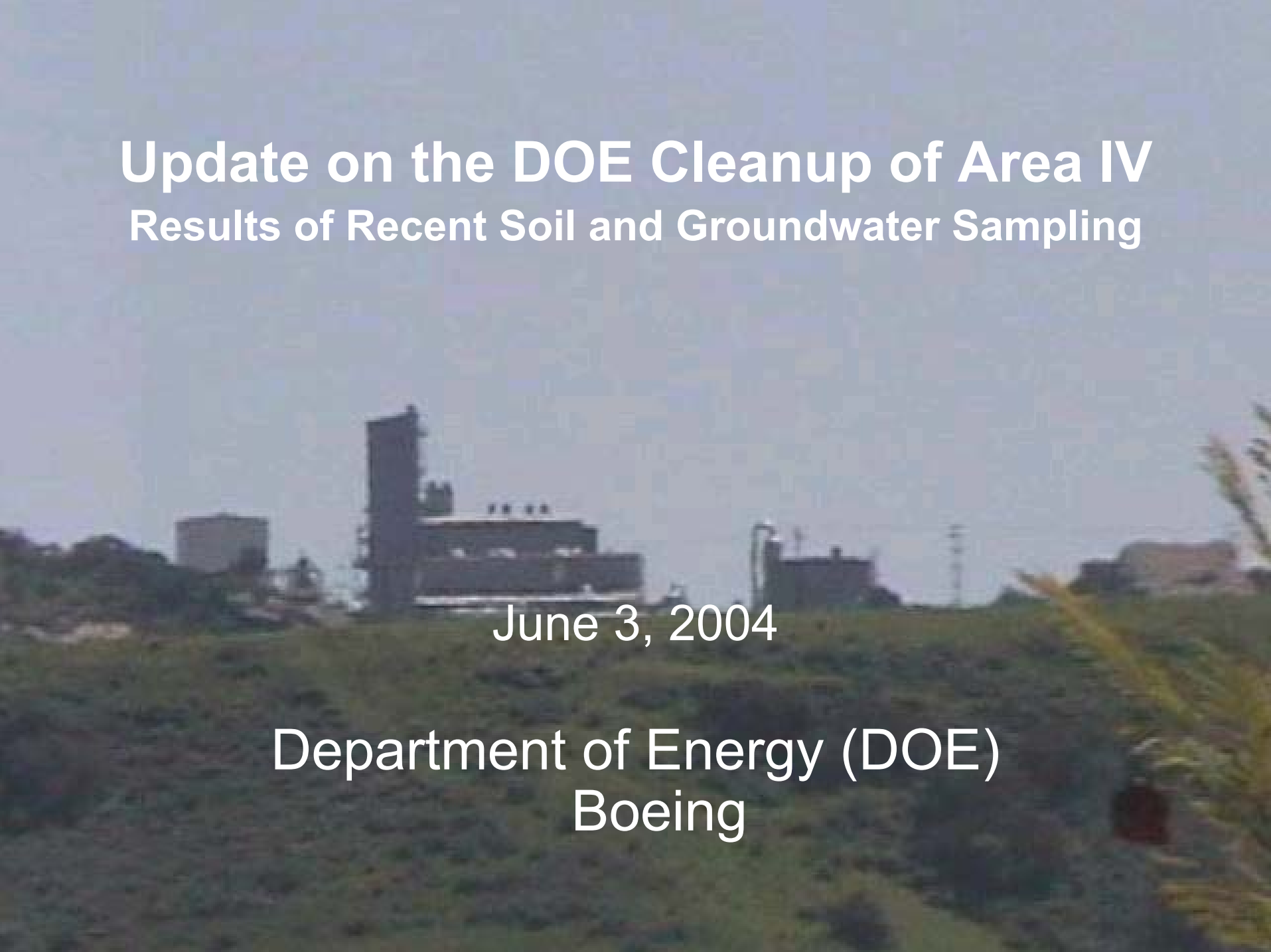


# Update on the DOE Cleanup of Area IV

## Results of Recent Soil and Groundwater Sampling

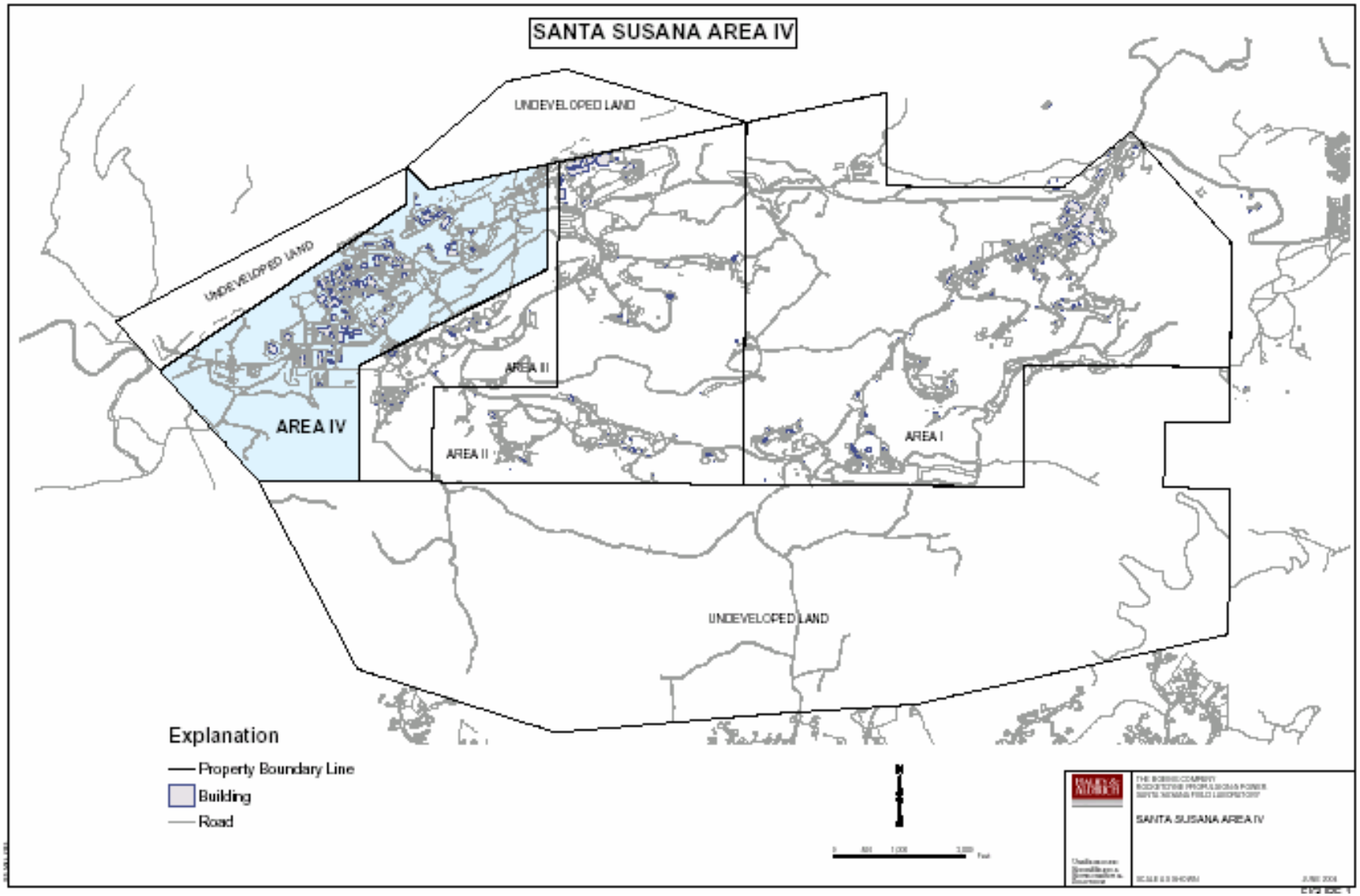
June 3, 2004

Department of Energy (DOE)
Boeing

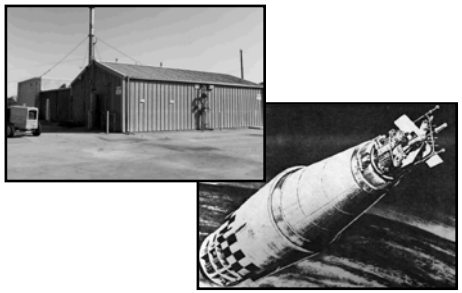
# Purpose of This Meeting

To update our neighbors on the Area IV cleanup and to present the results of recent soil and groundwater sampling.

# Location of Area IV

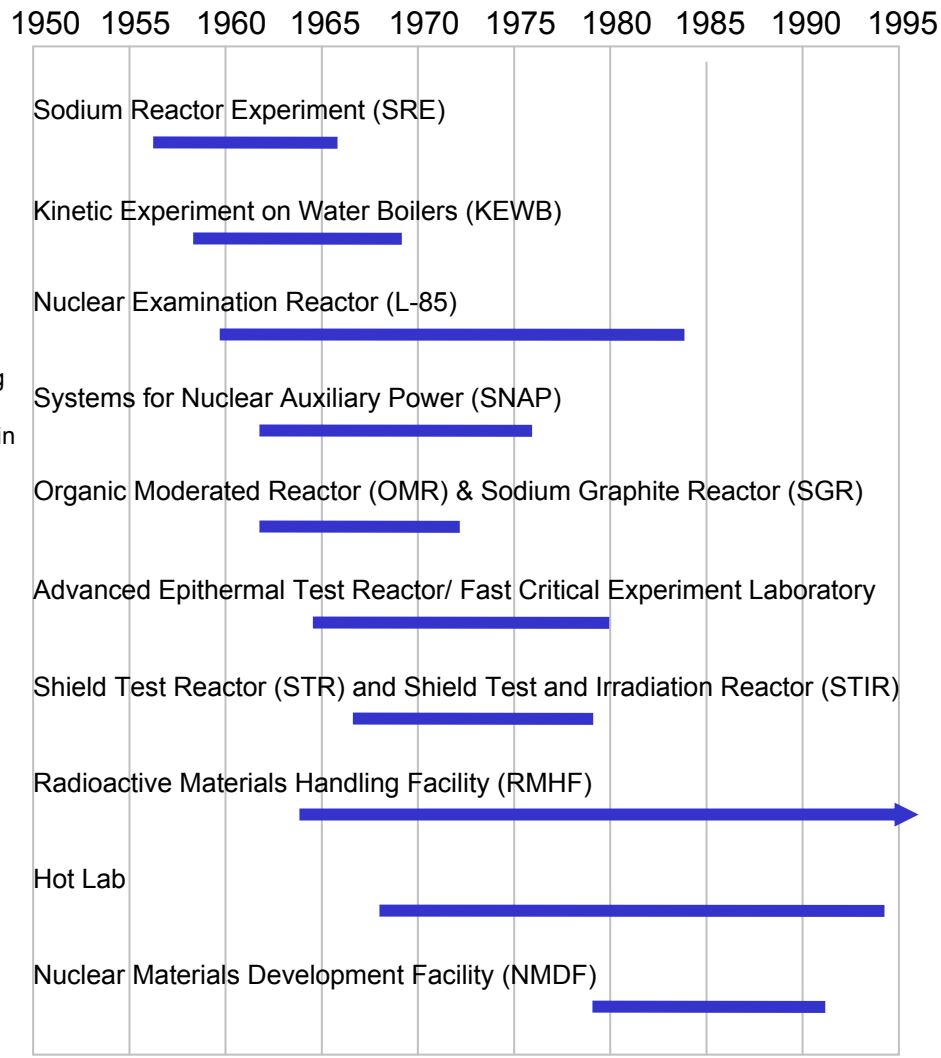


# DOE Radiological Activities in Area IV



**Systems for Nuclear Auxiliary Power (SNAP):**
• Atomics International (AI) program to develop space nuclear power systems.
• A system was launched from Vandenberg Air Force Base on April 3, 1965.
• Remains the only nuclear reactor placed in space by the U.S.

**The Hot Lab:**
• Used for 30 years to handle, examine, and disassemble highly radioactive items.
• Activities done remotely in heavily shielded rooms.
• Decontaminated and decommissioned in the mid-1990's.

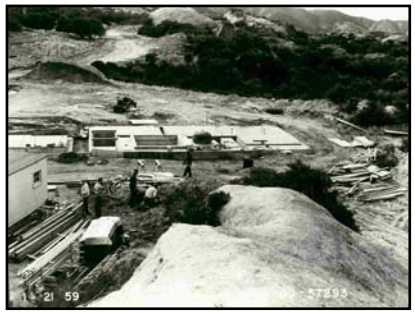



**Sodium Reactor Experiment (SRE):**
• Atomic Energy Commission program to test a sodium-cooled power reactor.
• Supplied power to the City of Moorpark.
• The first nuclear reactor in the U.S. to produce power for a commercial power grid.
• Partial melting of 13 of the 43 reactor fuel assemblies occurred in 1959, which released nuclear gasses.

**The Radioactive Materials Handling Facility (RMHF):**
• Used for packaging radioactive material for offsite disposal.
• Septic tank leach field was contaminated by cesium and strontium in 1962.
• Leach field was cleaned up and released for unrestricted use.
• RMHF remains in use supporting the cleanup of other facilities.

# THE CYCLE OF A NUCLEAR REACTOR FACILITY

The containment vessel is put in place.



A foundation is built around the vessel.

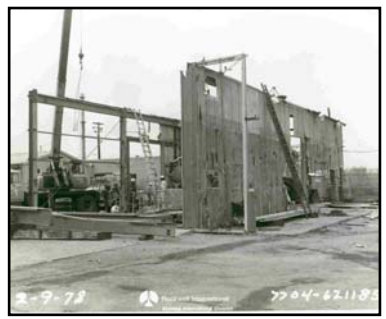

Vessel is enclosed in a building.


All systems running.

Facility no longer needed. Demolition begins.

The vessel is isolated.


Radioactive material is packaged for disposal.




The building is removed.

The vessel and concrete are removed.

The vessel is hauled off-site.

Soil is tested.


The site is graded flat.

# Restoring Santa Susana Area IV

Removing buildings

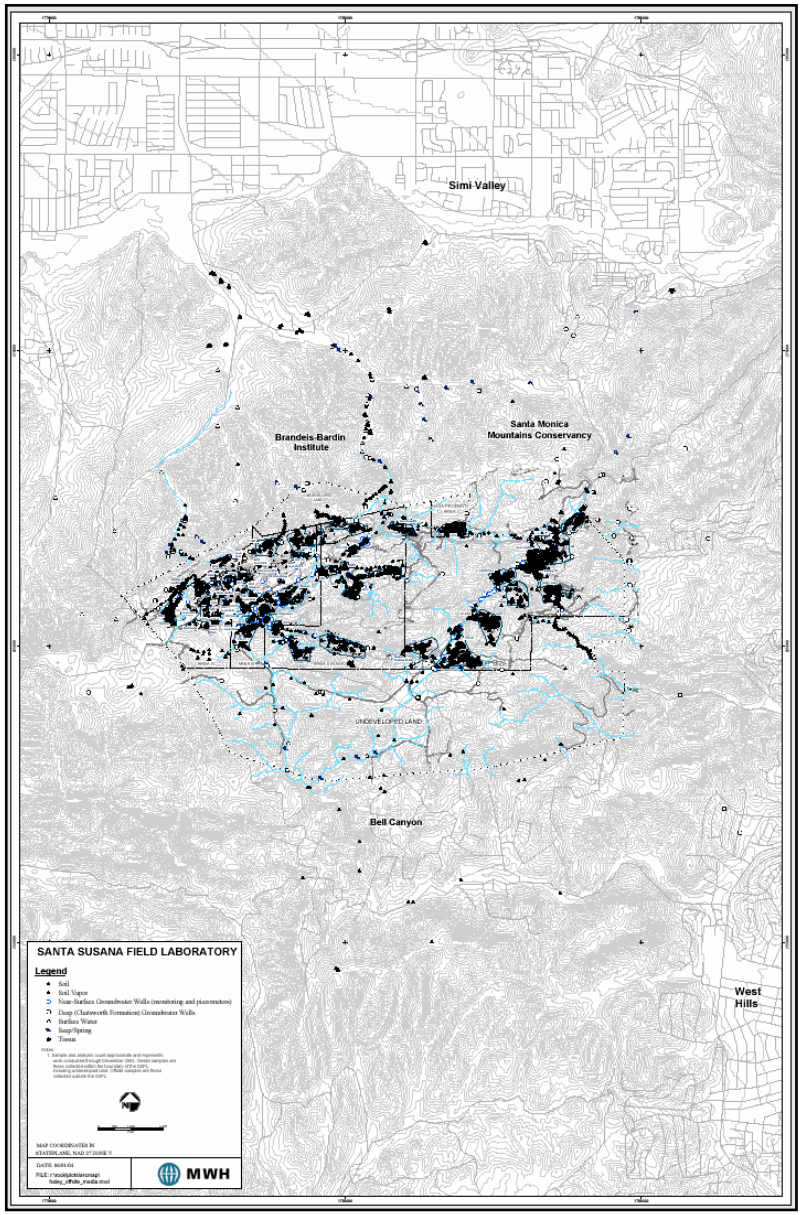
Cleaning groundwater

Cleaning soil

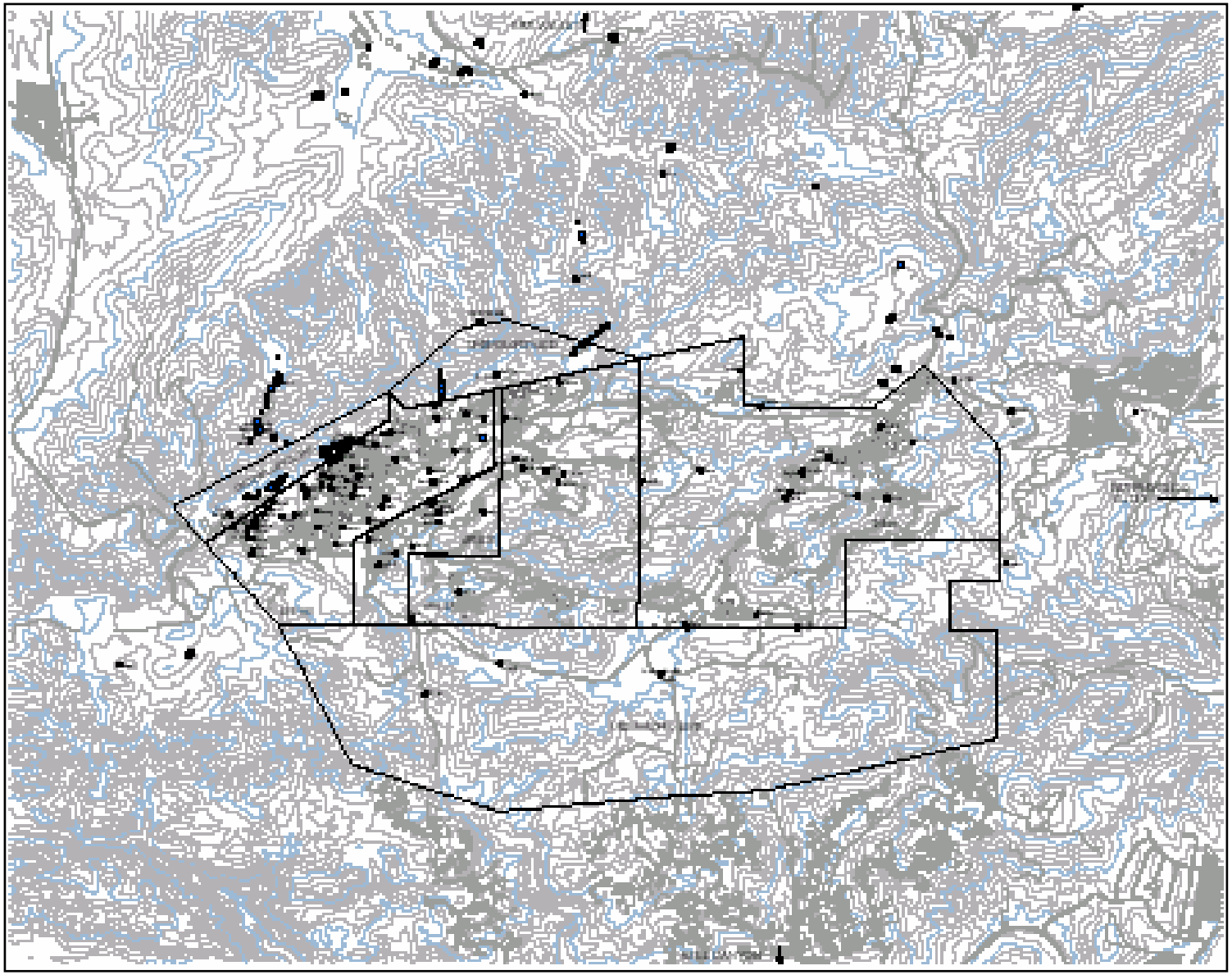
Where we started…

…where we are headed

# Where Have We Sampled?



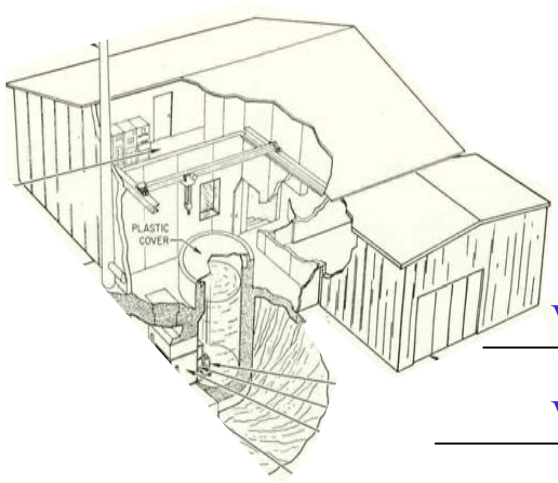
# Where Was Groundwater Sampled for Tritium?



# Potential Pathways to the Environment

Source:

Pathways:




Via Stack

Via Building Drains

Via Surface Water Runoff

Via Leaks and Spills

Area 3 Sanitary Sewer System

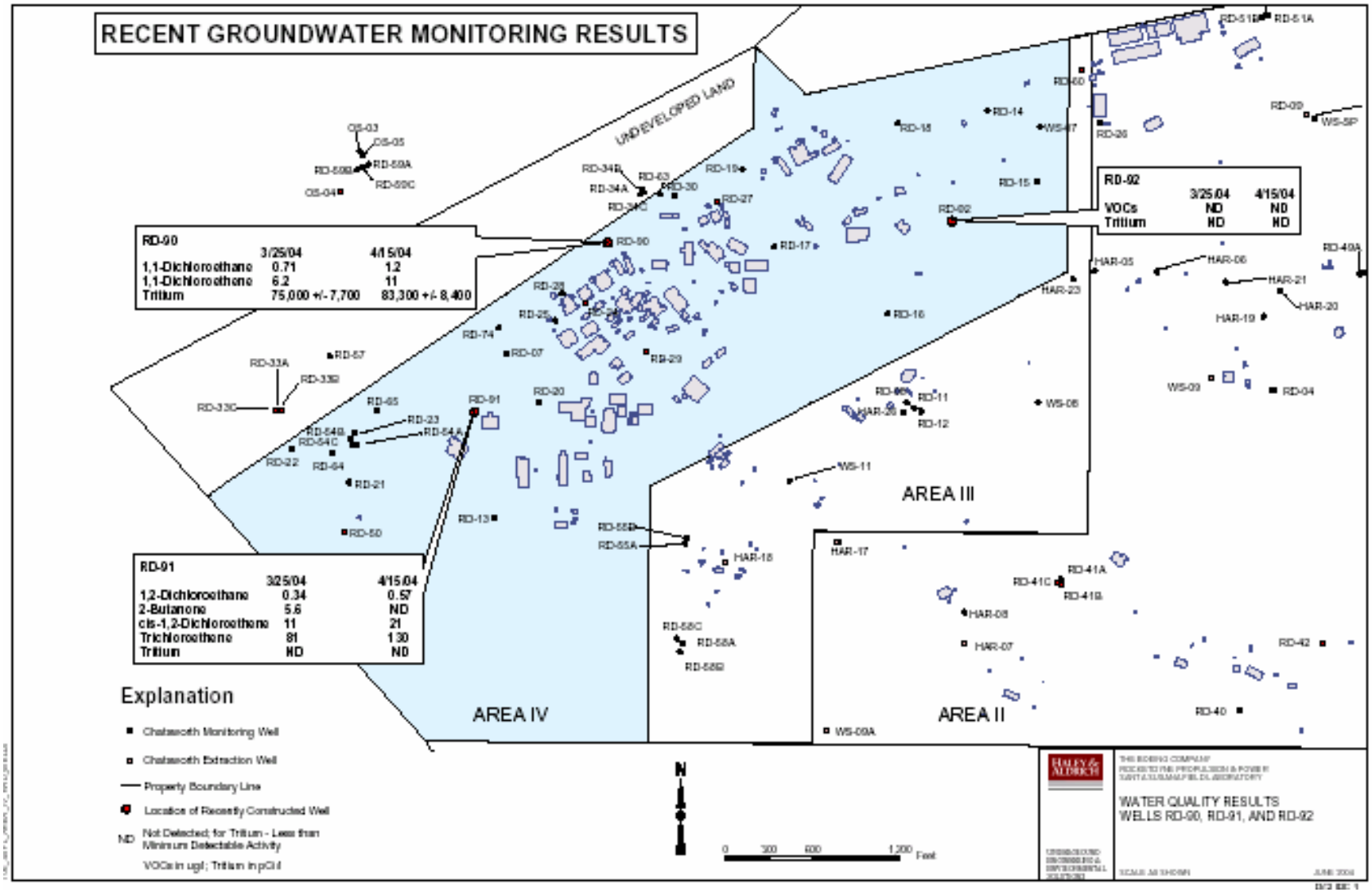
Air

Surface Soil

Subsurface soils/ Bedrock

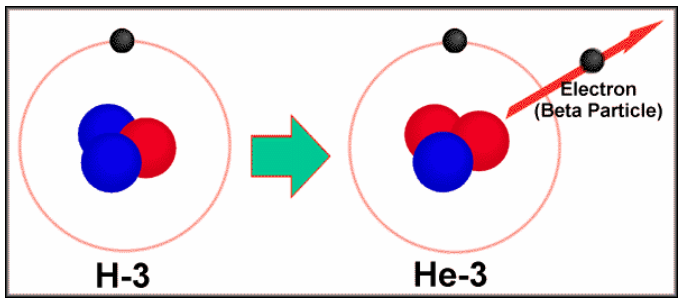
Groundwater

# What Were the Findings?



# COULD I BE EXPOSED TO TRITIUM FROM AREA IV?

**WHAT IS TRITIUM?**
- A radioactive form of hydrogen.
- Often found in water molecules, when a tritium atom replaces a hydrogen atom.



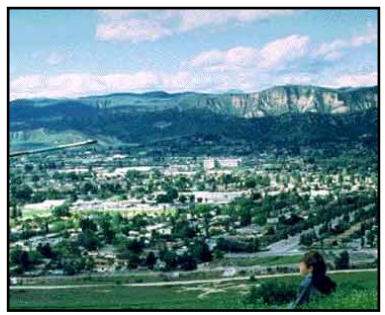

**WHAT ARE THE HEALTH EFFECTS?**
- Potential health risk if you drink water containing tritium above safe levels.
- Tritium emits a weak type of radiation and leaves the body relatively quickly.
- It is considered to be a low risk radioactive material.
- High exposures to tritium could cause cancer.

**COULD I BE EXPOSED TO TRITIUM?**
- The tritium was found in groundwater in a rugged area of SSFL..
- This groundwater is not used for drinking water.

**WHAT LEVELS HAVE BEEN FOUND?**
- Hundreds of groundwater samples on- and off-site.
- To date (4/04), one well had tritium above the drinking water standard.

# Next Steps

1. Install more groundwater wells.
2. Continue with data gap analysis to ensure good spatial coverage of sampling.
3. Update the community on site activities by September 2004.



***DOE is committed to cleaning up the site.***