

Santa Susana Field Laboratory RCRA Facility Investigation

February 8, 2007

Laura Rainey, P.G.
Senior Engineering Geologist
California Environmental Protection Agency
Department of Toxic Substances Control

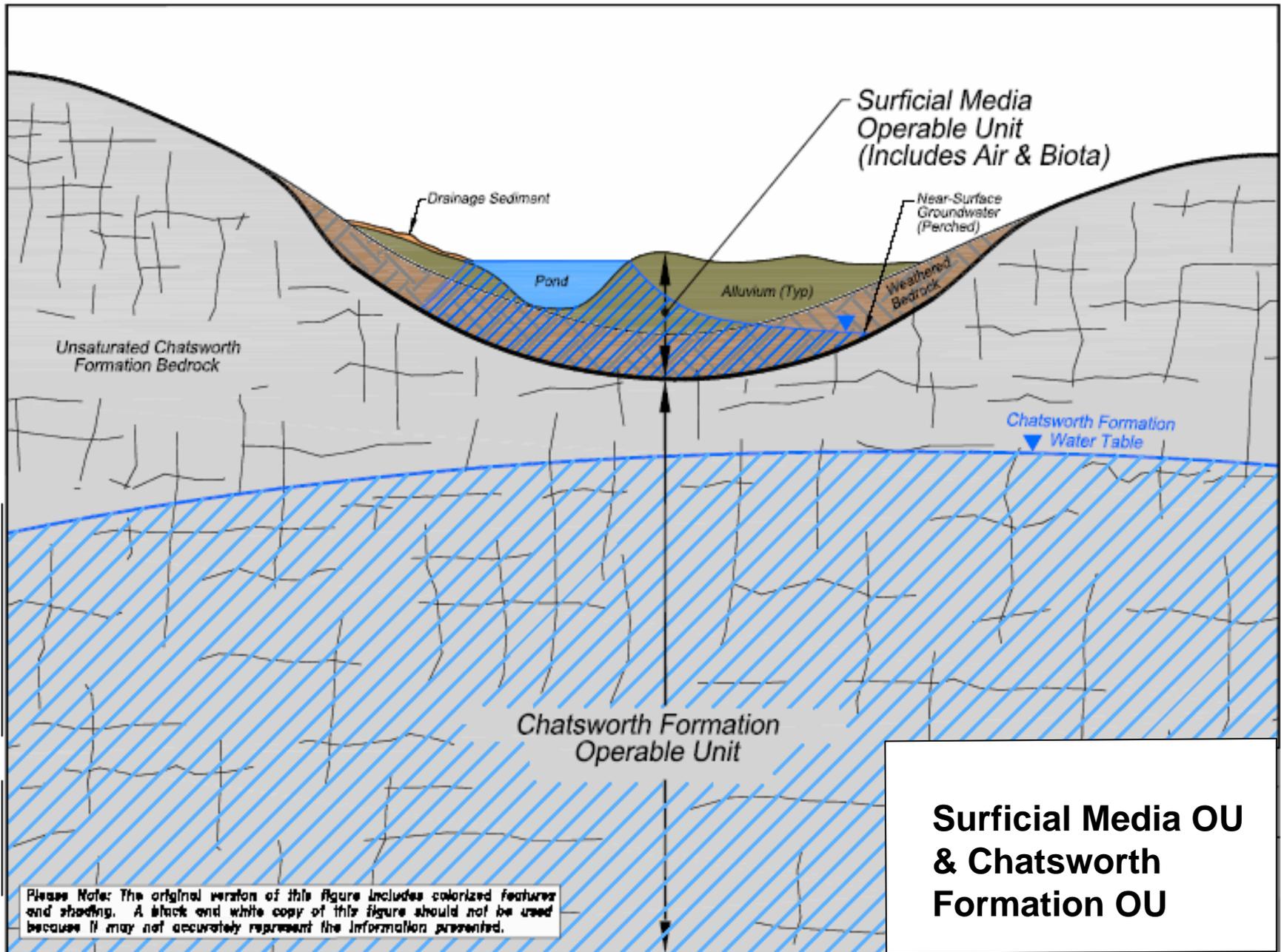
Introduction

- What is my role with the RCRA Facility Investigation (RFI) review process?
- What key issues do we consider?
- How do we manage uncertainties?
- How do we review an RFI Report?
- Key elements of the RFI Report
- Preliminary findings – what do we know?

Role of geologist as reviewer

I address investigation of the “Surficial Media” portion of the RFI:

- The RFI Report addresses both Surficial Media and Chatsworth Formation
- “Surficial Media” includes all environmental media above hard bedrock (soil, sediment, soil vapor, surface water, and shallow groundwater)
- “Chatsworth Formation” includes all hard bedrock and associated groundwater



Other DTSC review team members

- DTSC Hydrogeologist (Tom Seckington) addresses investigation of the Chatsworth Formation and associated groundwater
- DTSC Toxicologists (Drs. Hathaway and Anderson) address the risk assessments that are conducted using chemical data generated during the RFI
- DTSC's Environmental Chemistry Laboratory assists with data quality and chemistry issues
- We provide technical support to each other during the entire review process

RFI objectives

- Identify sources of contamination, what chemicals are involved, and the extent of their occurrence
- Evaluate where contaminants are, where they go, and how they get there
- Gather data needed to make decisions on interim or final cleanup measures
- Obtain sufficient info to complete a risk assessment

Key challenges for meeting RFI objectives

- Large size of site
- Long history of complex operations
- Limitations of institutional memory through time
- Vast numbers of related documents (100s!) exist with limited resources to review
- Large technically complex RFI database

How do we deal with these challenges?

- Uncertainties will always exist...
- They cannot be eliminated, but they can be managed and minimized
- Public input is important!
- Goal – attain RFI objectives using a technically defensible process resulting in technically sound decisions that are protective of human health and the environment

Importance of historical info

- Important for identifying potential historical **sources** of contaminant releases
- Important for identifying potential **types of chemicals** associated with releases
- Important for assessing **extent** of historical releases
- Less historical info – more sampling needed

How do we use historical info?

- RFI Report is supposed to include a comprehensive summary of relevant historical info
- Historical info in RFI Report is **critical basis** for supporting scope of investigation
- We cross check RFI Report historical info with other available sources of information
- Public input is important!
- As other info becomes available, we may direct Boeing to conduct more work (more samples, more analyses, etc.)

Additional historical resources

- Dept of Energy website (searchable reports for various historical DOE sites, including SSFL)
- Engineering and scientific literature
- DTSC files and website (electronic SSFL document archive)
- Rocketdynewatch.org website (electronic SSFL document archive)
- Public input
- Internet (search by chemicals and processes to identify potentially related chemicals)

RFI report submittals

- RFI Program Report is an important companion document to all RFI reports
- Ten RFI “group area” reports will cover the entire site
- Group 6 area RFI report is the first submittal
- Group 6 area report includes four RFI sites:
 - Sodium Reactor Experiment (SRE) complex
 - Old Conservation Yard (Old Con Yard)
 - New Conservation Yard (New Con Yard), and
 - Building 64 leachfield

Group 6 area RFI report

- Available on DTSC website for public review
- Four volumes (over 1,000 pages):
 - Vol. 1 Group reporting area summary
 - Vol. 2 RFI Site reports (New Con Yard and Old Con Yard)
 - Vol. 3 RFI Site reports (SRE and Building 64 leachfield)
 - Vol. 4 Groundwater report, risk assessment report, soil background report
- I am currently reviewing this report, and will present preliminary findings tonight

RFI Site Reports - scope of Geologist's review

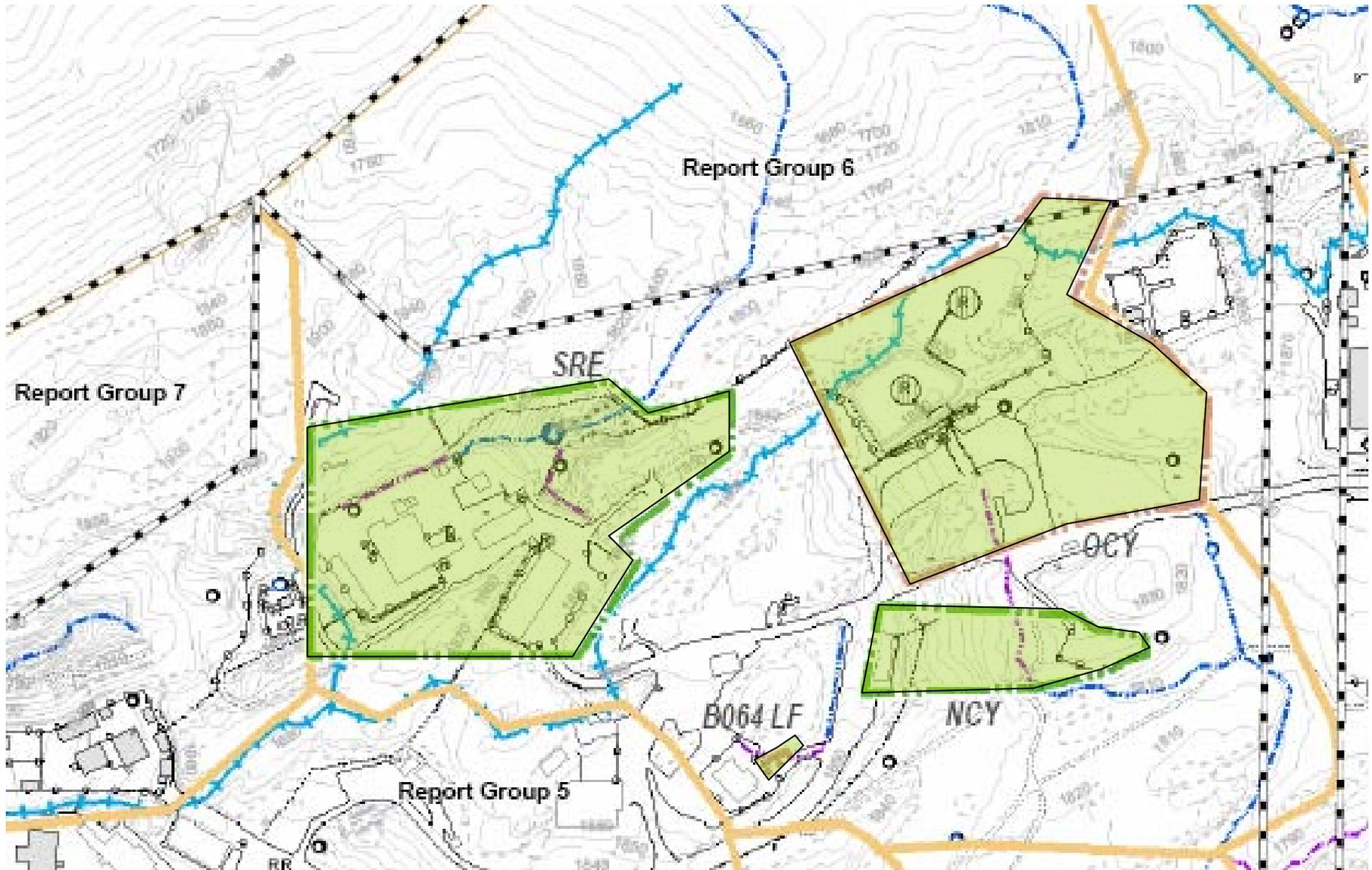
- Site History and Chemical Use
- Site Conditions
- Nature and Extent of Chemical Impacts – review data for all media (soil, sediment, soil vapor, surface water, groundwater)
- Review key decision points for characterization

Group 6 area RFI database

Comprehensive summary of RFI data:

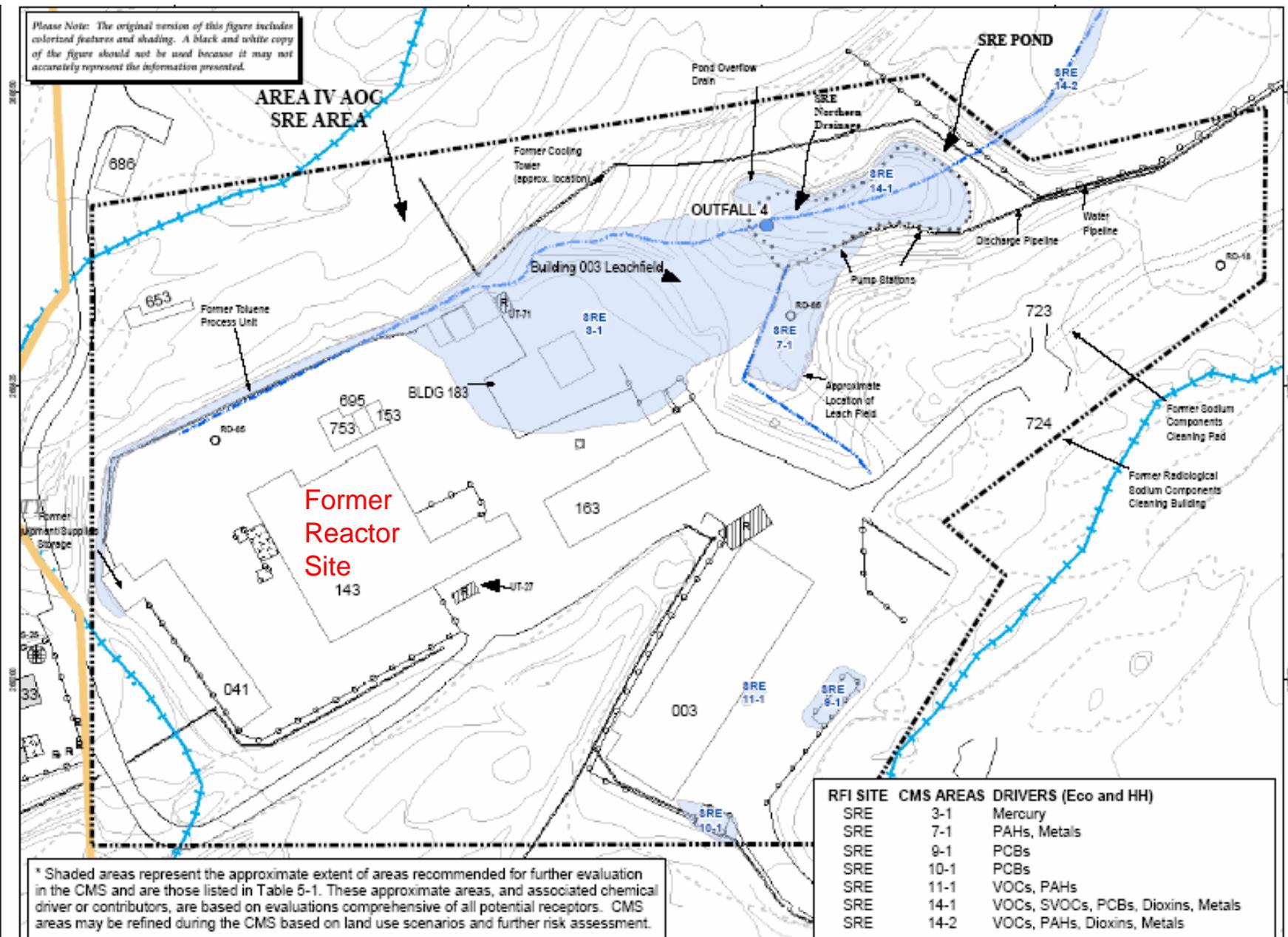
- Surficial media (soil, soil vapor, surface water, sediment): over 15,000 chemical data
- Chatsworth formation (groundwater): over 6,000 chemical data

Group 6 Area RFI Sites



Sodium Reactor Experiment

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

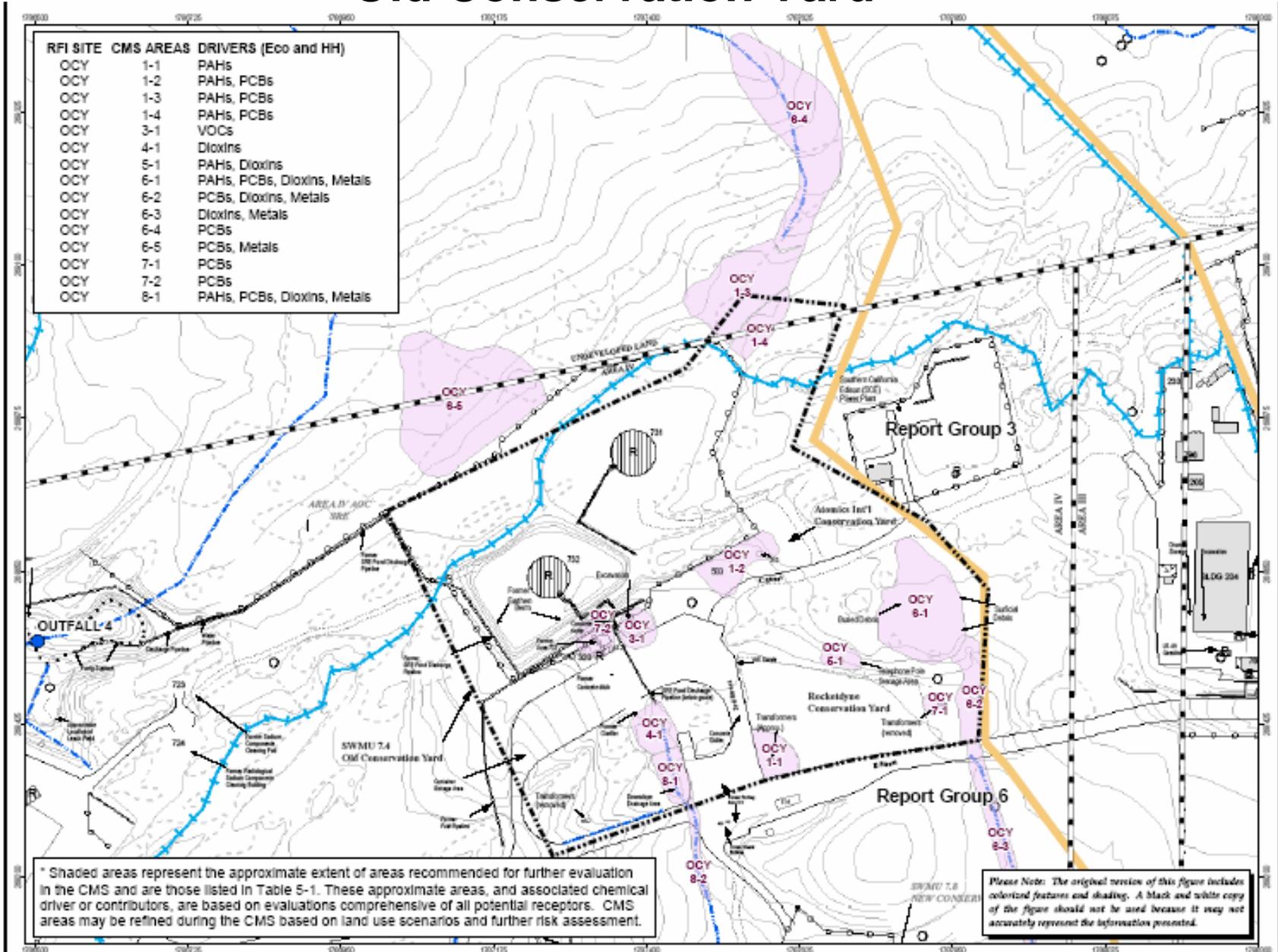


* Shaded areas represent the approximate extent of areas recommended for further evaluation in the CMS and are those listed in Table 5-1. These approximate areas, and associated chemical driver or contributors, are based on evaluations comprehensive of all potential receptors. CMS areas may be refined during the CMS based on land use scenarios and further risk assessment.

Sodium Reactor Experiment: Preliminary Findings

- Areas identified and proposed for CMS:
 - Former steam power plant area (Mercury)
 - Former leachfield (PAHs, Metals)
 - Engineering test building area (PCBs, VOCs, PAHs)
 - Pond and discharge area (VOCs, SVOCs, PCBs, Dioxins, Metals)

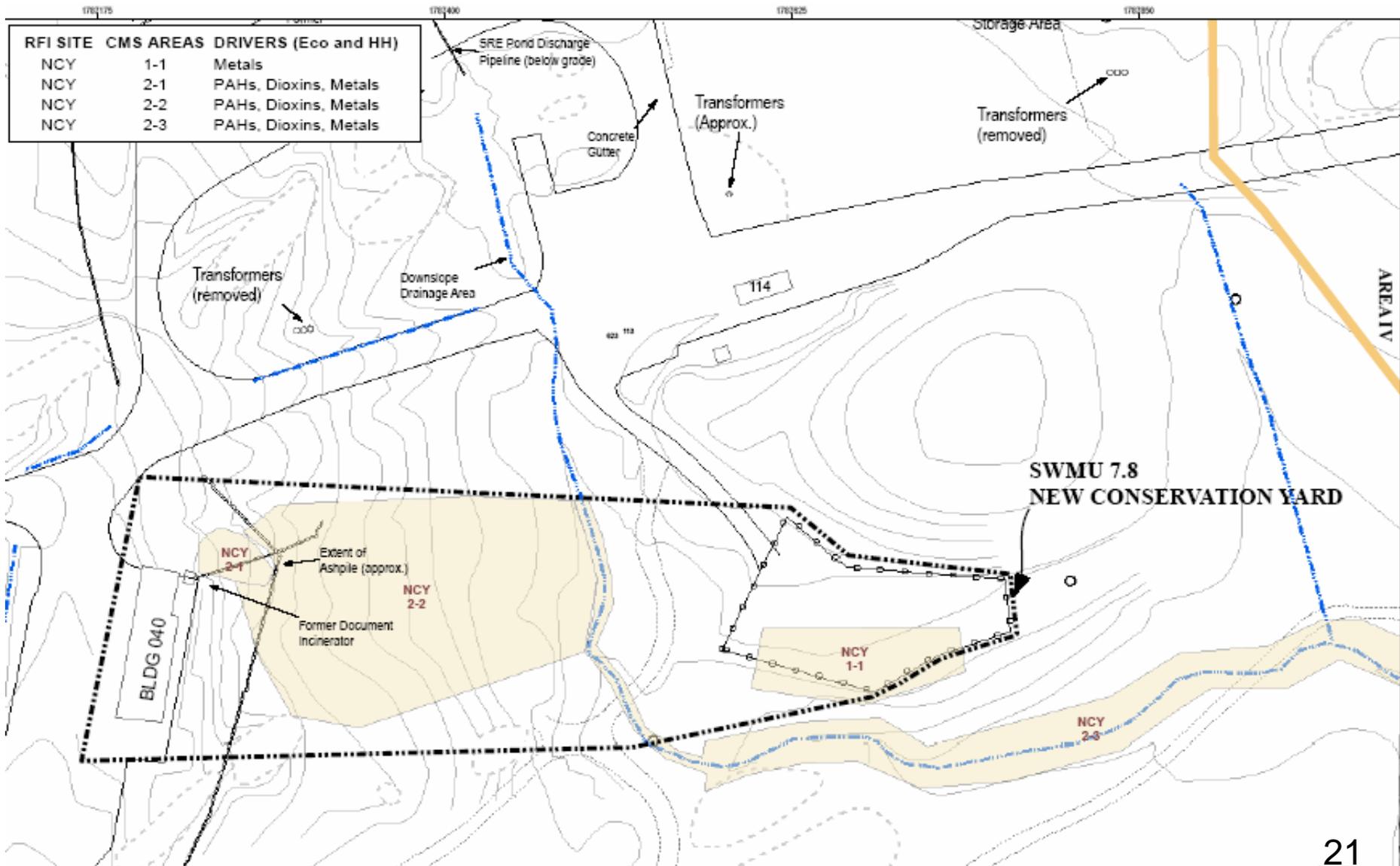
Old Conservation Yard



Old Con Yard: Preliminary Findings

- Areas identified and proposed for CMS:
 - Pond, discharge & drainage (Dioxins, PAHs, PCBs, Metals)
 - Northeastern debris field and drainage (PAHs, PCBs)
 - Northwestern slope (PCBs, metals)
 - Eastern debris areas (PAHs, PCBs, Dioxins, Metals)
 - Former storage areas (PAHs, PCBs)
 - Former fuel storage (VOCs)

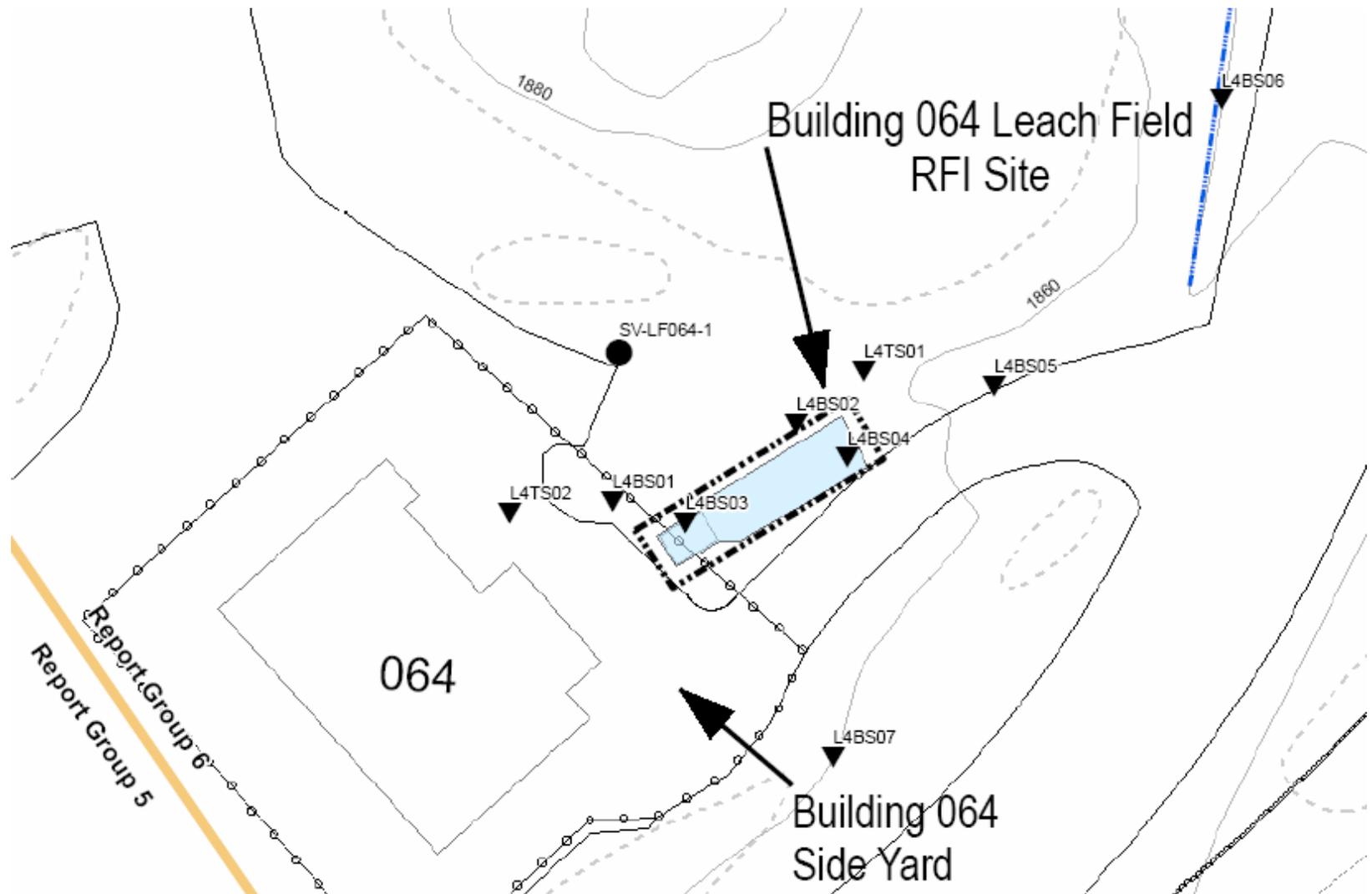
New Conservation Yard



New Con Yard: Preliminary Findings

- Areas identified and proposed for CMS:
 - Former storage yard (Metals)
 - Ash pile (PAHs, Dioxins, Metals)
 - Drainage (PAHs, Dioxins, Metals)

Building 64 Leachfield



Building 64 Leachfield: Preliminary Findings

- Additional sampling will be required to characterize shallow soil beneath former leachfield

Preliminary Findings

- Deficiencies noted – more characterization needed to determine nature & extent of contamination
- RFI identified contaminated areas that will be further evaluated for cleanup options during the Corrective Measures Study (CMS)
- DTSC will require more areas to be evaluated for cleanup, in addition to those initially proposed by Boeing

Closing

- I address investigation of the “Surficial Media” portion of the RFI
- We are currently reviewing the first RFI report
- Public input is critical, and will be incorporated into our review process
- DTSC will require additional investigation to ensure protection of human health and the environment
- DTSC will require the RFI Report to be revised to address comments