NEPA and the Siting of a Biosafety Level 3 Laboratory at Los Alamos National Lab, New Mexico

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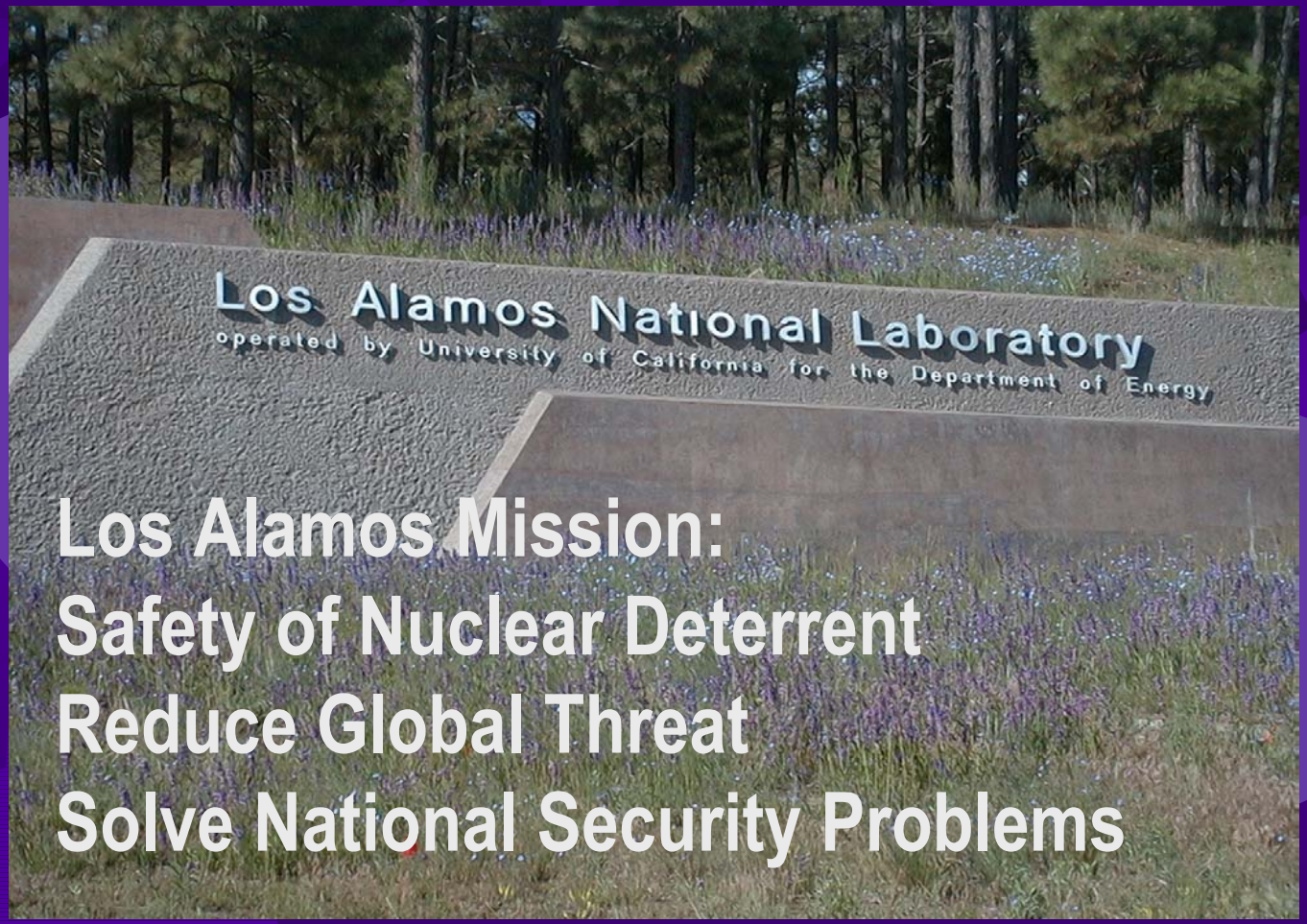
Los Alamos NATIONAL LABORATORY

NNSA National Nuclear Security Administration

Background

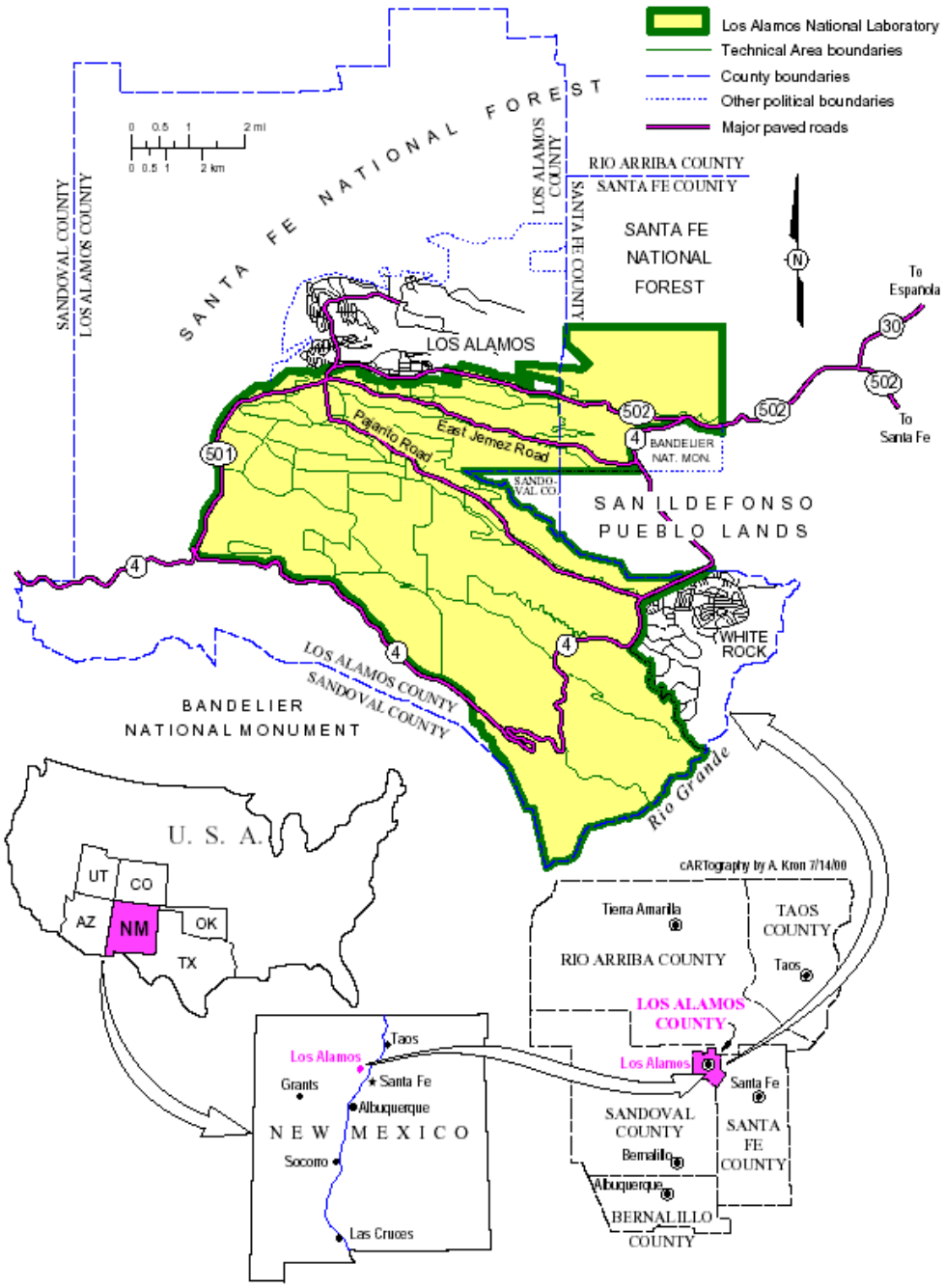
- Los Alamos National Laboratory (LANL)
- Major Technical Focus Areas at LANL:
  - Nuclear Materials Technology
  - Theoretical and Applied Physics
  - Plutonium Chemistry
  - Computer and Computational Science
  - Bioscience
  - Earth and Environmental Science
  - Environment, Safety and Health
  - Much More

LANL's Mission



Los Alamos Mission:
Safety of Nuclear Deterrent
Reduce Global Threat
Solve National Security Problems

LANL's Location

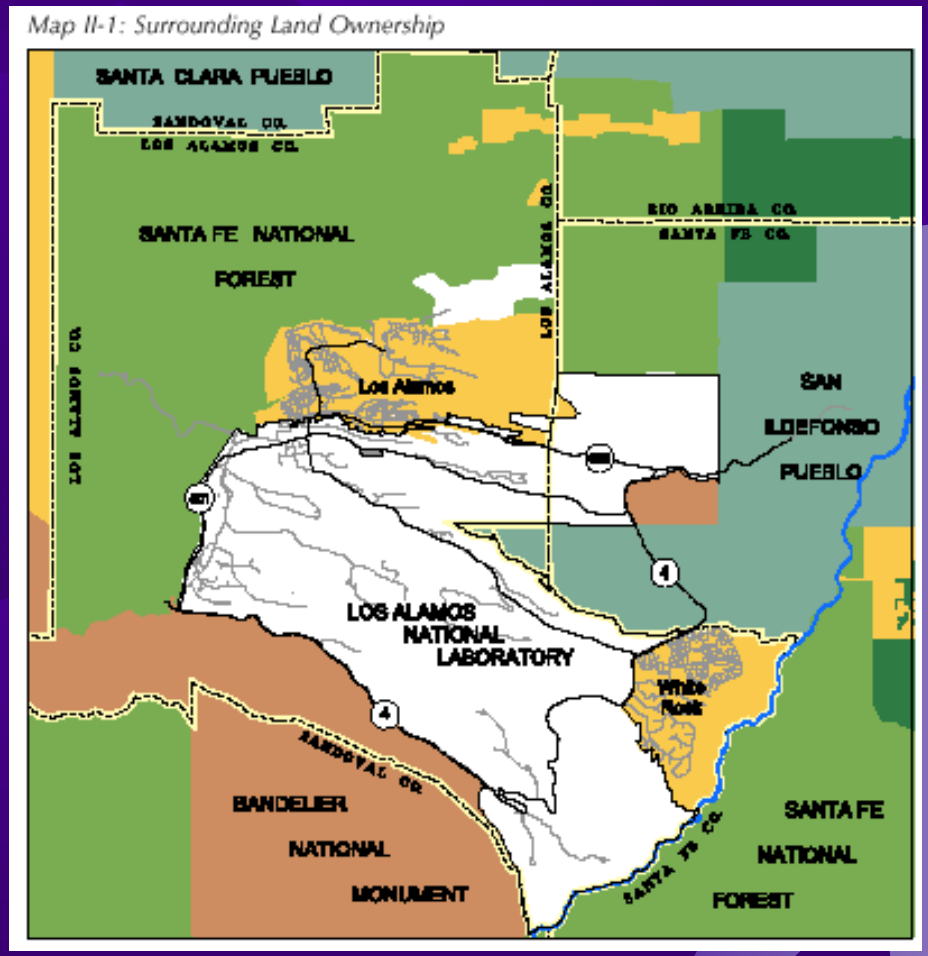


Location of Los Alamos National Laboratory.

Los Alamos, NM Today

Los Alamos Facts

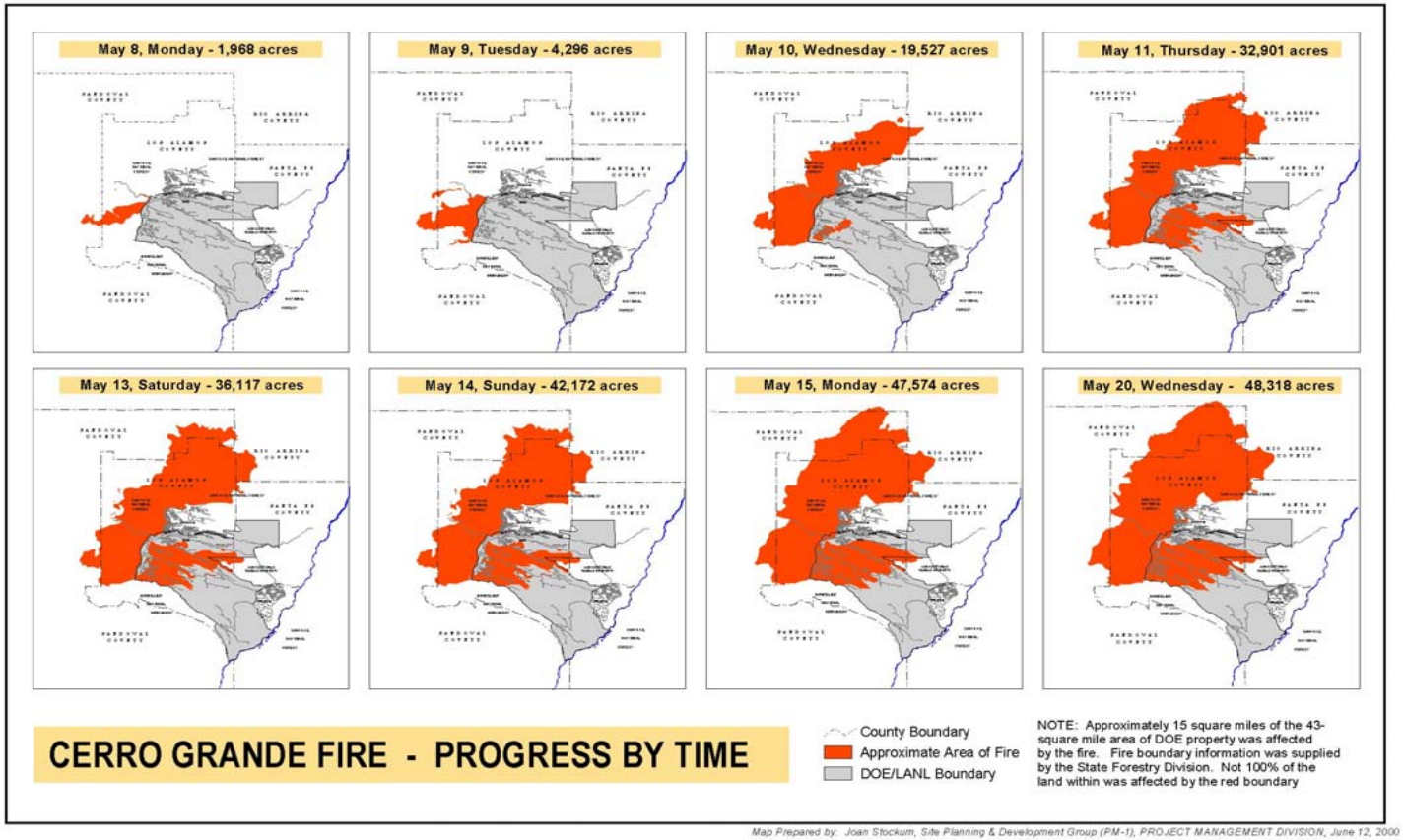
- 43 square miles
- there's topography
- ecologically diverse
- multiprogrammatic mission
- Stakeholders include NPS, FS, LA County, 4 Pueblos, Public



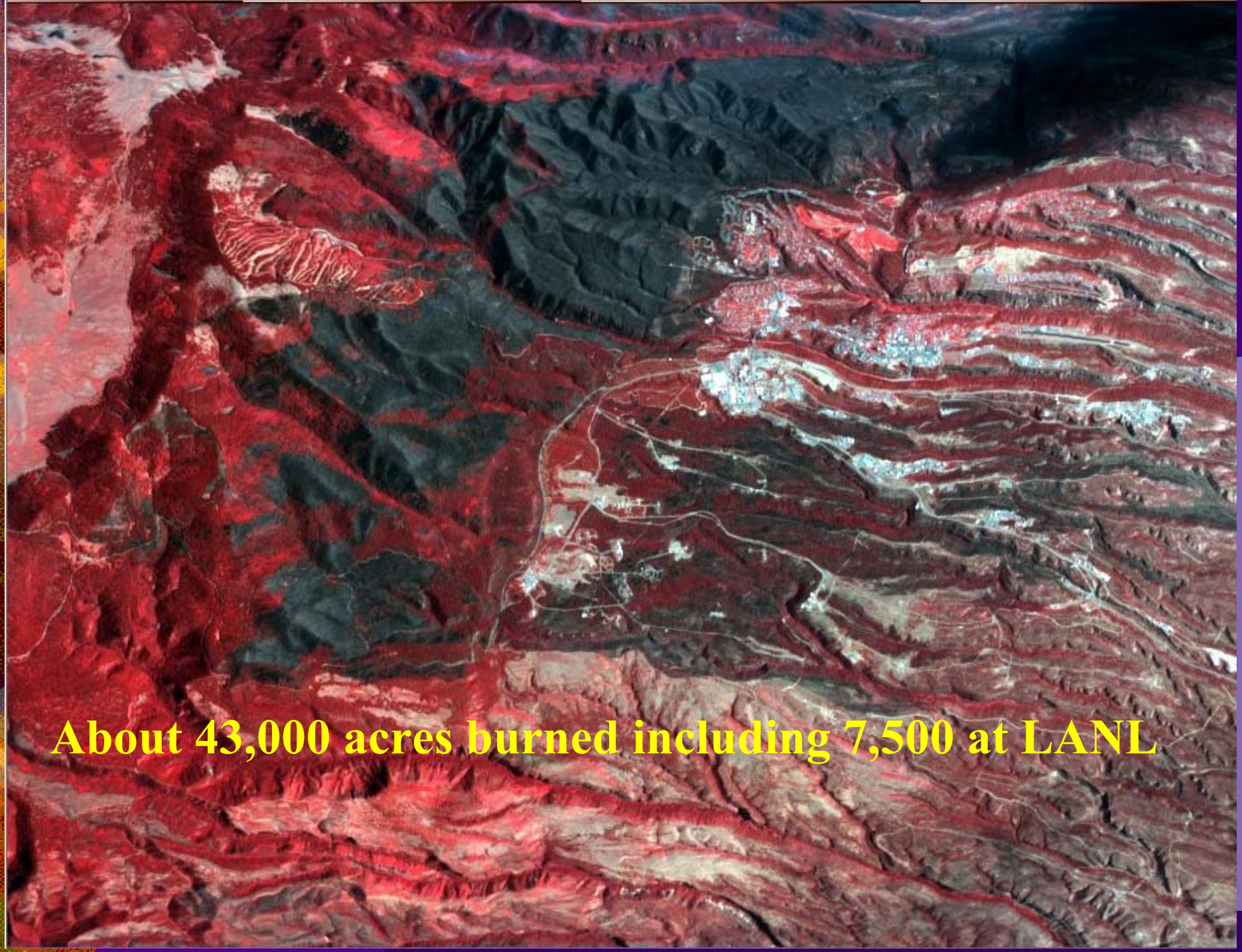
Los Alamos Facts

- > 2000 bldgs.
- 7.8 million gsf
- 3.5 billion $ erv
- 107 miles of roads
- 66% site constrained
- 12,660 workforce

Cerro Grande Fire



Map Prepared by: Joan Stockum, Site Planning & Development Group (PM-1), PROJECT MANAGEMENT DIVISION, June 12, 2000


About 43,000 acres burned including 7,500 at LANL

After the Cerro Grande Fire

- No Critical Lab Facilities were destroyed
  - 49 structures destroyed
  - 189 structures with some level of damage
  - Flooding threat immediately addressed
    - Flood Retention Facility
    - Weirs and catch basins
    - Major aerial hydromulching, contour raking, reseeding
    - Facilities in canyons were vacated and staff relocated

NEPA at LANL

- Joint DOE and LANL approach
- Optional versus mandatory requirement
- Project by project approach for the most part
- Project owner submits description for ESH review
- NEPA review considers scope of project and long list of mission and policy issues

NEPA at LANL

- Basic NEPA Process at LANL
  - NEPA organization develops an integrated strategy
  - Select categorical exclusion, prior NEPA, EA, EIS or SEA
  - Requires DOE approval and “champion”

  - “***NEPA process works well***”

Planning for a National Laboratory in the 21st Century

- Record of Decision on SWEIS for the Continued Operation of LANL:
  - Integrate LANL's mission and operations with its biological, water, soil, and air resources in a comprehensive plan that will guide land and facility use decisions
  - Begin implementation of an integrated Natural Resources Management Plan (NRMP) by October 2002
  - Integrate principles of ecosystem management into critical missions of LANL
  - The plan will consider site's larger regional context and be developed in consultation with regional land managing agencies and owners

LANL's CBNS Program

- LANL's mission under the Chemical and Biological National Security Program is to "develop, demonstrate and deliver technologies and systems to improve domestic defense capabilities and, ultimately, to save lives in the event of chemical or biological attack."

Why at LANL?

- Capabilities:
  - Forensic DNA
  - Advanced modeling and simulation
  - Nonproliferation and national security
  - Treaty certification and compliance

Biological Research at LANL

- Biology work at LANL since its inception
- Human Health Dose Studies (radiation)
- Animal Research
- What's been done in last 3 to 5 years
- Forensic DNA (*b. anthracis*)

What Are Biosafety Levels (BSL)?

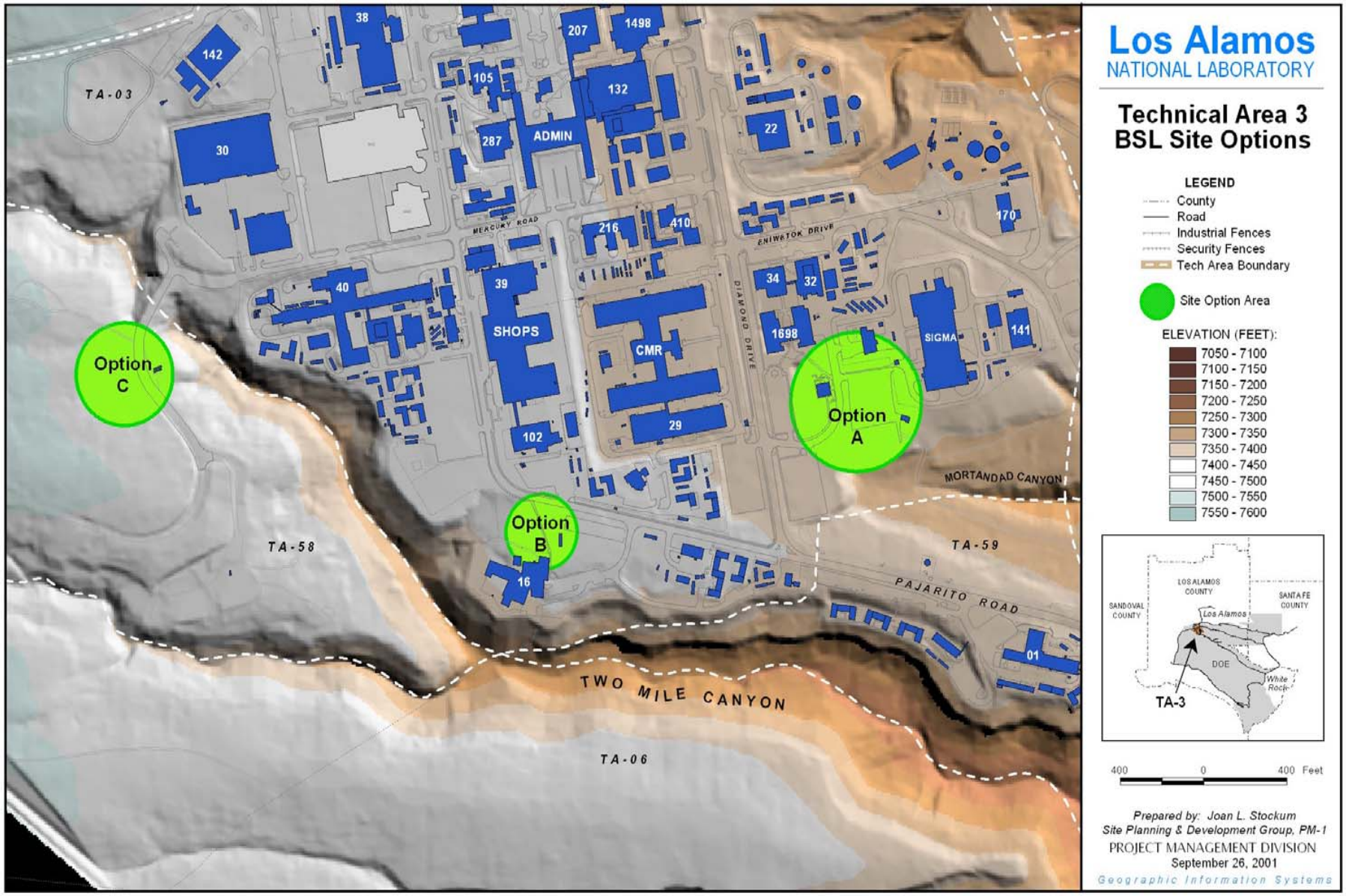
- Established by CDC in the BMBL (Biosafety in Microbiological and Biomedical Laboratories) (CDC 1999) “gold standard” for safely conducting microbiological research
  - BSL-1
    - Involves well-characterized agents
    - Minimal potential hazard
  - BSL-2
    - Moderate potential hazard
    - Lab personnel have specific training in handling pathogenic agents and are supervised
    - Certain procedures conducted in biological safety cabinets or other physical containment equipment

What Are Biosafety Levels (BSL)?

- BSL 3 – Applies to clinical, diagnostic, teaching, research, or production facilities
  - Indigenous or exotic agents which may cause serious or potentially lethal disease as a result of inhalation
  - Lab personnel have specific training in handling pathogenic and potentially lethal agents and are supervised
  - All procedures involving infectious materials are conducted within biological safety cabinets and or other physical containment devices
  - Lab has special engineering and design features

BSL-3 Project Overview

- BSL-3 is a biosafety lab focused on counter-terrorism technologies
- Designed and operated in accordance with CDC/NIH guidance
- Proposed work at BSL-3 is handling of a variety of organisms concurrently, and assurance of sample security and integrity
- Site-Wide Environmental Impact Statement defined Health Research Laboratory (HRL) as a key facility at LANL
- 3000 Square Feet


Los Alamos
NATIONAL LABORATORY
Technical Area 3
BSL Site Options
LEGEND
County
Road
Industrial Fences
Security Fences
Tech Area Boundary
Site Option Area
ELEVATION (FEET):
7050 - 7100
7100 - 7150
7150 - 7200
7200 - 7250
7250 - 7300
7300 - 7350
7350 - 7400
7400 - 7450
7450 - 7500
7500 - 7550
7550 - 7600
LOS ALAMOS COUNTY
SANDOVAL COUNTY
SANTA FE COUNTY
Los Alamos
DOE
White Rock
TA-3
400 0 400 Feet
Prepared by: Joan L. Stockum
Site Planning & Development Group, PM-1
PROJECT MANAGEMENT DIVISION
September 26, 2001
Geographic Information Systems
TA-03
TA-58
TA-59
TA-06
TWO MILE CANYON
MORTANDAD CANYON
PAJARITO ROAD
MERCURY ROAD
ENIWETOK DRIVE
DIAMOND DRIVE
ADMIN
SHOPS
CMR
SIGMA
Option A
Option B
Option C
38
142
30
207
1498
105
132
287
22
170
216
410
40
39
34
32
1698
141
102
29
16
01

Alternatives Considered But Discarded

- Use existing building
- More remote location at LANL
- Other National labs instead

BSL-3 EA Milestones

- Project started in 1999 (ESH-ID)
- Environmental Information Document completed in 1999
- Unable to categorically exclude
- Determination to proceed with EA February 2001
- EA Predecisional Draft October 2001

BSL-3 Public Participation

- Four public information meetings: March & April 2001 (Taos, Santa Fe, Espanola, Los Alamos)
- Briefings to pueblos and government representatives throughout
- Public meeting at Los Alamos November 2001
- Extended comment period 12/17/01 to 1/15/02

BLS-3 EA Accident/Risk Analysis

- Abnormal Events
  - Seismic – reasonable risk but can be mitigated
  - Laboratory-acquired infection – improbable
  - Catastrophic laboratory release accident – unlikely to occur
  - **Aerosol production – Maximum Credible Event – but adverse impacts extremely unlikely**
  - Transportation accidents – not expected to increase and consequences minor
  - Terrorist actions – evaluated under security processes not NEPA

Issues

- Infectious Microorganisms used
- Should this type of work be done at LANL
- LANL Safety/Security concerns
- Fear of future Bioweapons work
- Treaty Violations?
- Terrorist Attack Risk
- Transportation Issues

Where Are We Now?

- EA completed February 2002
- EA approved with FONSI March 2002
  - No unusual restrictions
- EIS - Are we still vulnerable?
  - No law suits have been raised
  - Local Sierra Club support
- Design underway: construction begins Fall 2002

Lessons Learned

- Lock in Project Scope
- External factors can affect your process
  - September 11th
  - Murphy's Law:
    - Shipping "incident" – anthrax
    - Anthrax attacks
- The process helped improve the final decision (best all around location was chosen)

Lessons Learned

- Extensive public disclosure and review facilitated by NEPA
- What may be routine (cat ex) elsewhere may <u>not</u> be when you do it at LANL
- Consider congressional liaisons