



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**



Chromium Interim Measure & Characterization Campaign Successes

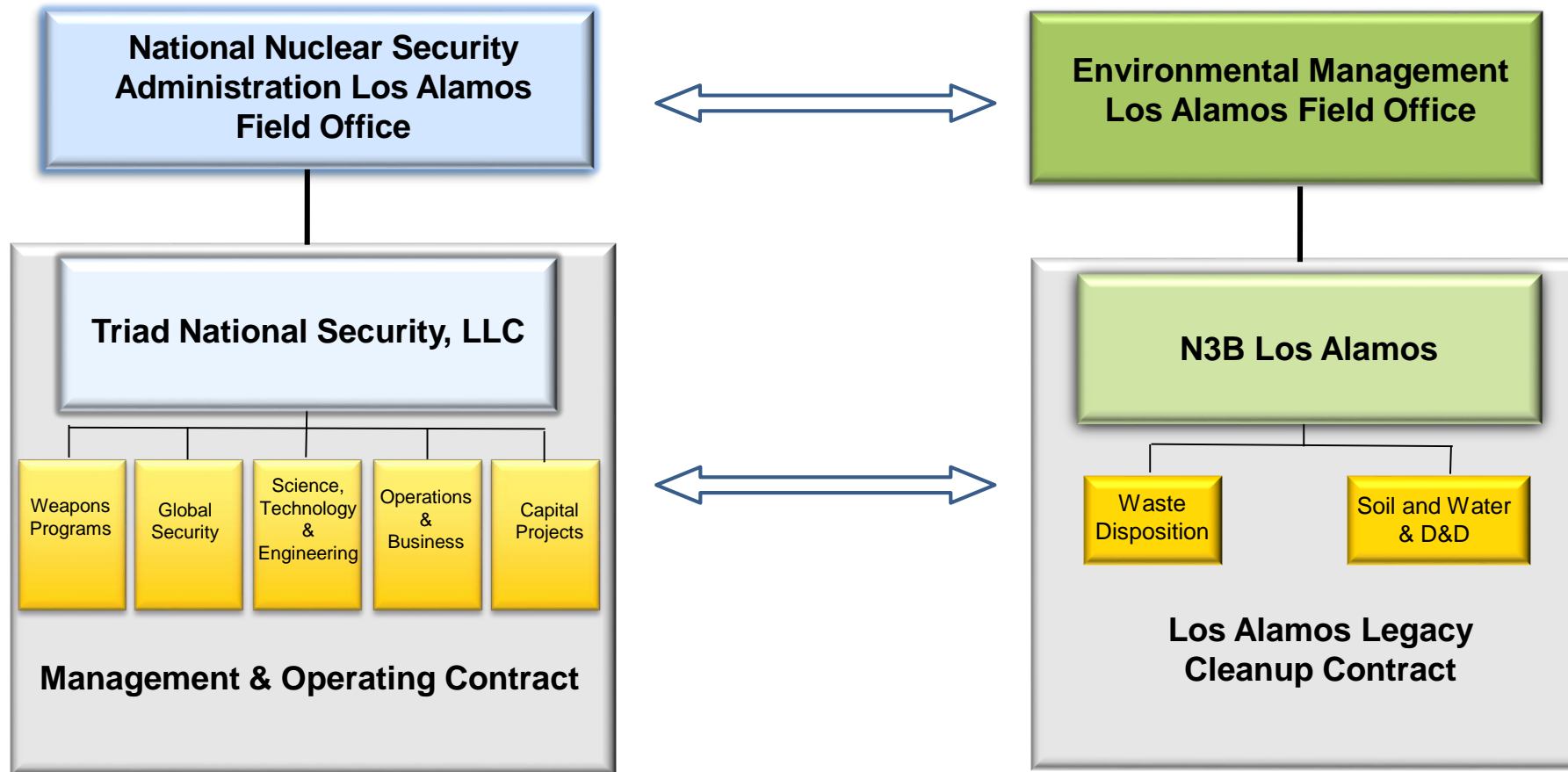
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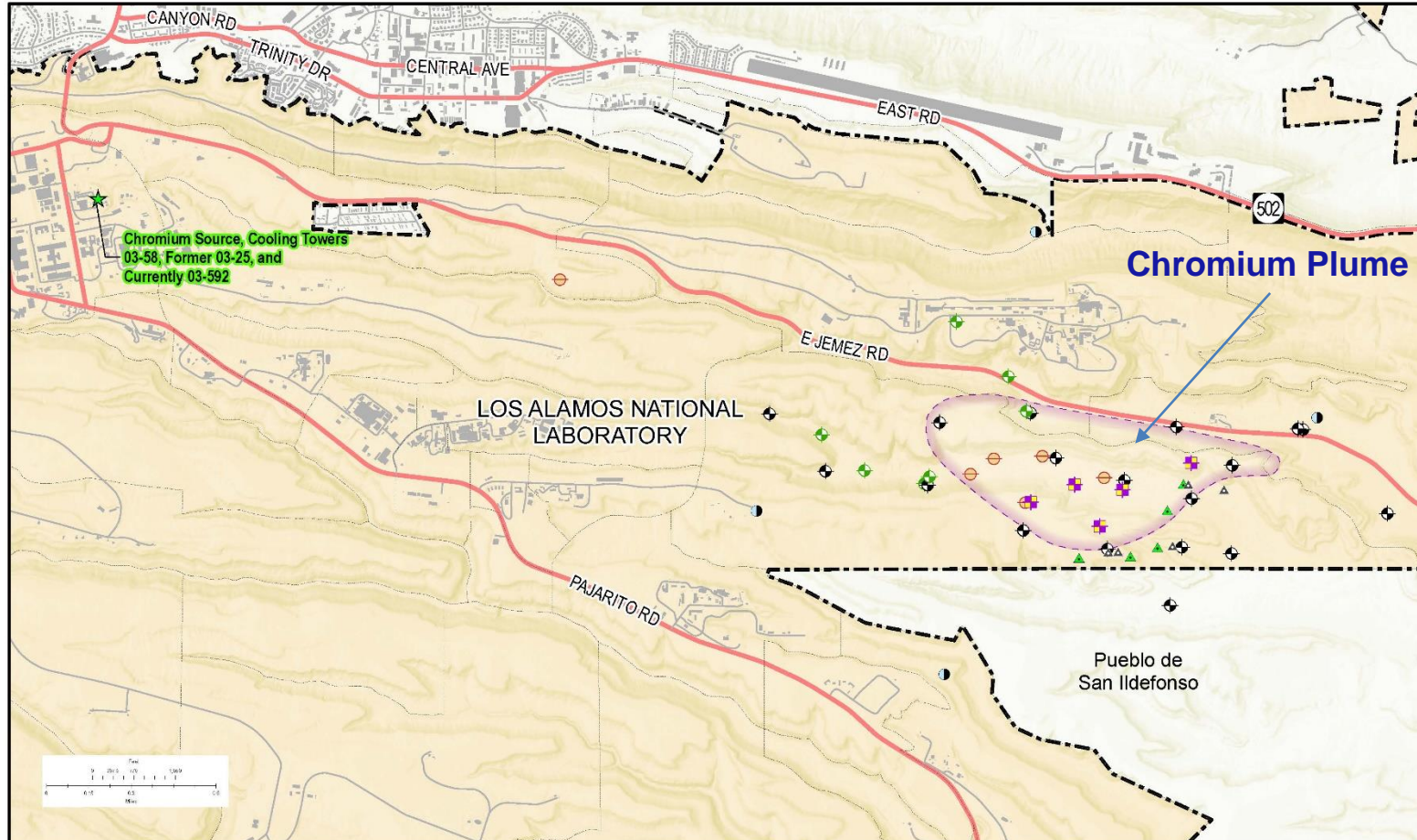






- **Since elevated hexavalent chromium concentrations were discovered in one well on LANL property in 2005, DOE has taken the following actions:**
 - **Installed a network of monitoring wells to characterize and monitor plume extent and behavior**
 - **Developed comprehensive groundwater model to guide installation of wells and to support a better understanding of the plume**
 - **Planned and implemented an Interim Measure (IM) consisting of a pump and treat system to arrest migration of the downgradient edge of the plume**
 - **Operating the IM along LANL's boundary with the Pueblo de San Ildefonso for over one year, successfully shrinking the plume along the southern boundary**
 - **Pumped and treated over 103 million gallons of water from the plume**
 - **Developing plans to install two additional monitoring wells to better characterize the northwestern and southwestern portions of the plume**
 - **Spent over \$90M to characterize the plume, arrest its migration through operation of the IM, and study remedial options for a final remedy**





Chromium Plume Source

- Intermediate well location
- Regional well screen location
- Extraction well screen location
- Injection well screen location
- Municipal supply well
- Piezometer location
- Wellhead location
- Chromium source
- TA boundary
- Arterial Rd
- Collector Rd; Local Rd
- Airport runway
- LANL area
- Chromium plume > 50 ppb
- Structure

10w-Mexico Side Plume Coverage System Central Zone (CCZ) 10th Amendment, 1988 (R40-88)

10w-Saving Pl

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Created: 20 August 2016
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File: map_15-0099-01_chromium_mills

DISCLAIMER: This map is prepared for work processes associated with the LLNL. All other users of this map should be advised of this fact.





➤ **We saw an evolving problem**

- We developed a groundwater model to help identify a strategy
- The model-based strategy required angle drilling because of the complex terrain, deep groundwater, and sensitive cultural sites



Angled drilling has enabled wells to be installed in locations that otherwise would not have been possible.





- We interfaced effectively with regulators and with the Pueblo de San Ildefonso
- Successfully worked through complex regulatory reviews, particularly with the National Environmental Policy Act
- Built a complex infrastructure with minimal above ground disturbance
- Operated Interim Measure and are seeing better than expected plume mitigation
- We will continue to build on our progress in the final remediation design



Project infrastructure was designed to have a minimum visual impact.





➤ **The following has been installed as part of this campaign:**

- 16 regional aquifer wells/screens
- 4 perched-intermediate wells
- 6 piezometers
- 5 extraction wells
- 5 injection wells
- Groundwater treatment system
- 3 miles of piping

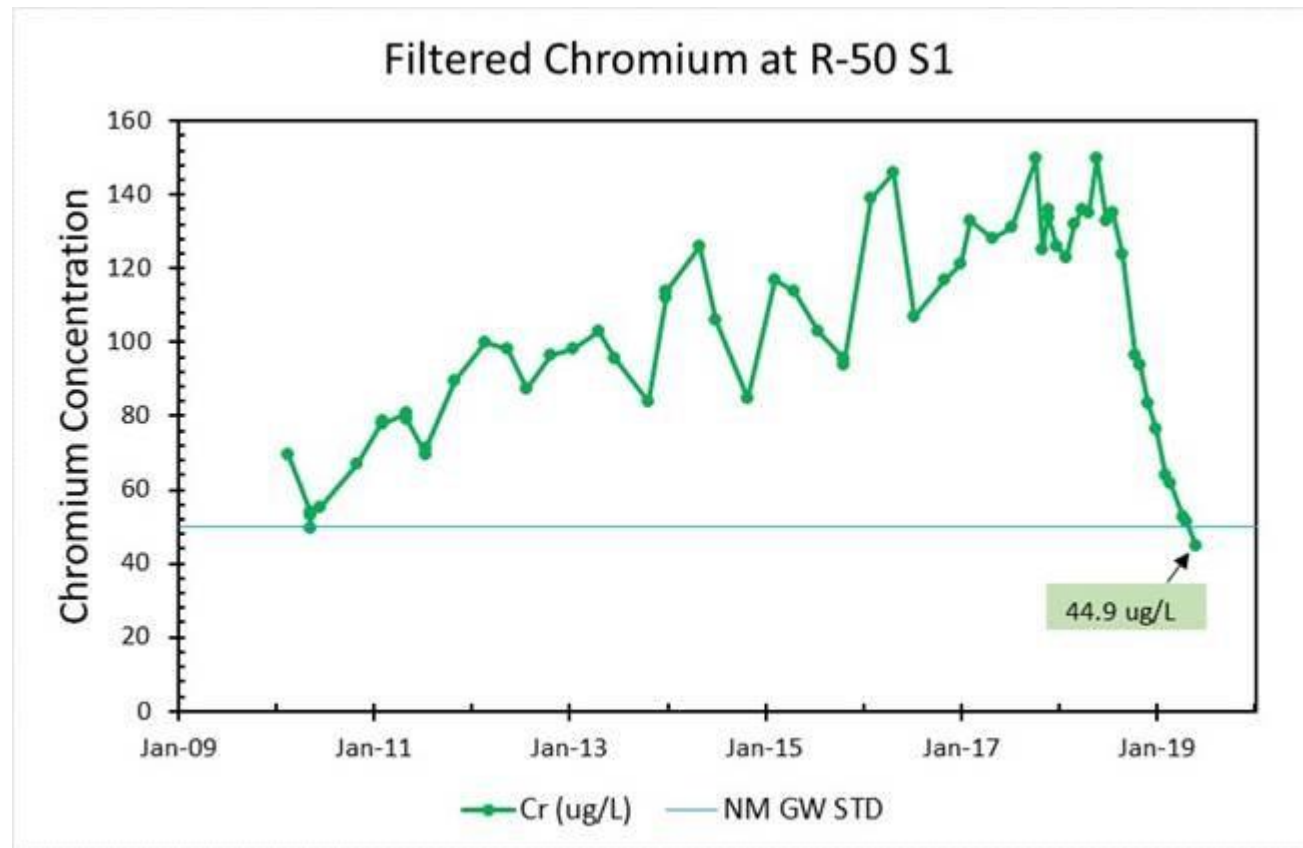


The monitoring well R-70 was installed in spring of 2019.





- R-50 is a monitoring well located at the southern edge of the plume, north of Pueblo de San Ildefonso





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Questions



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