



Progress of Sandia's Environmental Restoration Operations



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Overview of Sandia's Environmental Restoration Operations

- Mission – Identify, characterize & remediate sites where hazardous &/or radioactive materials have been released
- Scope: 315 sites
 - Legally - Solid Waste Management Units or Areas of Concern
 - For presentation - Environmental Restoration sites or “ER sites”
- All activities regulated by New Mexico Environment Department (NMED) under the 2004 Compliance Order on Consent (COoC)
- DOE/NNSA and Sandia Corporation are in compliance with: Compliance Order on Consent, Federal and State requirements



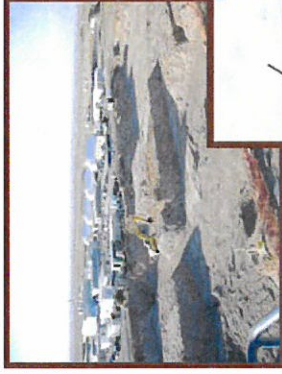
Overview of Sandia's Environmental Restoration Operations

- Very successful, completed corrective action at 302 of 315 ER sites through the NMED regulatory process
- 13 ER sites remain in corrective action process
- Review progress in completing historic and current corrective actions

Challenges

Sandia ER has been involved with many different types of remediation challenges

- Landfills
- Firing Sites
- Septic Tanks
- Leach Fields
- Scrap Yards
- Underground Storage Tanks
- Unexploded Ordnance (UXO)
- Depleted Uranium



Chemical Waste Landfill



Open Dumps



Demolished Building-Site



Gas Cylinder Disposal Pit



UXO



Mineral Oil Spill

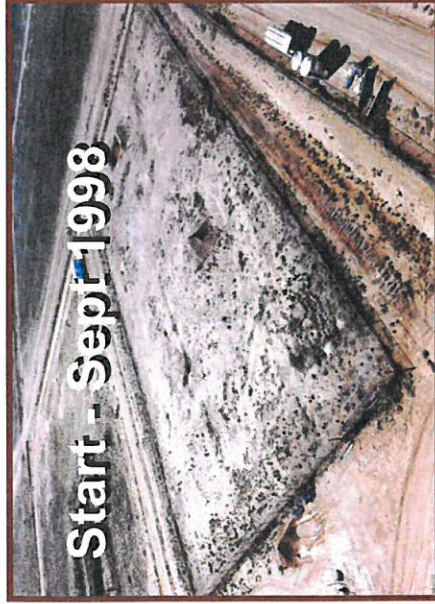


Classified Waste Landfill

Chemical Waste Landfill

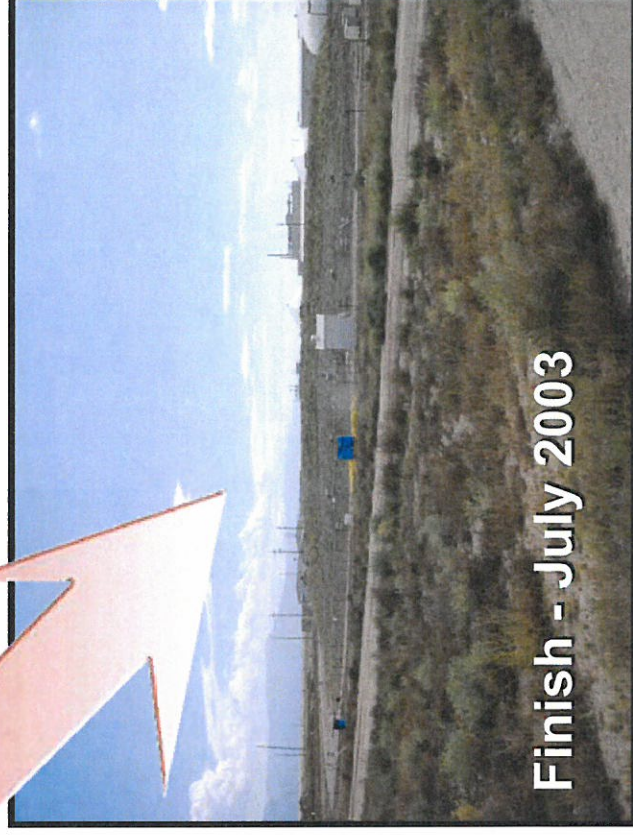
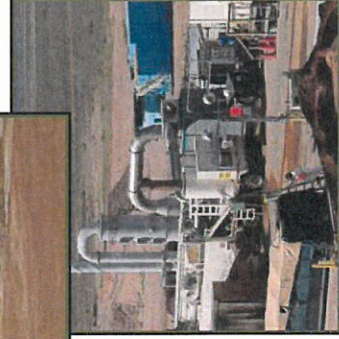
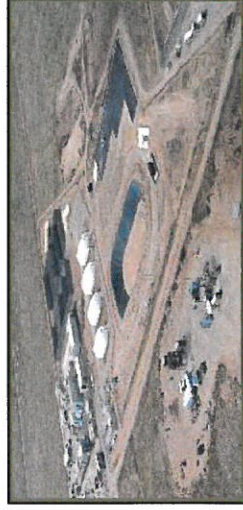
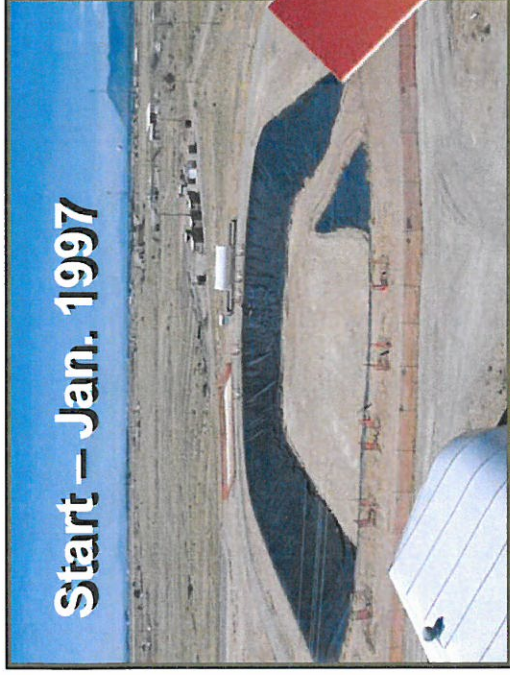
Accomplishments

- Excavation in 1999 to 12 ft depth – 44,070 yds³
- Total excavation in 2001 – 44,870 yds³ includes PCB's, Rad soils, etc.
- Debris recovered included hazardous and non-hazardous material
- No hazardous releases to the environment
- Cover Installation complete in FY 2005
- >**150,000** manhours without injury



Corrective Action Management Unit

- Initiated waste management in support of the Chemical Waste Landfill Remediation in Jan. 1999
- Started soil treatment in August 2000
- Completed treatment of 8,900 cubic yards of organic contaminated soils with a low temperature thermal desorber
- Completed treatment of 25,600 cubic yards of metals-contaminated soils in a soil stabilization plant
- Placed treated and no-treat soils into a 1,000,000 cubic foot engineered containment cell
- Initiated construction of containment cell cover construction
- >106,000 manhours without injury
- Saved an estimated \$200M based on a project cost of \$35M and current off-site transportation and disposal costs.



Finish - July 2003

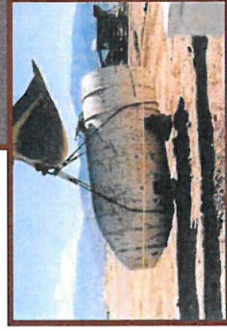
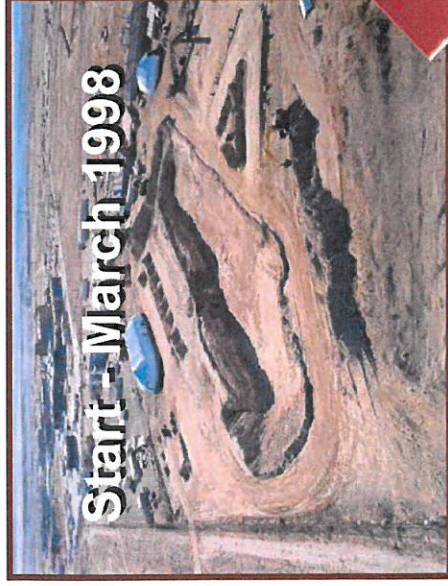
Classified Waste Landfill

Start - March 1998

Accomplishments

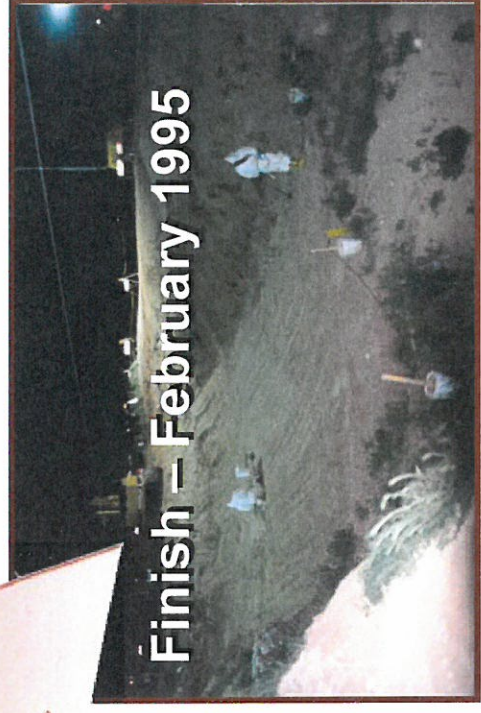
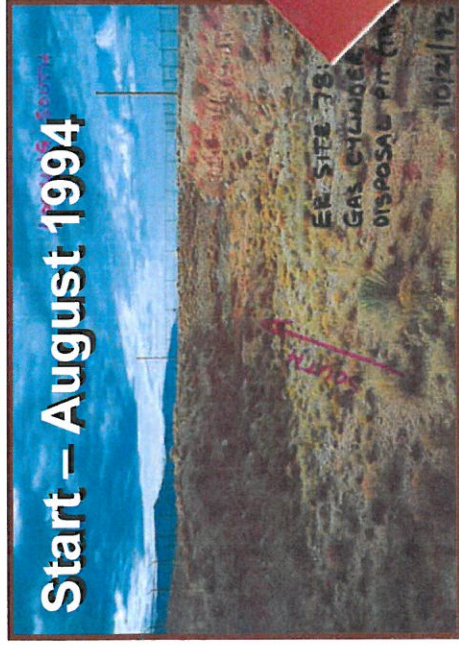
- 40,000 yds³ of soil excavated and characterized
- 200,000 manhours without a major injury
- Over 1 million pounds of metals recycled
- Uncovered millions of classified weapons components with no security infractions
- No personnel contamination incidents
- Sorted, characterized, and disposed of over 8.4 yds³ of mixed waste, including bomb casings, thermal batteries, and several million classified weapons components

Finish - Sept 2005



Accomplishments

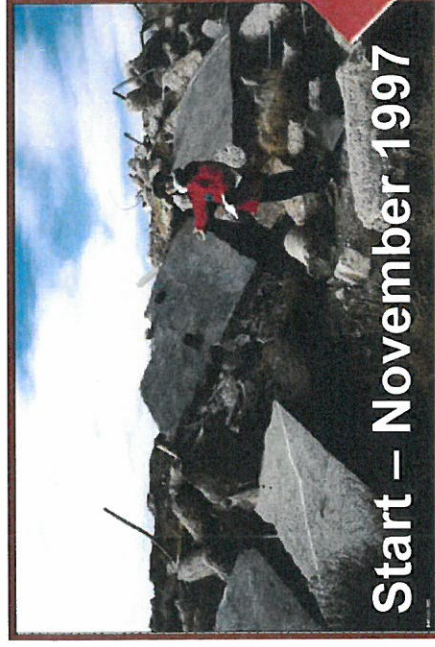
Gas Cylinder Disposal Pit



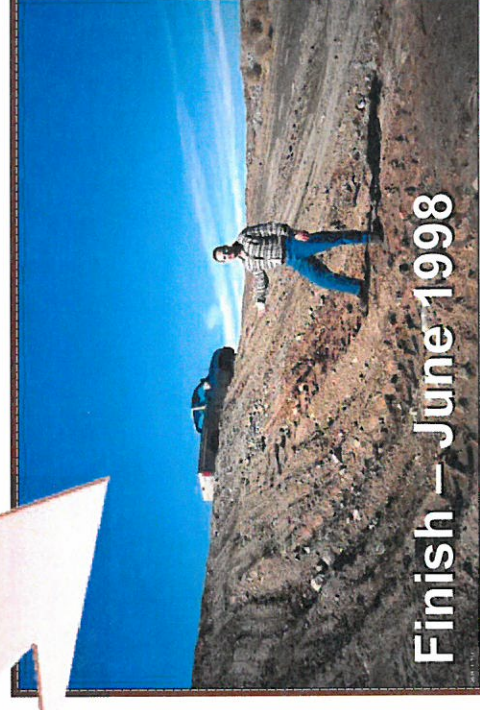
- Work in Level A personal protective equipment with body armor
- No significant injuries
- 96 intact cylinders, some with explosive and/or highly toxic contents
- No release of hazardous chemicals

Accomplishments

Site 16 Open Dumps Arroyo del Coyote

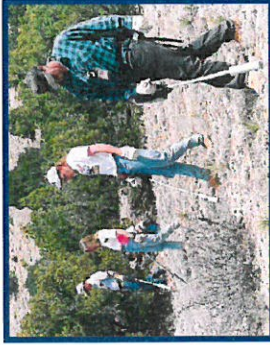


- Innovative technologies included demonstration and deployment of the Segmented-Gate System for separating uranium-contaminated soil from clean soil
- Sorted 662 yds³, 98% volume reduction to 0.32 yds³ of uranium-contaminated soil
- Overall savings of \$280,000 by using Segmented-Gate System
- No injuries
- Reseeded area with native plants upon completion



The “passionate focus” has resulted in success after success!

Accomplishments



- Effective site-wide hydrogeologic field work
- Site-wide remediation of depleted uranium and unexploded ordnance
- Use of long-term, performance-based strategic subcontracting
- Project Re-Plan – cost savings of \$240M and lifecycle reduction of 20 years, due to one-pass process
- Frequent regulator-stakeholder interactions
- On-site treatment and disposal of remediated hazardous waste at the Corrective Action Management Unit (CAMU)
- Remediation of 4 major landfills with no lost-time injuries, no environmental releases, and no security infractions
- Reduction of regulator review times from 2.5 years to 0-6 weeks, and “rejection” rate from 75% to 0%
- Innovative use of technology and regulatory strategies to reduce hazards, and save time and money

Demonstrated success in safety, compliance, and fiscal responsibility

Accomplishments



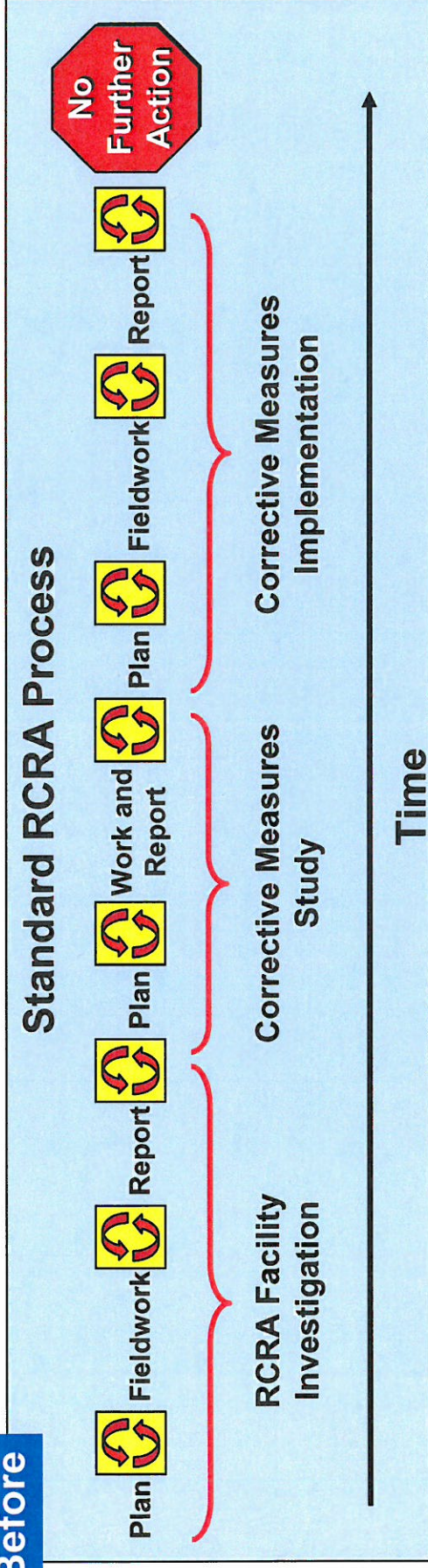
Sandia ER Project has NEVER

- Incurred significant injury or environmental release
- Missed a regulatory deliverable or received a Notice of Violation
- Missed a DOE/EM management commitment
- Over-spent budget

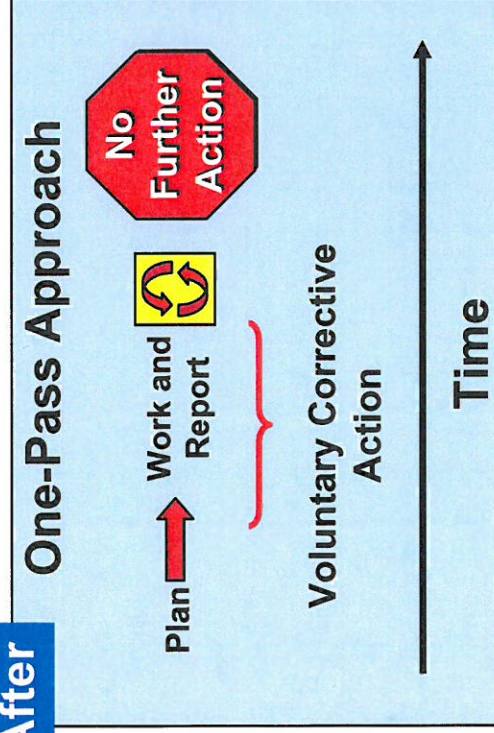
Comparison of Standard RCRA Process to One-Pass Approach

One-Pass Approach with Regulator

Before



After



Regulator review and comment,
Sandia response
...
(Repeats until approval received)
Regulator approval
not necessary to
proceed

Implementation reduced life cycle schedule by 20 yrs and life cycle cost by \$240M.

Sandia has involved citizens and regulators in the ER decision-making process

Stakeholder Interactions



- Quarterly meetings since 1993
- Citizen's Advisory Board meetings
- Citizens and regulators participated in site-prioritization panel, and definition of future land use
- Long-term environmental stewardship efforts have included numerous stakeholder meetings
- Citizens and regulators were part of CAMU working group
- Ad hoc meetings with citizens at their request



Remaining 13 ER Sites

- 6 “Soil sites”
- 3 “Active mission” sites with deferred corrective action
 - 1 Mixed Waste Landfill
 - 3 Groundwater Areas of Concern
 - Burn Site
 - Tijeras Arroyo
 - Technical Area V



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Five Soil Sites

- “Soil sites” to separate them from the landfill and the groundwater areas of concern
- A 2010 letter from NMED requested additional groundwater characterization of these ER sites (ER sites 8/58, 68, 149 & 154)
- All required groundwater characterization work has been completed and the results documented
- In letter dated February 24, 2015, NMED stated that corrective action activities have been completed, and that Certificates of Completion may be requested for these sites
- In letter dated September 4, 2015, Certificates of Completion were requested for the five soil sites



One “New” Soil Site

- “New” release site, discovered in 2012
- Voluntary corrective actions completed at this site (ER site 502)
- Remaining concentrations in soil below cleanup criteria
- Reported the results to NMED in November 2013 and are awaiting NMED review



More Information & Questions

- On-line information ER documents hosted by NMED - <http://www.nmenv.state.nm.us/HWVB/snlperm.html>
- On-line collection of ER documents hosted by UNM's Lobo Vault - <http://repository.unm.edu/handle/1928/10963>
- Annual Groundwater Monitoring Report for Sandia Labs - http://www.sandia.gov/news/publications/environmental_reports/index.html
- Send email questions to - envinfo@sandia.gov
- Call Sandia National Laboratories Community Involvement - 284-5200