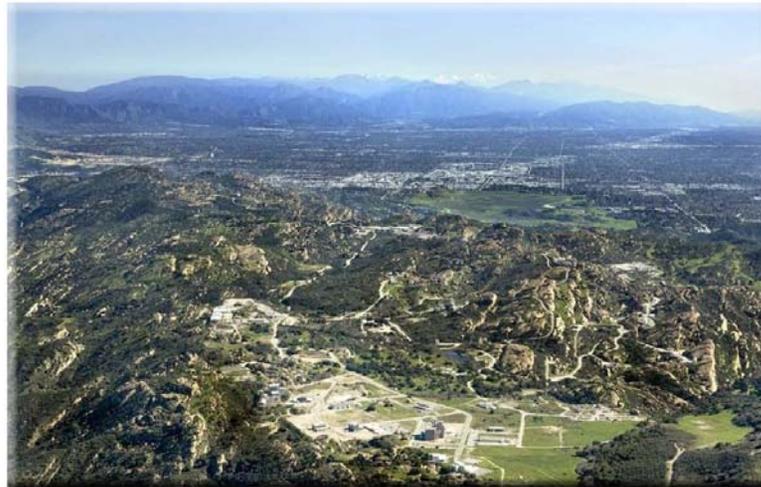
- Approximately 2,180 samples are needed throughout Area IV, mostly in chemical use areas
  - Approximately 300 to 400 outlying area samples, surface and near surface, needed to complete characterization overall
- Collect bedrock samples to characterize Area IV

# Reconciliation with RCRA RFI

- All initial data adequacy evaluations were performed independently of the DTSC Consent Order, Resource Conservation Recovery Act investigations (RCRA RFI)
- Currently evaluating usefulness of about 1,800 samples being collected as part of the RCRA work
- Reconciliation of Data Gap and RFI work identified opportunities for RFI to “fill gap”
- Data from the RFI will be independently evaluated for usability for the EIS

# Chemical Investigation Questions

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# Data Gap Groundwater Methods

- Evaluated the hydrogeologic setting (pathways, transport processes, and contaminant plumes)
- Identified contaminants of interest by screening data against MCLs and PRGs
- Plotted distribution of contaminants of interest in Area IV
- Compared possible source areas to monitoring well network

# Data Gap Groundwater Findings

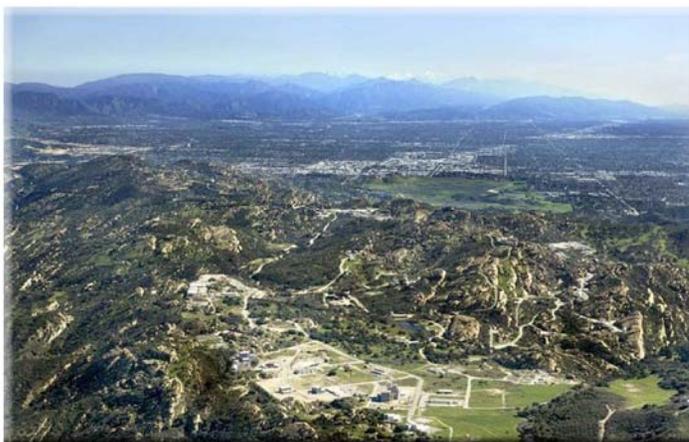
- Data not complete for
  - Risk assessment
  - Groundwater characterization
  - Understanding Area IV hydrogeology
- Our independent findings are consistent with some DTSC objectives for new wells and hydrogeologic data

# Groundwater Recommendations

- Install new wells at 6 locations
- Investigate groundwater quality at 8 additional locations
- Collect additional hydrogeologic data for remedial alternative evaluations
  - Delineate horizontal and vertical contamination extent and movement
- Sample bedrock
- Develop comparison criteria for groundwater

# Questions for Groundwater Approach and Findings

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# Data Gap Surface Water

- Methods
  - Evaluated the NPDES discharge point data
  - Evaluated human health and ecological data needs
- Findings
  - NPDES data adequate for human health assessment
  - Data lacking for internal Area IV drainage sediment
- Recommendations
  - Internal streams and drainages require sampling
  - Investigate off-site drainages require gamma walkover surveys

# Ecological Risk Assessment

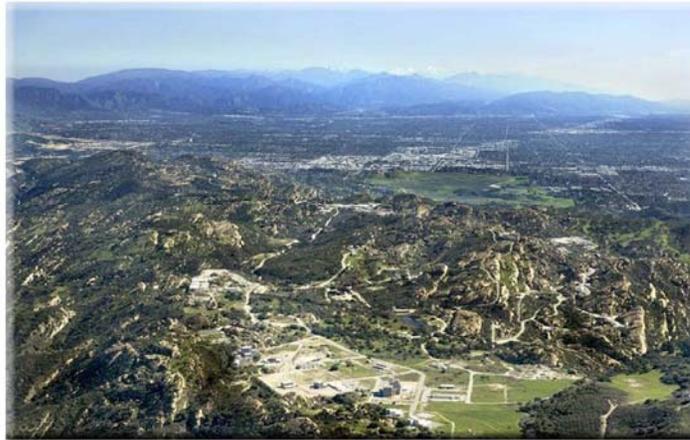
- **Methods**
  - Ecological screening levels developed to assess existing soil data
  - Existing data screened using ecological and human health criteria
- **Findings**
  - No biota data for Area IV
  - Data needed for surface and subsurface soils, sediments, and surface water
  - Soil data to be collected for human health can also be used for ecological risk assessment

# Ecological Risk Assessment

- Recommendations
  - Integrate samples to be collected for soils into ecological risk study
  - Sample internal drainages and ponds in adjacent areas
  - Collect plant and animal tissue for chemical and radionuclide uptake evaluations

# Questions on Surface Water and Biota

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# Related Ongoing Activities

- Joint DOE/EPA Radiological Characterization Survey for Area IV as mandated by Congress
- Agreement in Principle with EPA on
  - Gamma Walkover Survey
  - Radionuclide Background Study
- Completion of current DTSC RCRA work



# EIS Process Overview

- Overview of EIS Process
  - Data Gap Study - Underway
  - EIS Scoping on Cleanup Alternatives – July through August
  - Field Sampling and Analysis Plan – Fall 2008
  - Field Sampling – Fall 2008
  - Risk Assessment – Early Spring 2009
  - Draft EIS – August 2009
  - ROD – November 2010



# Field Investigation

- Work Scope will be determined by Data Gaps Findings
- Ongoing reconciliation with RFI work
- Will Address All Media
- Will Address Chemicals and Radionuclides
- Work Plan/Field Sampling Plan
  - To be provided Fall 2008 for Stakeholder review

# Draft Data Gap Analysis

Meeting June 26, 2008

- What did we miss?
  - Historical chemical or radiological use areas
- Were there additional spills, releases, or disposal areas that may not be in the site database?
- What is missing in terms of characterization of Area IV?
- Is there anything else that we should consider when we design the sampling and analysis plan?



# Upcoming Public Meetings

- Scoping
  - July 22, 2008 2-4 pm and 6:30-9:30 pm
    - Grand Vista Hotel, Simi Valley
  - July 23, 2008 2-4 pm and 6:30-9:30 pm
    - World Vision Church, Northridge, CA
  - July 24, 2008 2-4 pm and 6:30-9:30 pm
    - Sacramento Central Library

# Thank you for your participation

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