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Title:	Los Alamos 50 Year Site Stewardship Plan: An Overview
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Form 836 (7/06)

~~Native American Fish and Wildlife Service Meeting Abstract~~

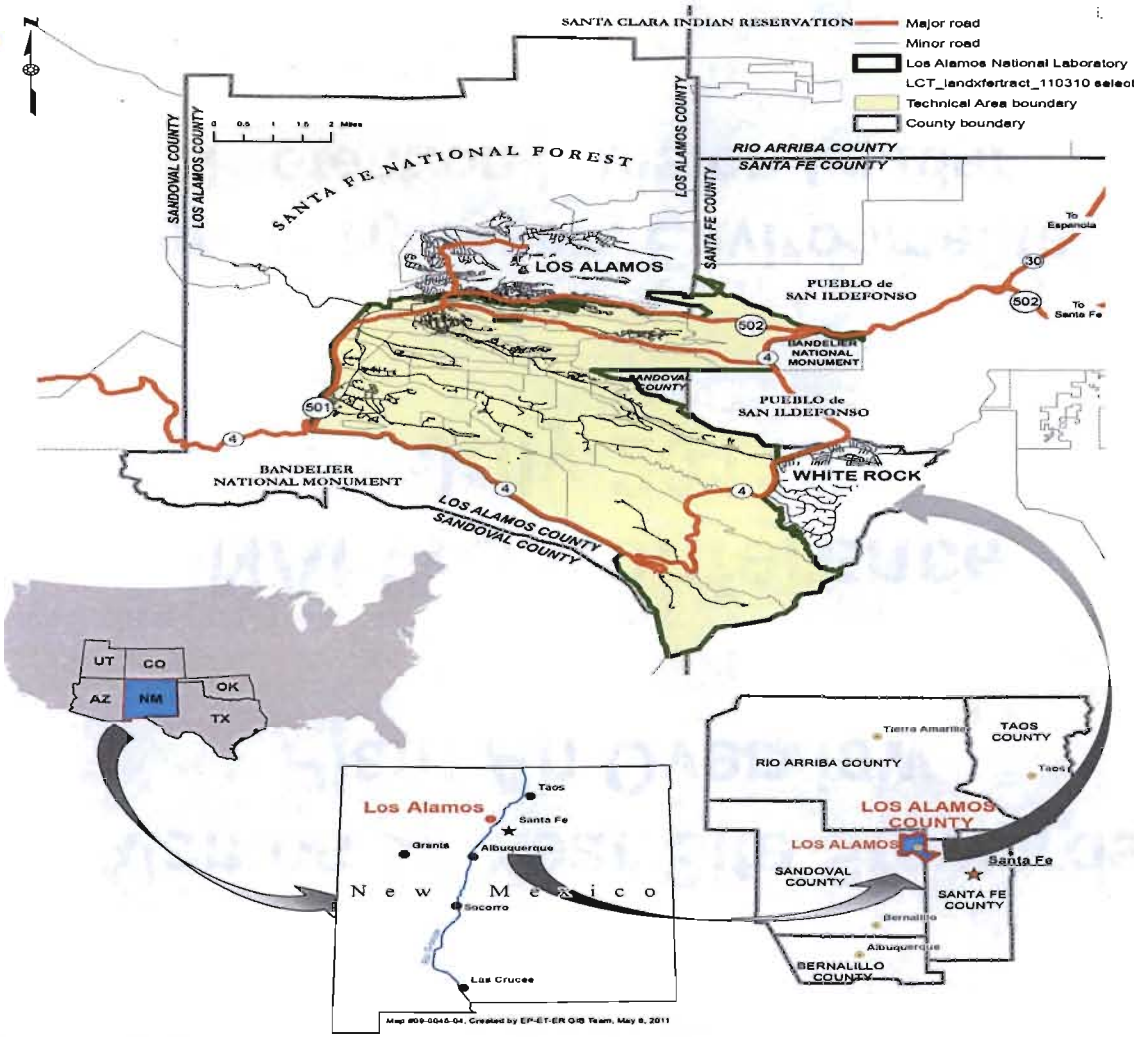
This presentation describes the management and public communication tools developed for the Los Alamos 50 Year Site Stewardship Plan. It is a status update on the development of a set of computer based communication tools that provide access to information on environmental compliance and legacy waste remediation.

Los Alamos 50 Year Site Stewardship Plan: An Overview

NAFWS Conference July 2011

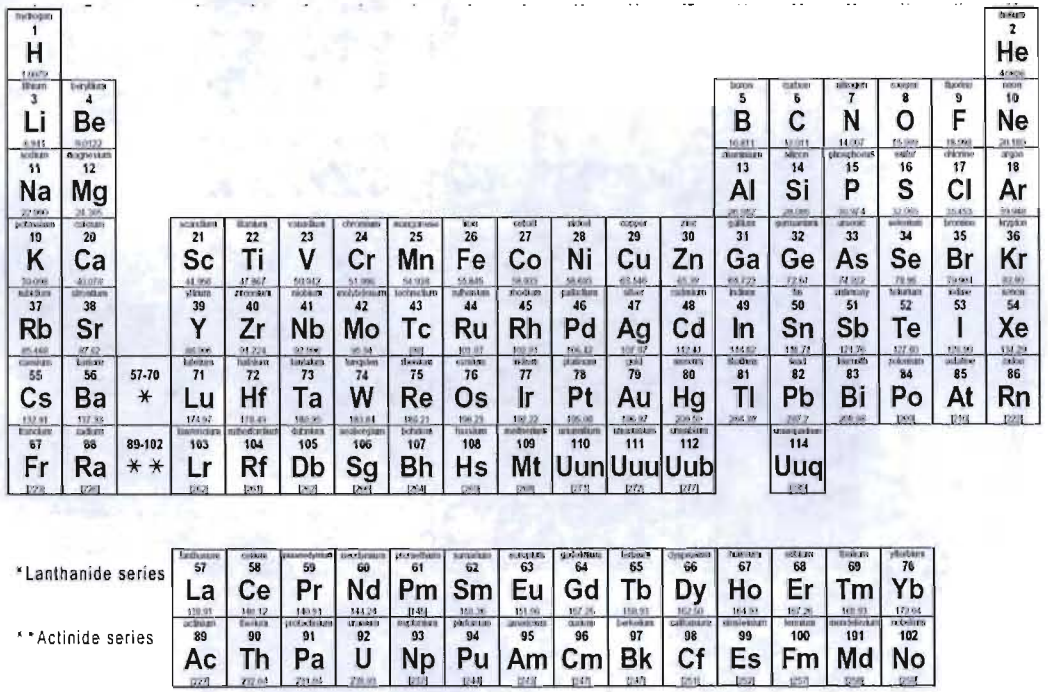
Dennis Hjeresen, Environmental Protection Division Leader

Putting LANL on the Map



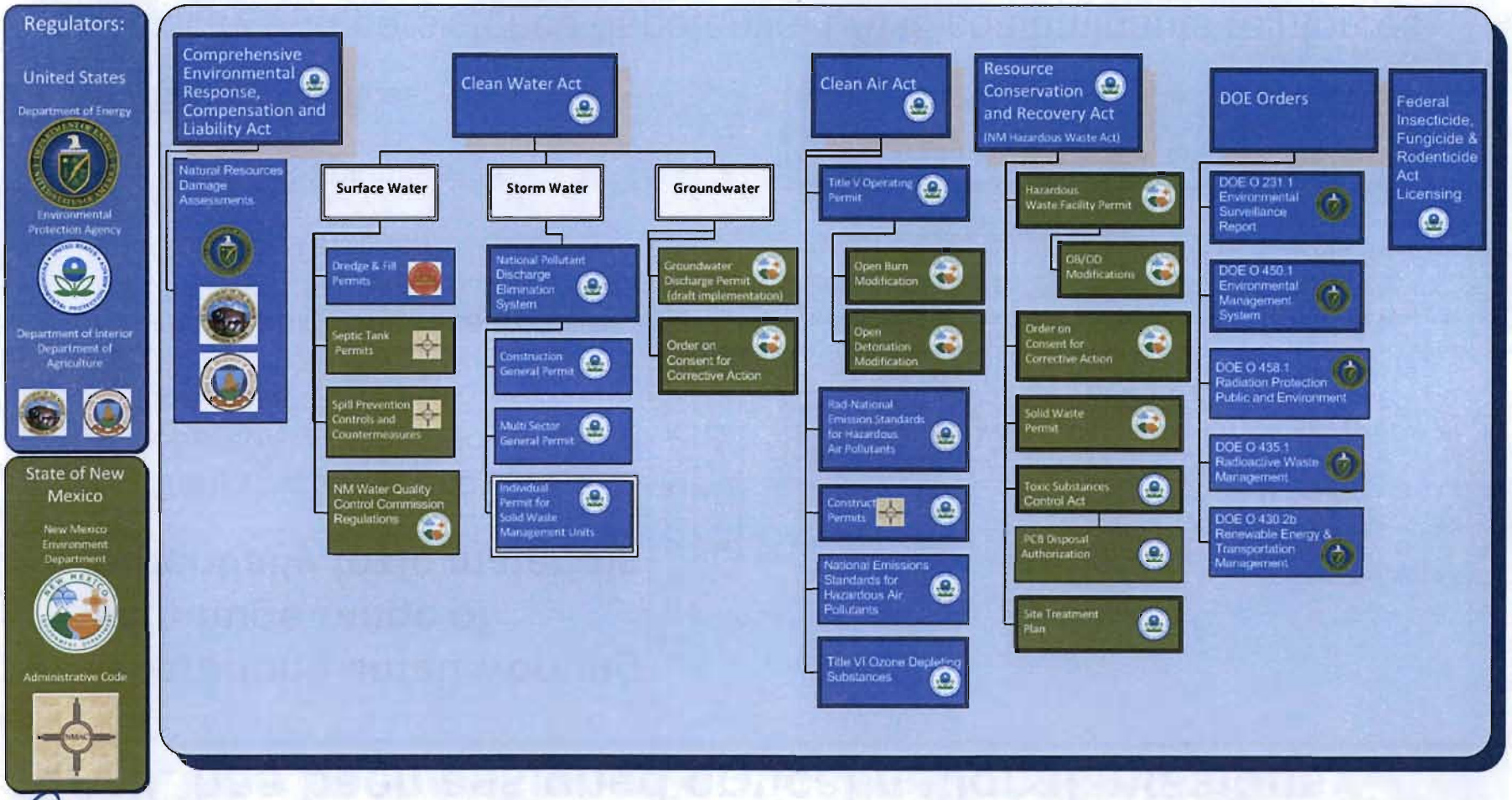
LANL has been assigned critical national missions

- **Operations entail working with huge range of potentially toxic materials**
  - Certifying safety and operability of the nuclear stockpile
  - High-explosives research
  - Counter Terrorism
  - Materials Sciences
  - Energy Sciences



- Toxicity and persistence of potential LANL contaminants reinforces need for long-term management and controls

Laboratory operates under regulatory requirements



What Prompts a 50 Year Plan?

- **Complexity of environmental situation at LANL makes a cohesive picture difficult to paint**
  - Legacy contamination and buildings from two previous site incarnations
  - Complex permitting structure for current operations
  - Long-term stewardship requirements
  - Interactions of site eco-system with surrounding neighbors
  - Multiple programs operating on large site:
    - Cleanup, waste management, compliance all managed separately
- **65 year history shows that if you don't plan you get what results**
- **Process must begin with a system**

50 Year Stewardship Plan - Purpose

- **Provide integrated view of LANL site environmental stewardship**
  - Highlight key geographical, public or project interest areas
- **Metrics: Provide an ongoing scorecard of LANL performance against requirement standards and including trends**
- **Community and regulator outreach**
  - Address community interests
  - Provide technical justification for decisions on regulated actions
- **Align long-term site stewardship goals across programs**

Framing a 50 Year Plan

- **Get management buy-in (DOE made it a contract award term)**
- **Create strong cross-disciplinary/organizational team**
  - Planners, data managers, natural resource managers, outreach pro's, hydrologists, air quality, waste mgmt., GIS and graphics
- **Assume change as a constant factor – don't predict**
- **Start with ISO 14001 certified Environmental Management System**
  - Work assessment
  - Environmental risk assessment
  - Corrective and preventive pathways
  - Set objectives and targets
  - Metrics and independent third-party assessment
  - Establish a strategy and communication framework

Strategy

- **Key Messages:**
  - Clean up the Past – remove or manage legacy contamination
  - Control the Present – Compliance and improvement in current operations
  - Create a Sustainable Future – Reduce sources, footprint and manage
- **Defense-in-depth strategy**
  - Monitoring for change in on-site and off-site for contaminants
  - Establishing triggers for actions based on regulatory requirements and environmental risks
  - Scientifically based actions -Physical controls, cleanup actions
  - Establish management responsibility for key elements
- **Share the data as transparently as possible**
  - Multiple platforms
  - Multiple routes of communicating information

Plan Structure – Two Basic Parts

- **Strategy – Plan Document**
  - How we manage risk associated with past present and future contaminants
  - Monitor and sample to permit/compliance requirements
  - Set triggers and thresholds
  - Implement corrective actions
  - Conduct remediations and/or long term surveillance
- **Communications Tools**
  - The communication tools will address two levels of communication:
    - SME level management tool, and
    - Public non-technical, issues oriented tool
  - It will help the public understand the difference between regulatory requirements and actual public health risk
  - Data behind tools will be traceable to the Ph.D. level
  - Assessment of cumulative environmental performance is based on clearly defined (quantitative) human health risk metrics

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50 year environmental stewardship plan

Management Application

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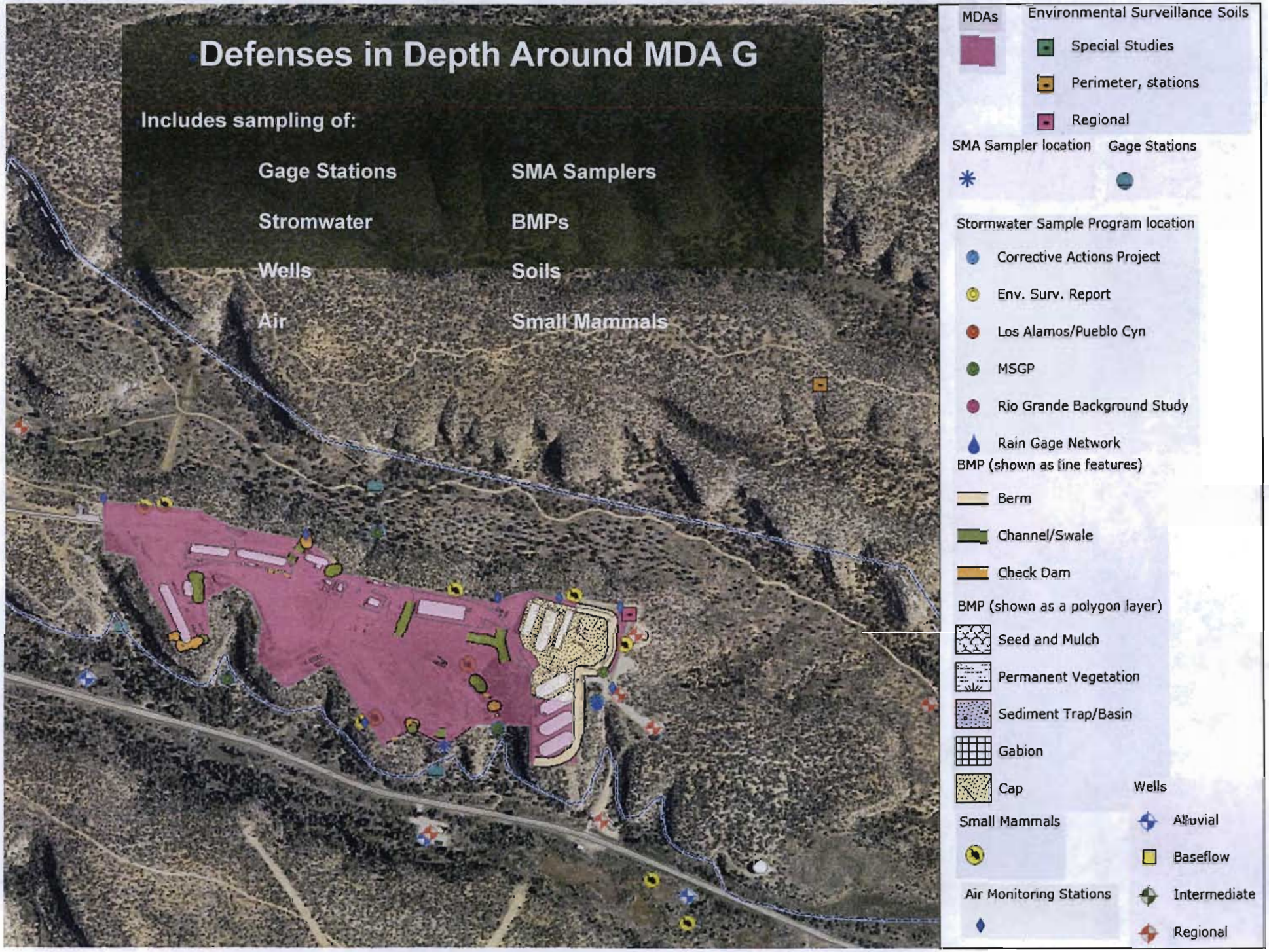
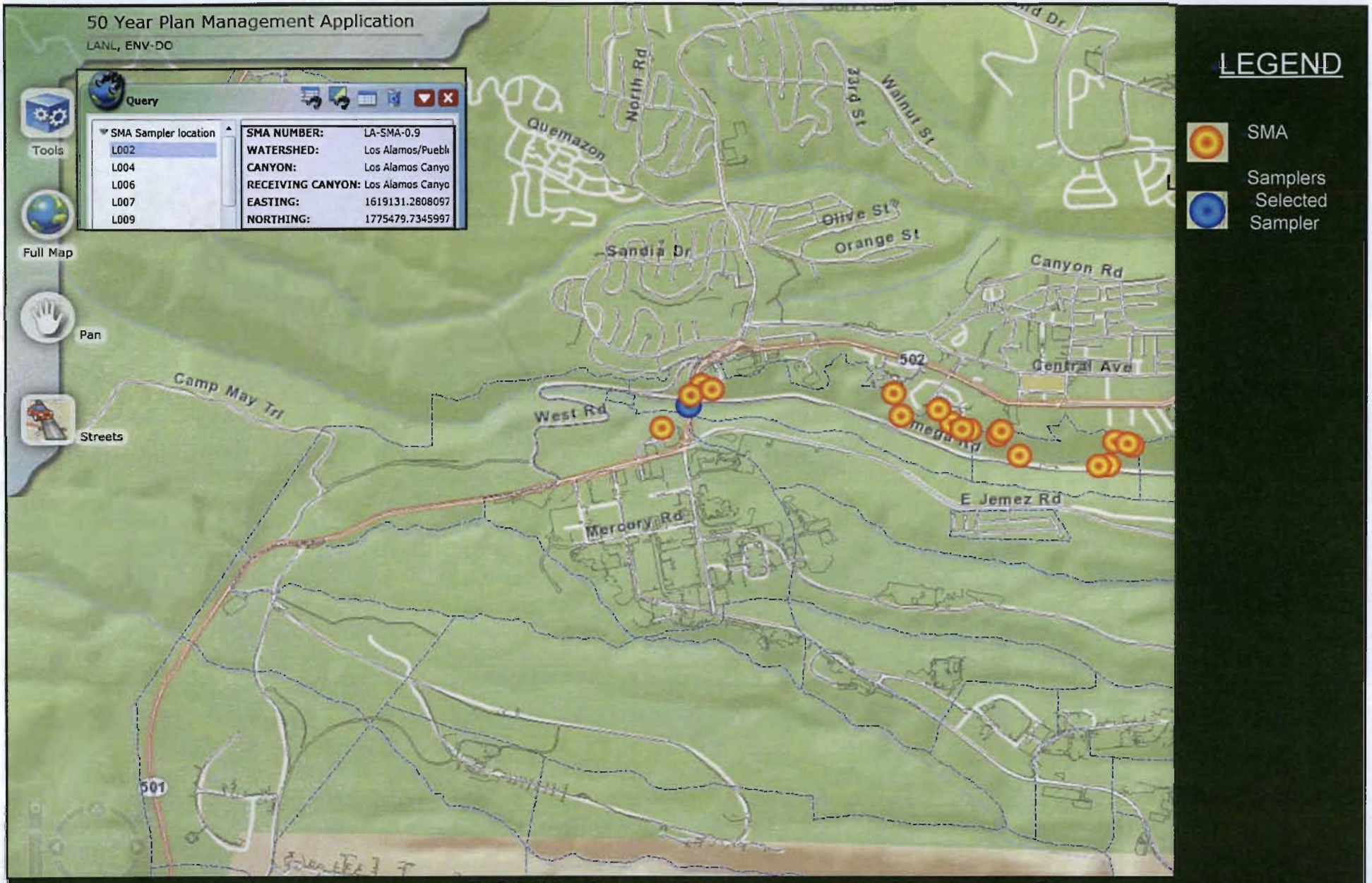

Defenses in Depth Around MDA G
Includes sampling of:
Gage Stations
SMA Samplers
Stromwater
BMPs
Wells
Soils
Air
Small Mammals
MDAs
Environmental Surveillance Soils
Special Studies
Perimeter, stations
Regional
SMA Sampler location
Gage Stations
Stormwater Sample Program location
Corrective Actions Project
Env. Surv. Report
Los Alamos/Pueblo Cyn
MSGP
Rio Grande Background Study
Rain Gage Network
BMP (shown as line features)
Berm
Channel/Swale
Check Dam
BMP (shown as a polygon layer)
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Small Mammals
Wells
Alluvial
Baseflow
Intermediate
Regional
Air Monitoring Stations



Distribution of SMA Samplers in Los Alamos Canyon

Query of Los Alamos samplers allows managers to view samplers and surface water constituent information allowing for management of the resource. Detailed information is given for the selected

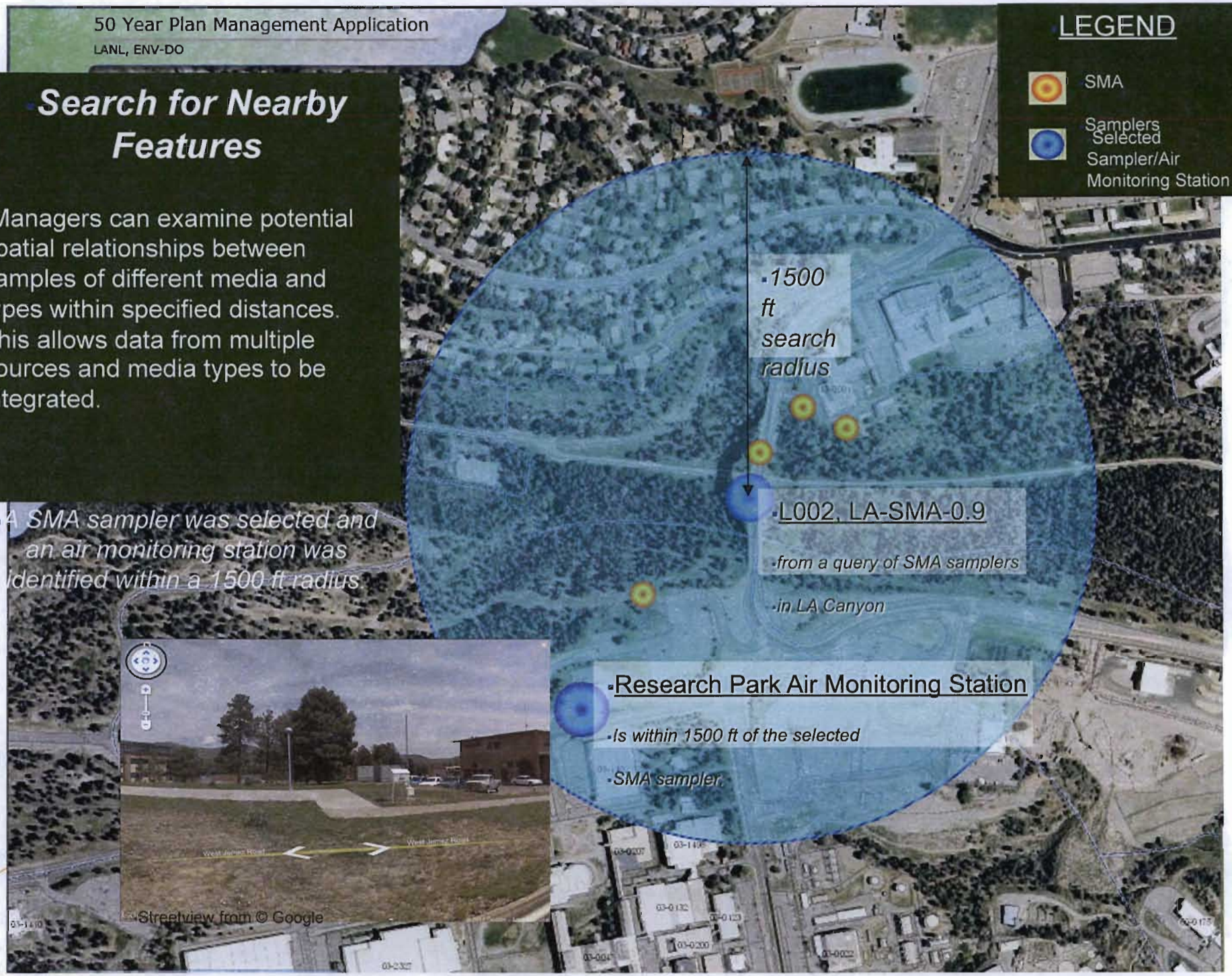
50 Year Plan Management Application

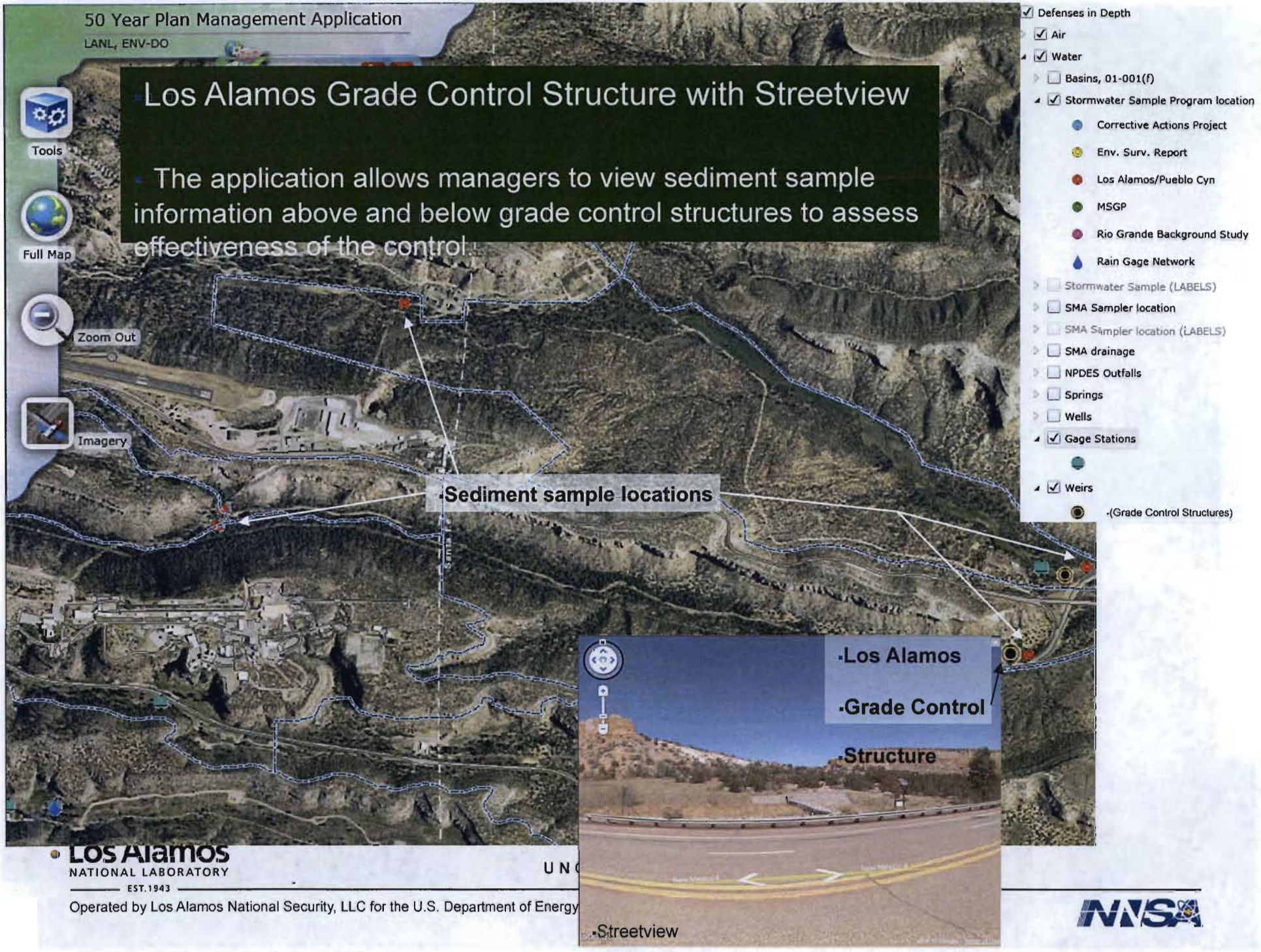
LANL, ENV-DO

Search for Nearby Features

Managers can examine potential spatial relationships between samples of different media and types within specified distances. This allows data from multiple sources and media types to be integrated.

- *A SMA sampler was selected and an air monitoring station was identified within a 1500 ft radius.*





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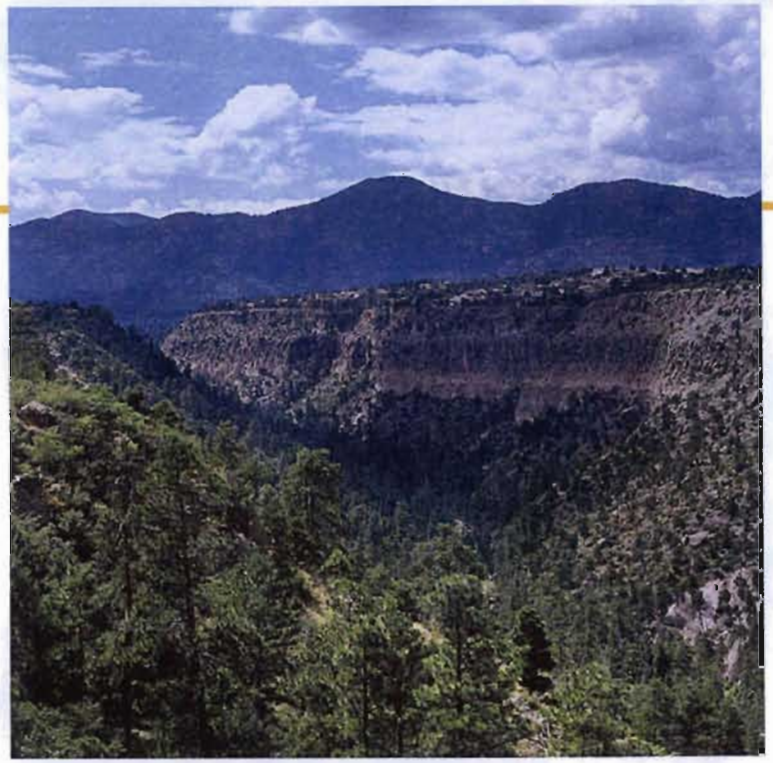

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50 year environmental stewardship plan

Public Communications

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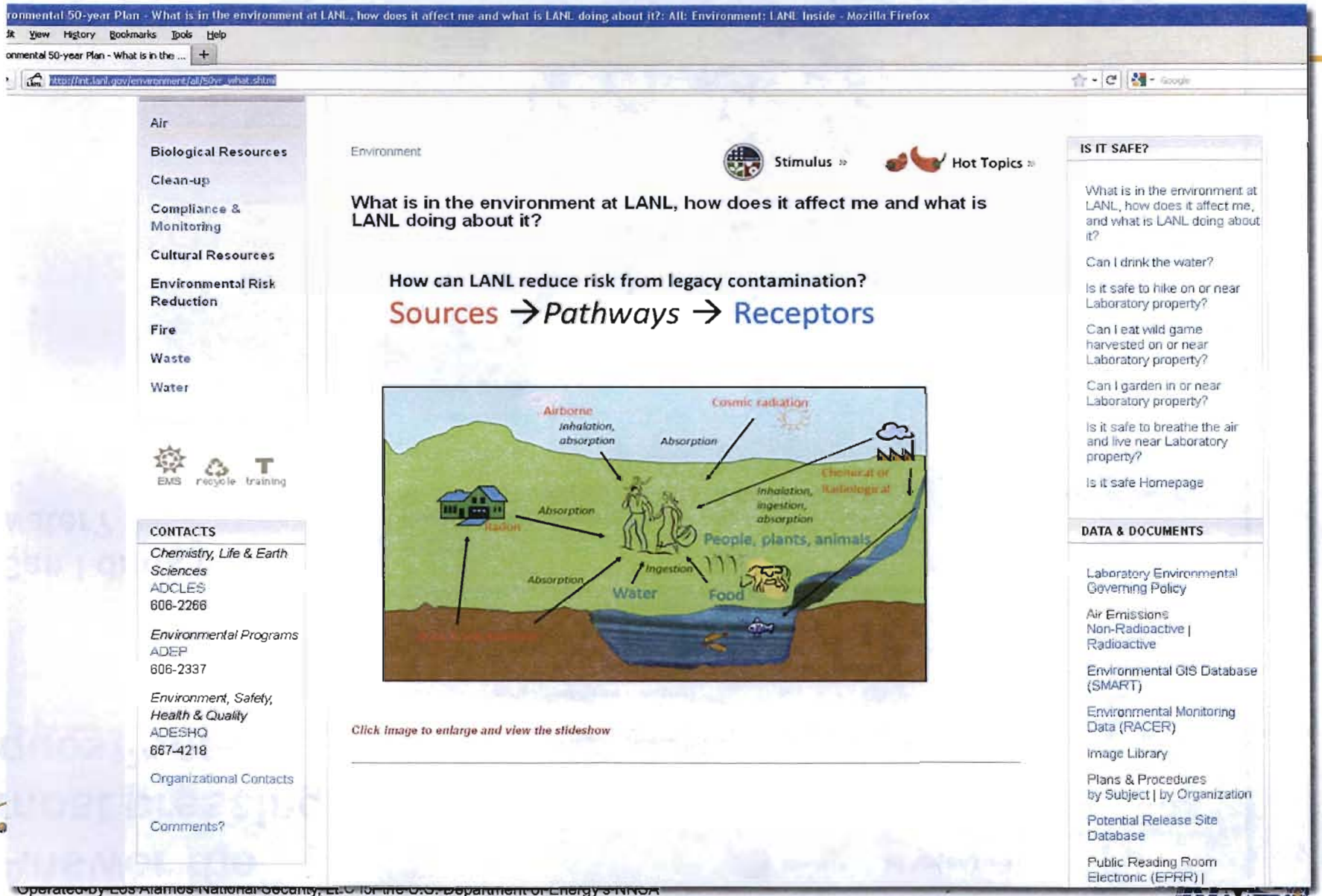
NNSA

50 Year Plan Outreach in 3 parts

1. **Educate the public**
2. **Deliver answers**
3. **Provide additional data**

Educate on program management, contaminants and their remediation



Answer the most pressing questions:

Can I drink the water?

Environment

Stimulus »

Hot Topics »

Can I drink the water?

Why? | Where? | How? | Defenses | Future | Facts

Why is protecting the groundwater important?

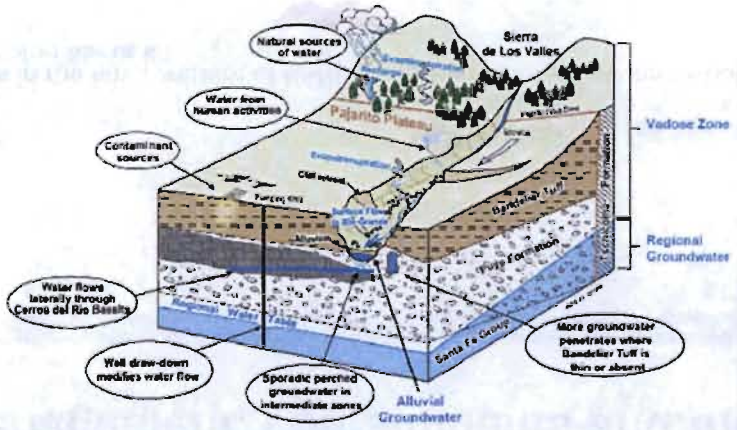
The groundwater in Los Alamos is crucial to the community. It provides most of the drinking water and is an important part of the ecology. Of the three levels of groundwater, alluvial groundwater occupies shallow sediments in canyon bottoms. Below canyons, intermediate depth water sometimes settles in pockets of top of low-permeability rock, which slows the transport to the regional aquifer 600-1200 feet below the surface beneath several layers of unsaturated rock. Only the regional aquifer is a source of drinking water for people.

Drinking Water Quality Reports

Regional municipal drinking water is provided by Los Alamos, Santa Fe and Rio Arriba County. The counties are responsible for monitoring and meeting drinking water standards at the tap.

- Santa Fe Water Quality report
- Los Alamos Water Quality report

Water Flow Model on the Pajarito Plateau Groundwater Zones



IS IT SAFE?

What is in the environment at LANL, how does it affect me, and what is LANL doing about it?

Can I drink the water?

Is it safe to hike on or near Laboratory property?

Can I eat wild game harvested on or near Laboratory property?

Can I garden in or near Laboratory property?

Is it safe to breathe the air and live near Laboratory property?

Is it safe Homepage

DATA & DOCUMENTS

Laboratory Environmental Governing Policy

Air Emissions
Non-Radioactive | Radioactive

Environmental GIS Database (SMART)

Environmental Monitoring Data (RACER)

Image Library

Plans & Procedures
by Subject | by Organization

Potential Release Site Database

Public Reading Room
Electronic (EPRR) | Hard-copy (PRR)

Publications & Reports

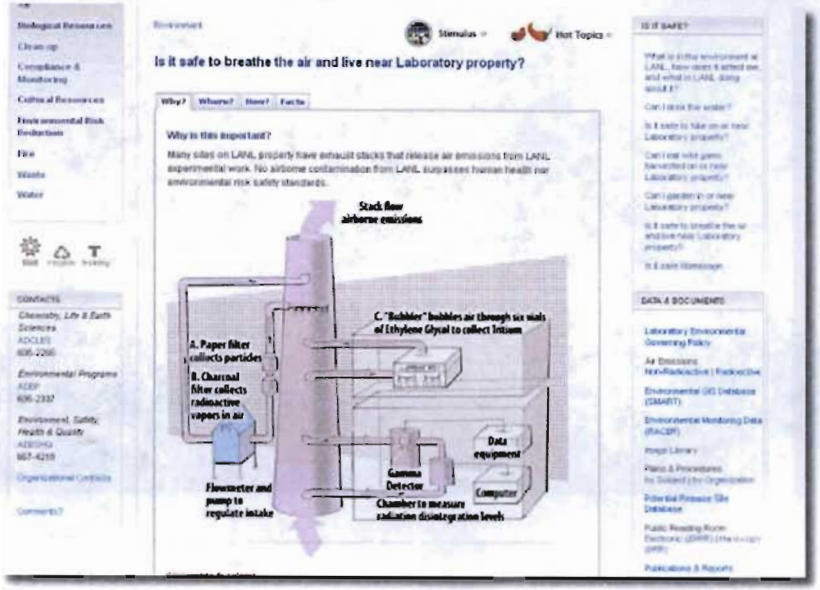
Records Library
EPRM | Domino

Water Quality Database

PUBLIC NOTICES

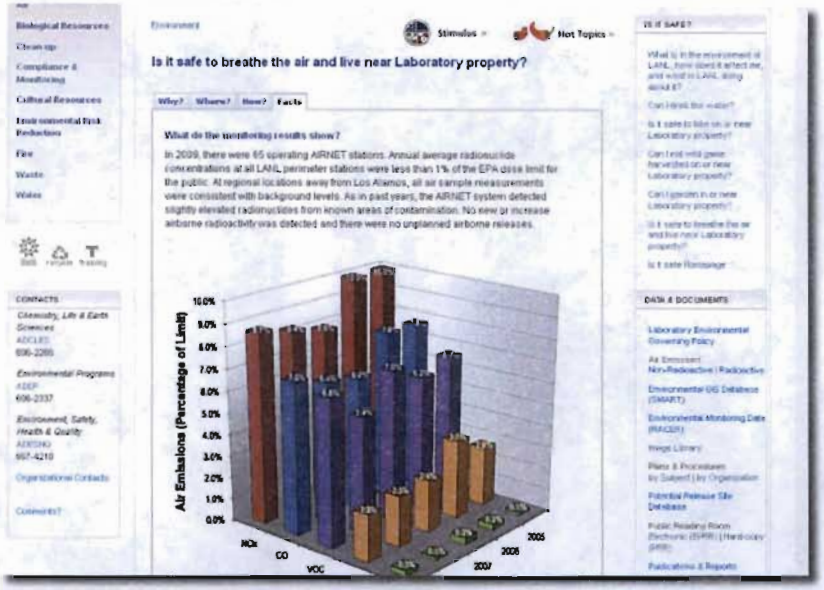
Review of April 2011 Groundwater Data

Can I breath the air?



Where do you monitor?

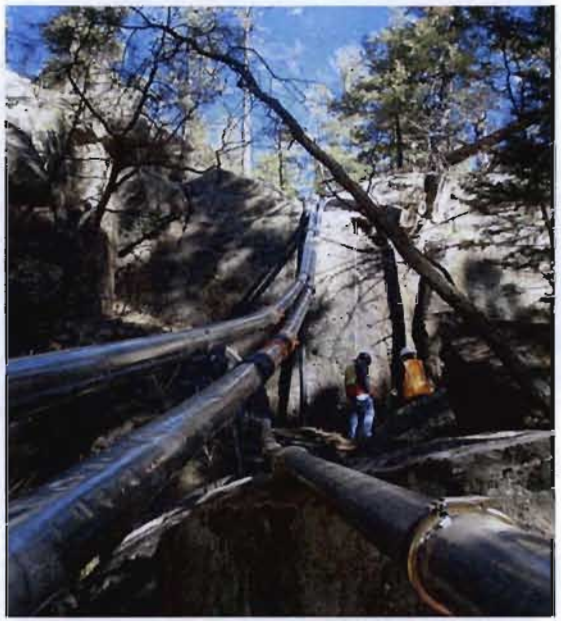
How does it work?



What is the result?

- Can I hike in the canyon?
- Are there contaminants?
- What are you doing about it?

▪PCBs in Upper LA Canyon have been reduced by 99%. Water containment was installed to trap runoff.



Contaminant Source Removal

Defense in depth: After removing contaminants, catchment systems hold rain water for testing

DEMOS ON LINE

- **Questions**

50 Year Stewardship Plan - Purpose

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- **Community and regulator outreach**
  - Address community interests
  - Provide technical justification for decisions on regulated actions
- **Align long-term site stewardship goals across programs**

Strategy

- **Defense-in-depth strategy**
  - Monitoring for change
  - Establishing triggers for actions
  - Scientifically based actions
  - Establish management responsibility for key elements
- **Use existing Environmental Management System (ISO14001) to provide a framework for:**
  - Work assessment
  - Environmental risk assessment
  - Corrective and preventive pathways
  - Set objectives and targets
  - Metrics and independent third-party assessment
- **The Plan will serve as the framework for future environmental stewardship activity and for future post-consent order agreements with regulators**

Plan Structure – Two Basic Parts

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