



Hexavalent Chromium Plume at Los Alamos National Laboratory (LANL)

Briefing to the Board of Public Utilities

Los Alamos County

May 20, 2026

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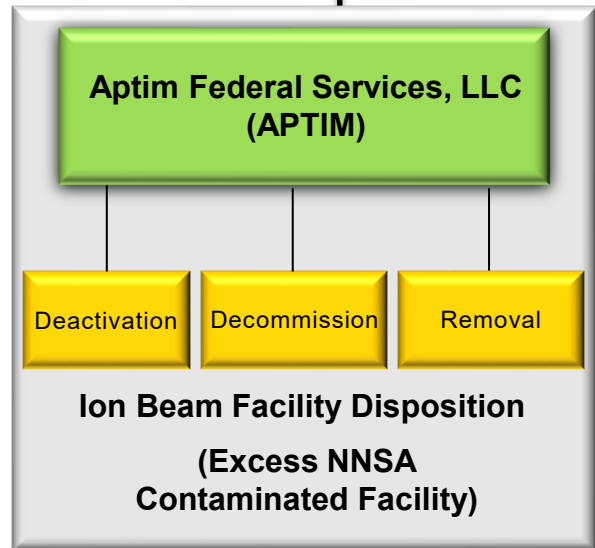
N3B Deputy Program Manager for Environmental Remediation

Cleaning Up Today for a Safer Tomorrow

Department of Energy in Los Alamos

National Nuclear Security Administration Los Alamos Field Office (NA-LA)

Environmental Management Los Alamos Field Office (EM-LA)



Hexavalent Chromium Plume

Source: 1956-1972, potassium dichromate, with active ingredient hexavalent chromium, was used as a corrosion inhibitor at a LANL power plant at the head of Sandia Canyon; this was a common practice throughout the United States, as the toxicity of hexavalent chromium was not understood at the time

Discovery: 2004 first detection above New Mexico groundwater standard of 50 micrograms per liter ($\mu\text{g/L}$)

Location: In regional groundwater aquifer ~1,000 feet beneath Mortandad & Sandia Canyons at LANL

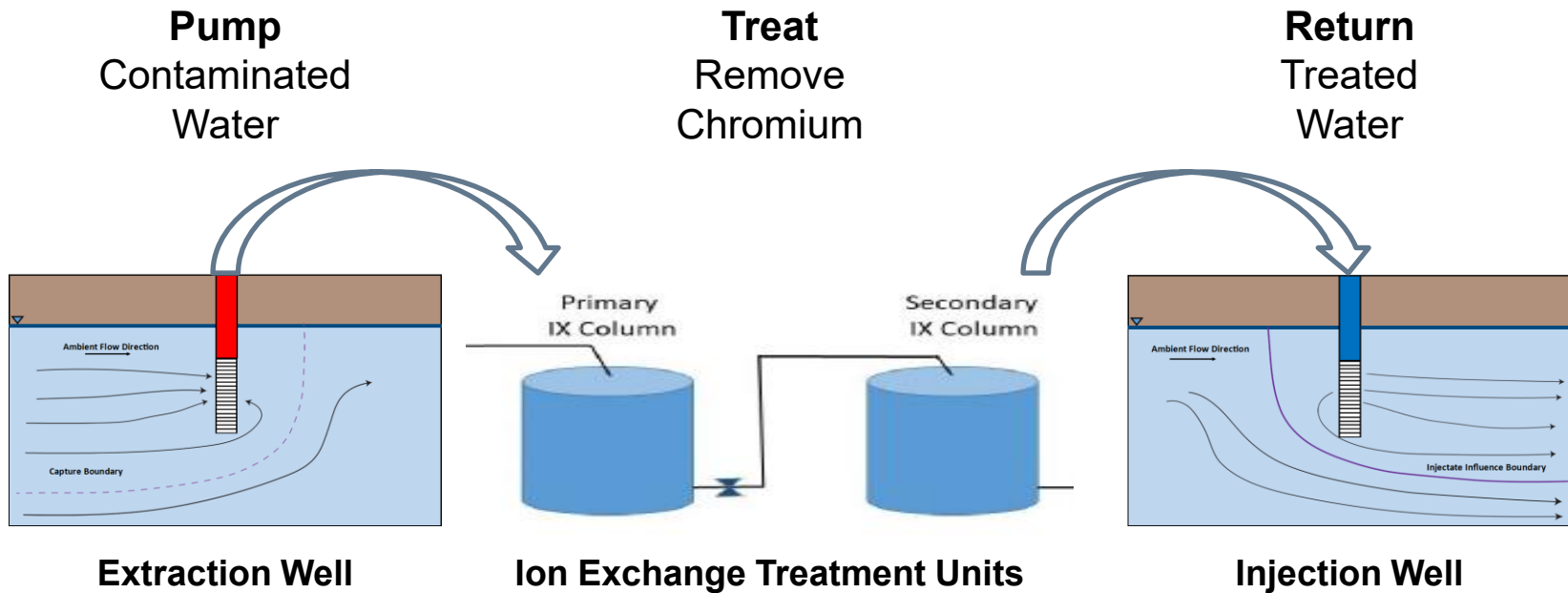


NO IMMEDIATE THREAT TO PUBLIC OR PRIVATE DRINKING WATER WELLS

Pump-and-Treat Interim Measures (IM) Operations

Interim Measures: Actions that can be implemented to reduce or prevent migration of site-related Contaminants which have or may result in an unacceptable human or environmental receptor risk while long-term corrective action activities are evaluated and implemented.

New Mexico Environment Department, Compliance Order on Consent, U.S. Department of Energy, Los Alamos National Laboratory, June 2016 (Modified September 2024)(Consent Order)

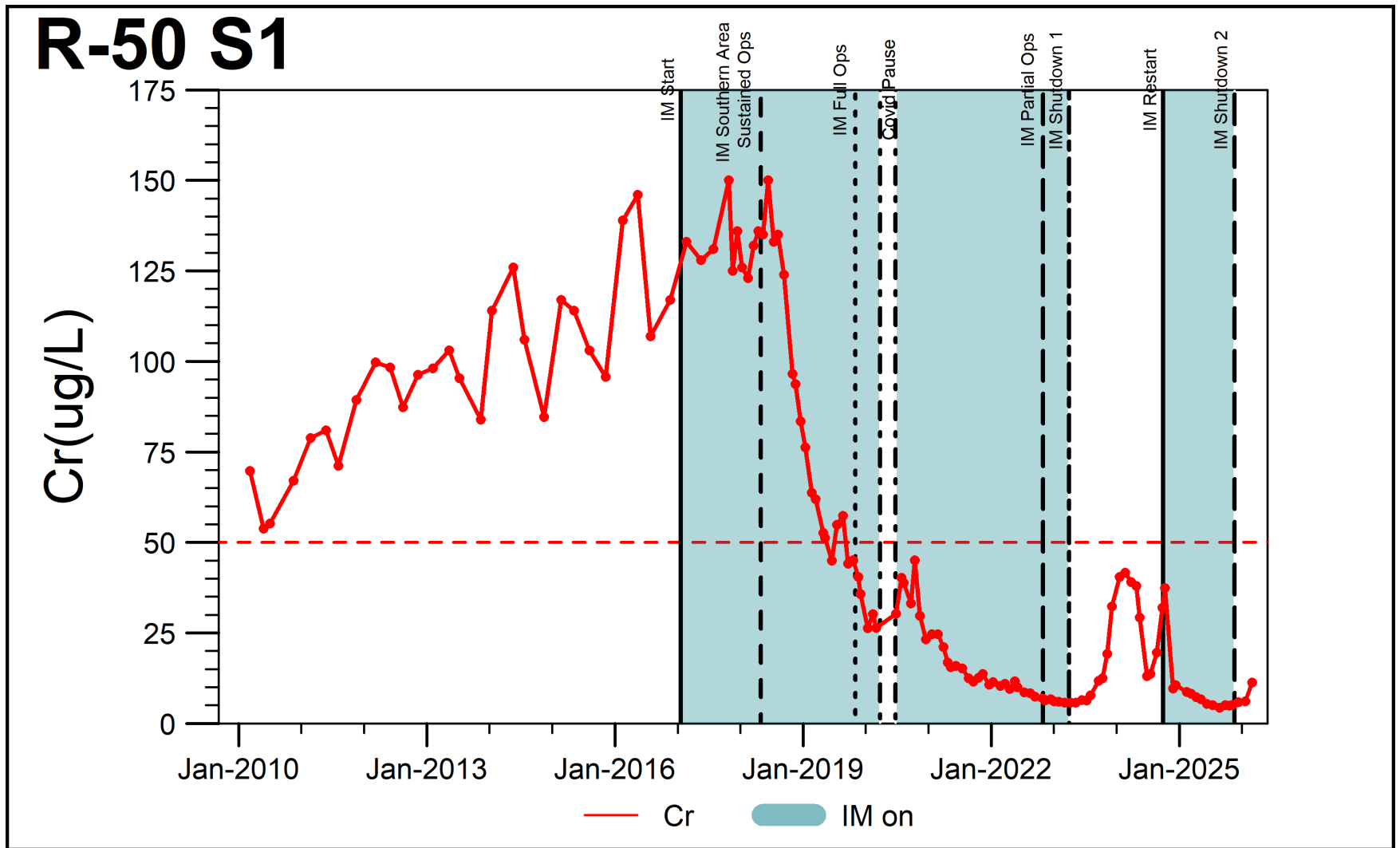


Chromium IM Operational Periods

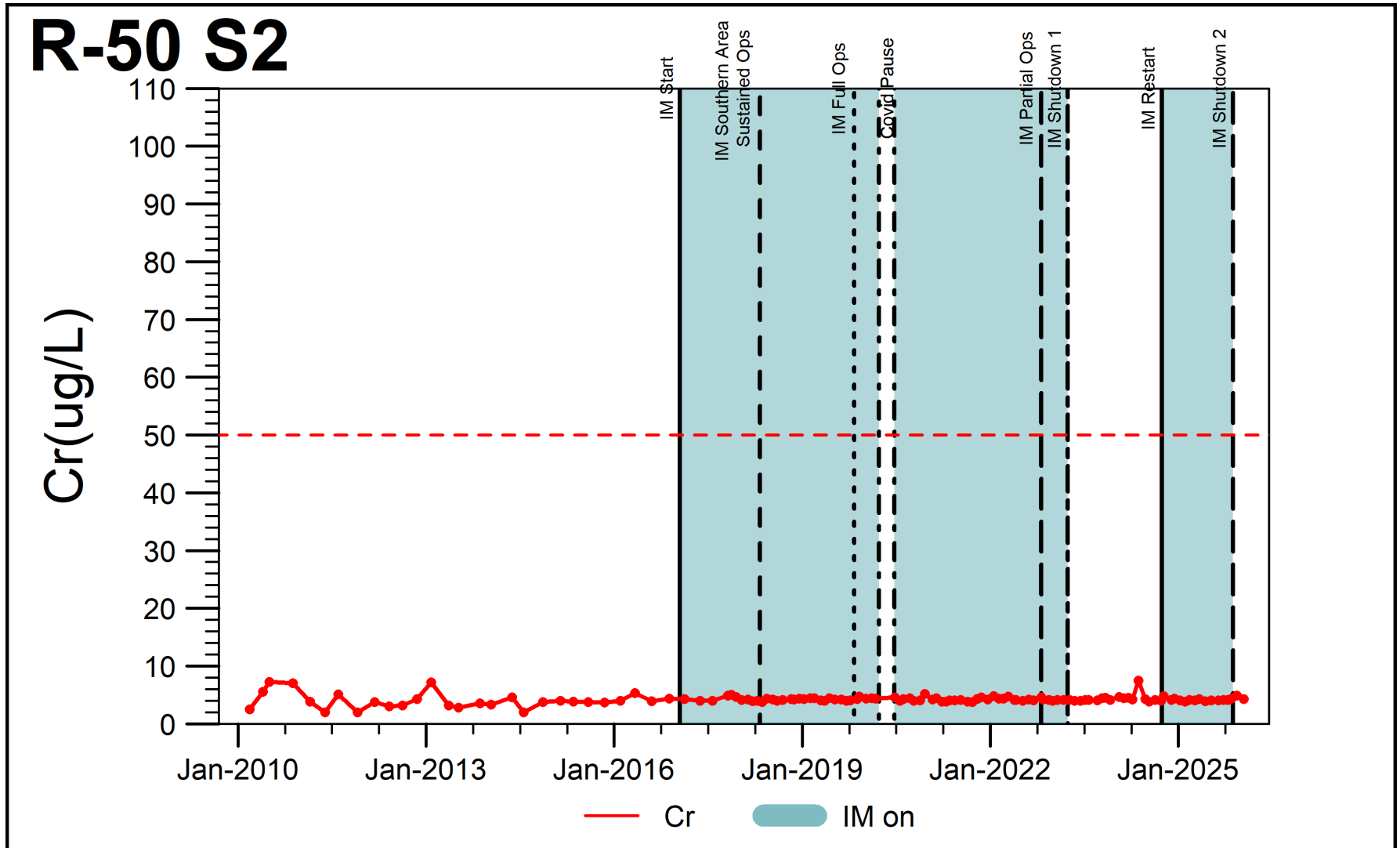
- **Spring 2018** – Initial startup of CrEX-1 and 2, CrIN-3, 4, and 5
- **Late 2019** – CrEX-5, CrIN-1 and CrIN-2 become operational
- **March – June 2020** – Total IM shutdown due to COVID
- **Early 2021** – Full operations
- **October 2022** – Shutdown CrEX-1, 2 and 3, CrIN-1, 2 and 3 **at direction of NMED** (only CrEX-4, 5 and CrIN-4, 5 operating)
- **April 2023** – Total IM shutdown **at direction of NMED to cease injection**
- **September 2024** – Restart CrEX-2, 3, 4, 5 and CrIN 3, 4, 5
- **November 2025** – Total IM shutdown **at direction of NMED to cease injection**

Since April 2023, the IM system has only been in operation for 14 months

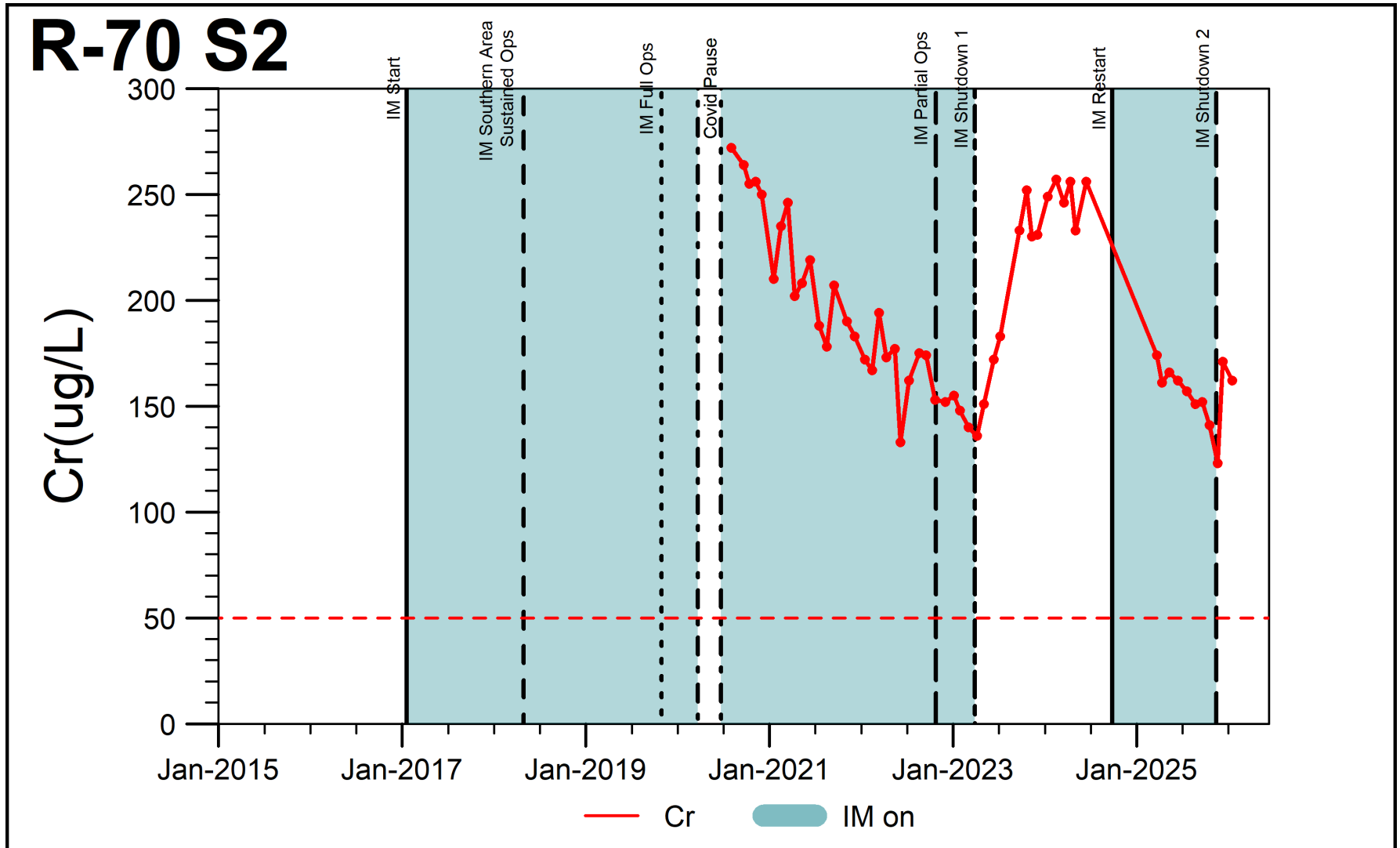
Data Trend at R-50 Screen 1



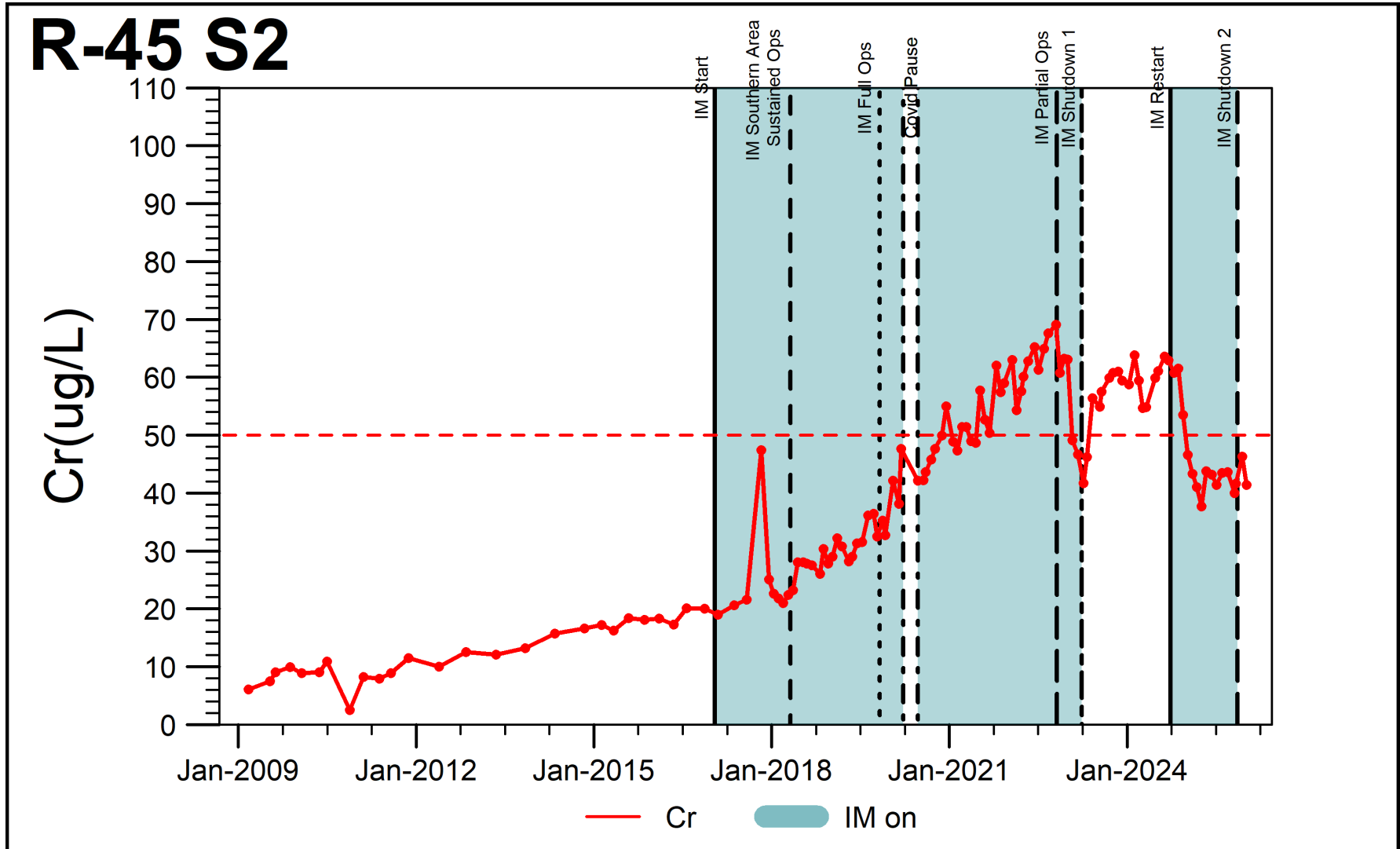
Data Trend at R-50 Screen 2



Data Trend at R-70 Screen 2

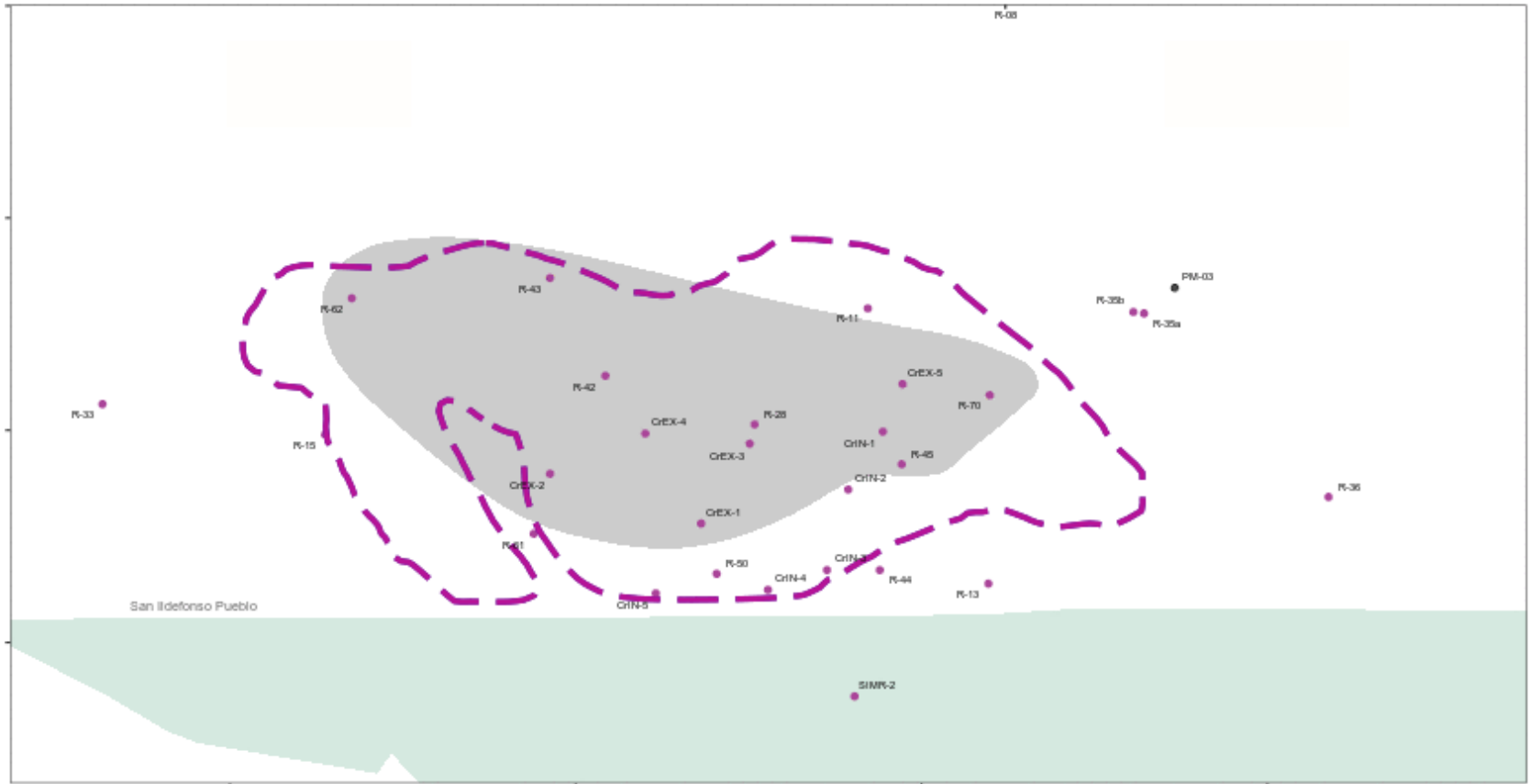


Data Trend at R-45 Screen 2



Extraction and Injection is Protective

Year: 2016



Animation

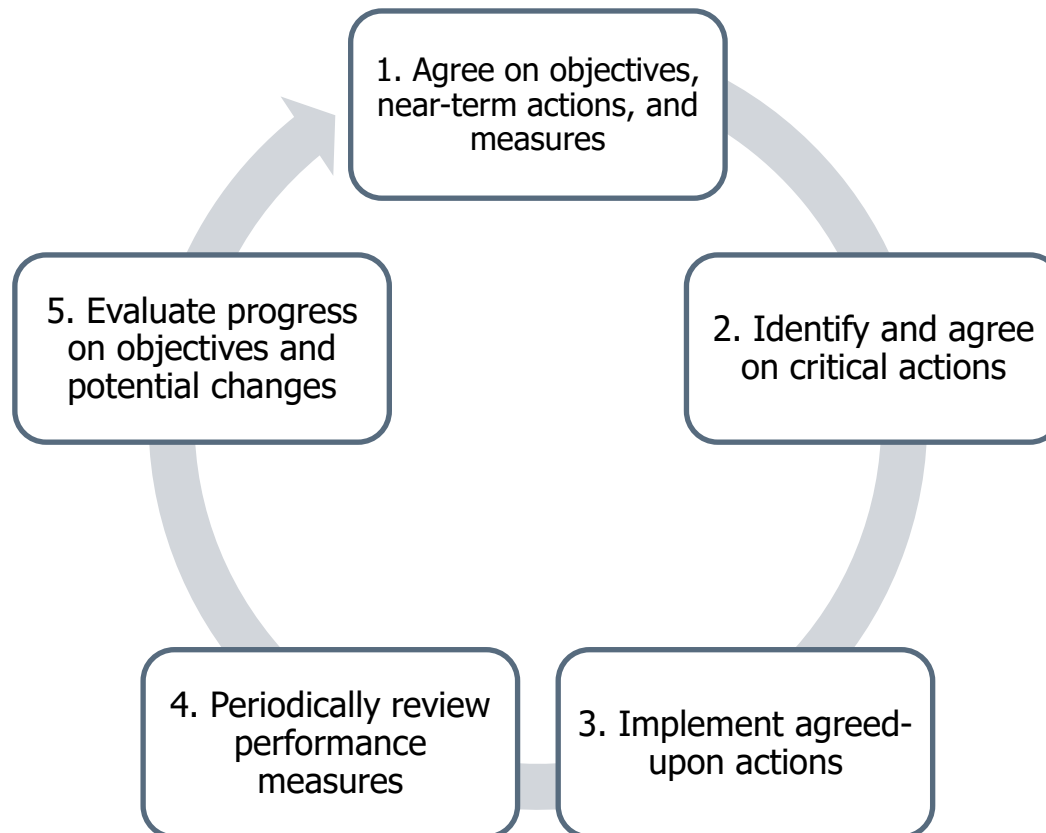
Simulated pump-and-treat operations (extraction, treatment, and injection). Injection is an essential element of effective system operations.

Land Application

- NMED requirement to land apply treated water is not effective
 - Permit conditions limit operation during daylight hours, no ponding, significant sampling requirements (water and soil), etc.
 - Under the current permit conditions, only approximately 4.2 million gallons (~13 acre feet) of water could be treated each year
 - This would mine the regional aquifer
- ReInjection treats significantly more water per year
 - Operating at 240 gallon per minute (gpm), approximately 120 million gallons would be treated each year
 - No net reduction in aquifer capacity

What is Adaptive Site Management (ASM)?

- ASM is a comprehensive, flexible, and iterative process designed to manage complex cleanups
 - Goal: Streamline decision-making, control costs, and accelerate remediation
 - Communicate, Agree, Document, and Execute



Key Takeaways

- The hexavalent chromium plume does not pose an immediate threat to public or private drinking water wells
- The Chromium IM system operation has a positive effect on the plume
- Final report by the Expert Technical Review Team concluded, “The single most important recommendation ... is to restart the IM—using a portion of the original system—while other studies and field investigations move forward.”
- Because the Chromium IM system is not currently operating—due to NMED and NMOSE direction—the plume is currently migrating uncontrolled
- Land application is not viable due to permit restrictions and has limited effectiveness. It is not a responsible use of groundwater—a precious resource
- Additional characterization is needed to support decision making

NBB *Los
Alamos*