



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
ENVIRONMENTAL
MANAGEMENT

Los Alamos National Laboratory's RDX Campaign Project Overview

Presentation
to
Los Alamos County
Board of Public Utilities
November 20, 2018



ENVIRONMENTAL MANAGEMENT
SAFETY ♦ PERFORMANCE ♦ CLEANUP ♦ CLOSURE

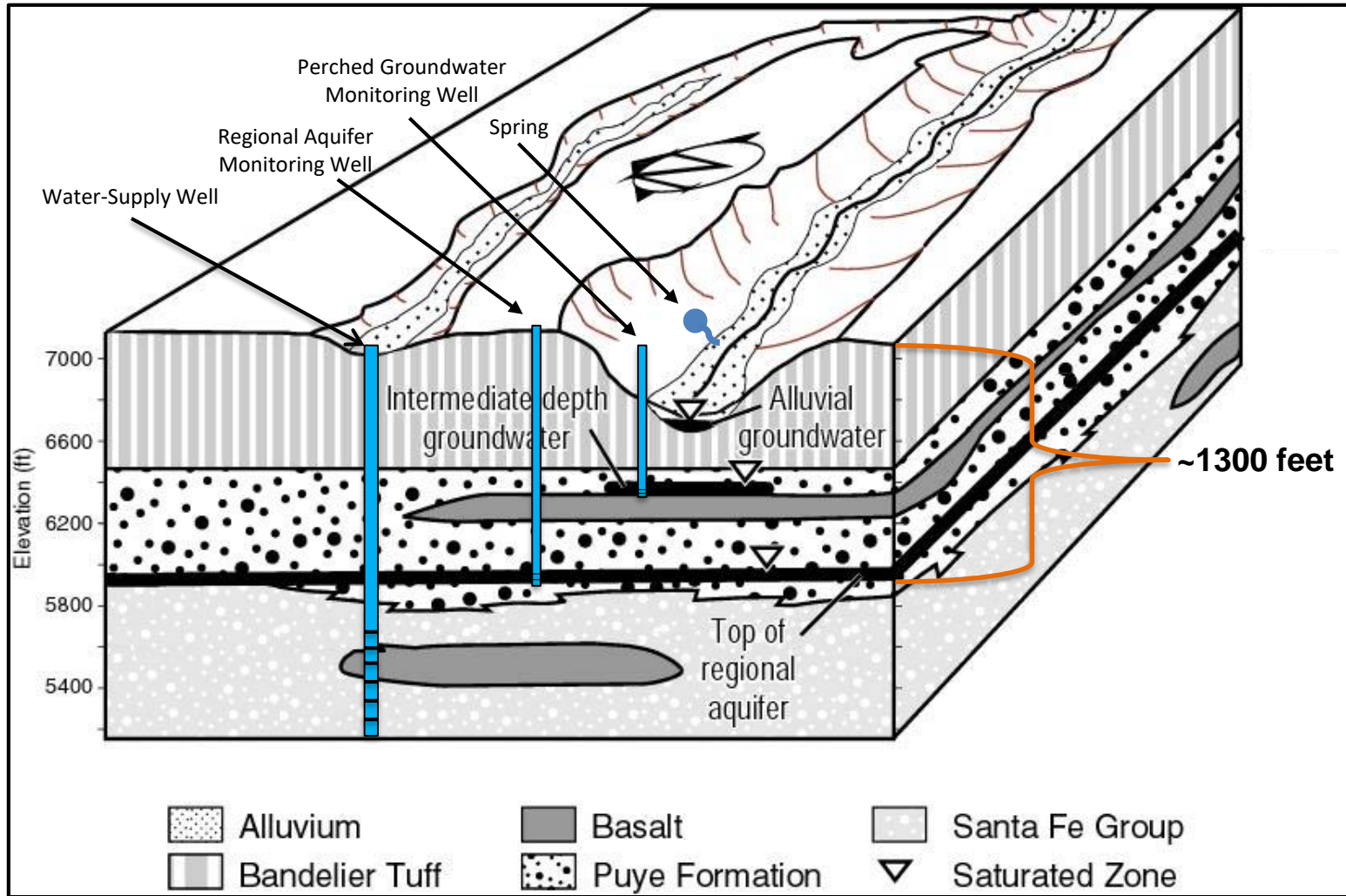


- Background
 - Groundwater setting
 - Source and history
 - Remediation conducted to date
- Extent of RDX in groundwater
- Is RDX present in Los Alamos County water-supply wells?
- Next Steps





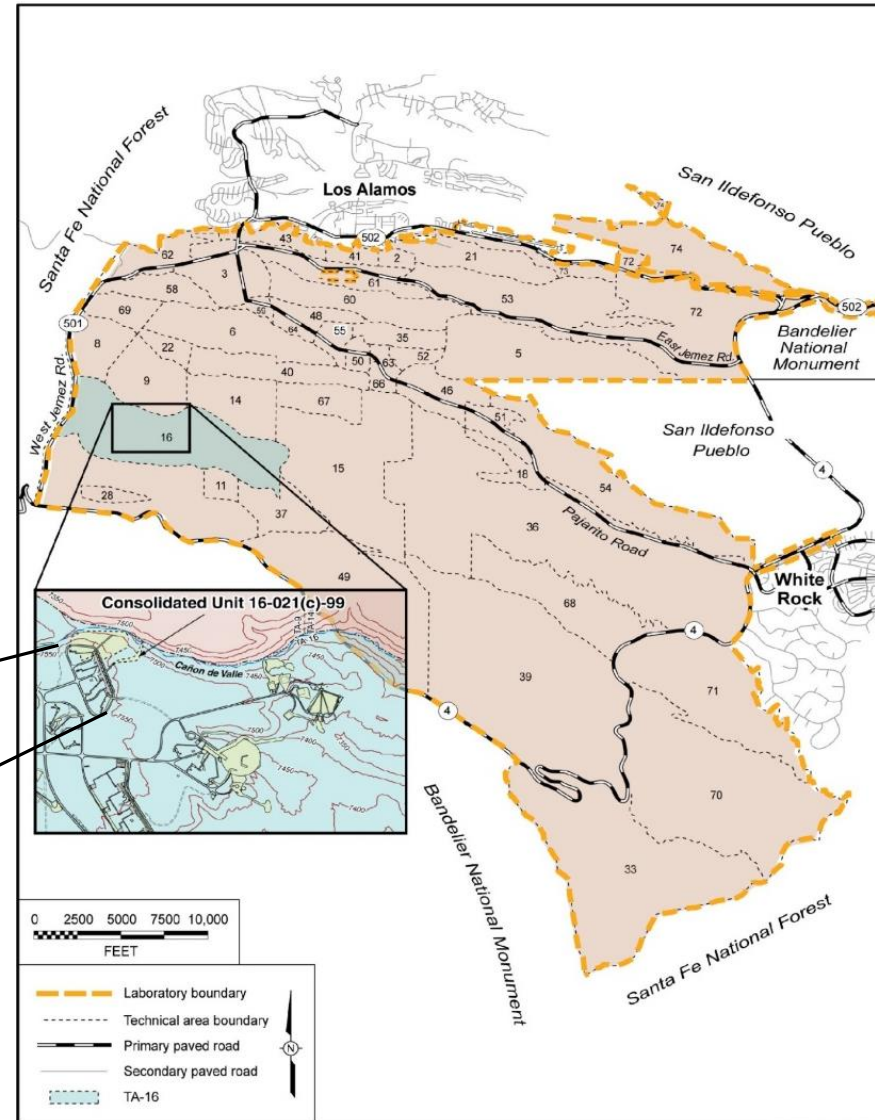
Groundwater beneath Los Alamos





Background

- TA-16 facilities established in early 1950s to develop high explosive (HE) formulations
 - Explosives (RDX, HMX, TNT) were casted and machined for nuclear weapons
 - Building 260 used since 1951 to machine HE
 - Several million gal/yr of HE-contaminated water discharged to Cañon de Valle (CdV) between 1951 – 1996
 - The 260 Building outfall was primary source of RDX
 - Other potential sources include operations in other buildings at TA-16 and at TA-09.
- First investigations of RDX in soils occurred in the mid 90s
- Groundwater investigations first identified RDX (below standards) in perched and regional groundwater in the late 1990s
- Present-day RDX contamination is low in nearby springs, surface water, and shallow groundwater





- Surface soil cleanup conducted in outfall area in 2000 – 2001 under an Interim Measure, and in 2009 – 2010 under a Corrective Measures Implementation
 - More than 1500 yd³ HE-contaminated soil excavated & disposed of offsite
 - Significantly reduced contamination in surface soils
- Injection of grout in permeable rock layers to cut off infiltration pathways
- Completion of Surface Corrective Measures Activities
 - Included documentation of no further requirements for cleanup for RDX in surface setting
 - Includes Long-Term Monitoring Plan and reporting requirements
 - Surface water, springs, shallow alluvial wells





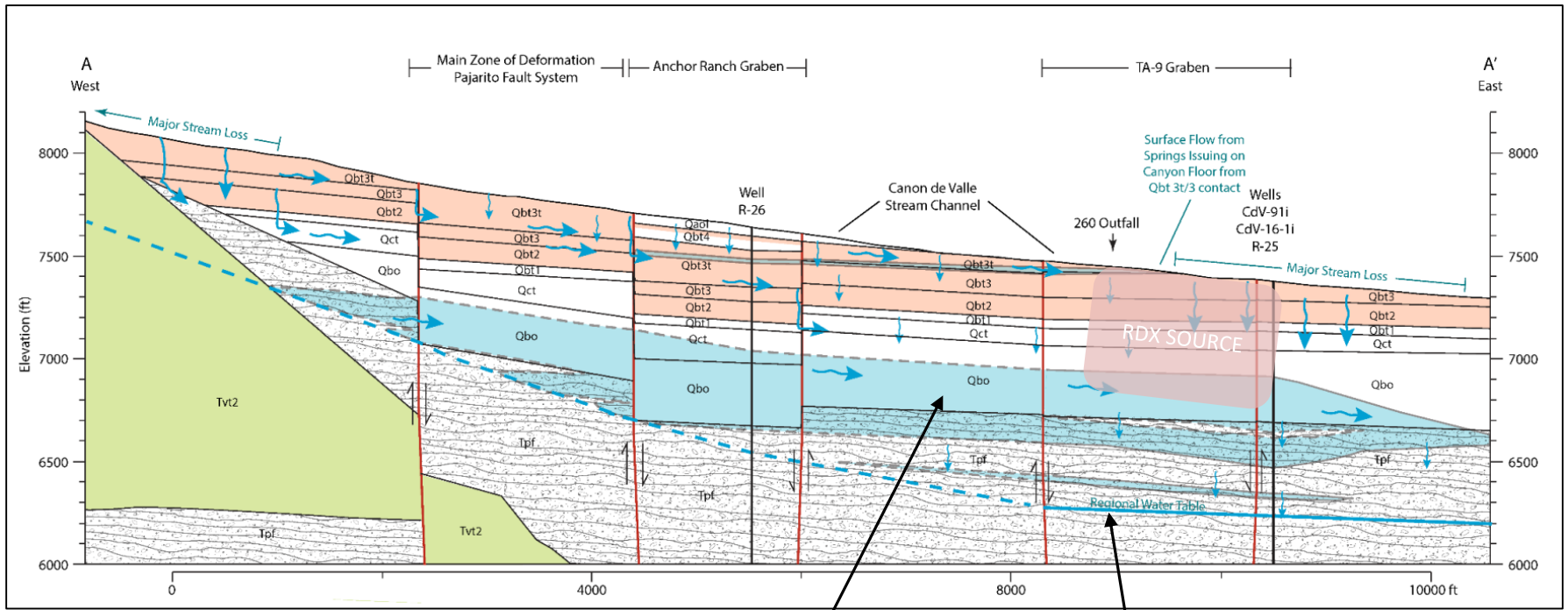
Deep Groundwater Investigation

- Installation of monitoring wells to investigation “nature and extent” of contamination
 - Intermediate-depth wells screened in perched groundwater
 - Deep wells screened in the regional aquifer
- Studies to understand the hydrology and “fate and transport” of contamination
 - Tracer studies
 - Aquifer tests





Conceptual Model



Perched-Intermediate Groundwater

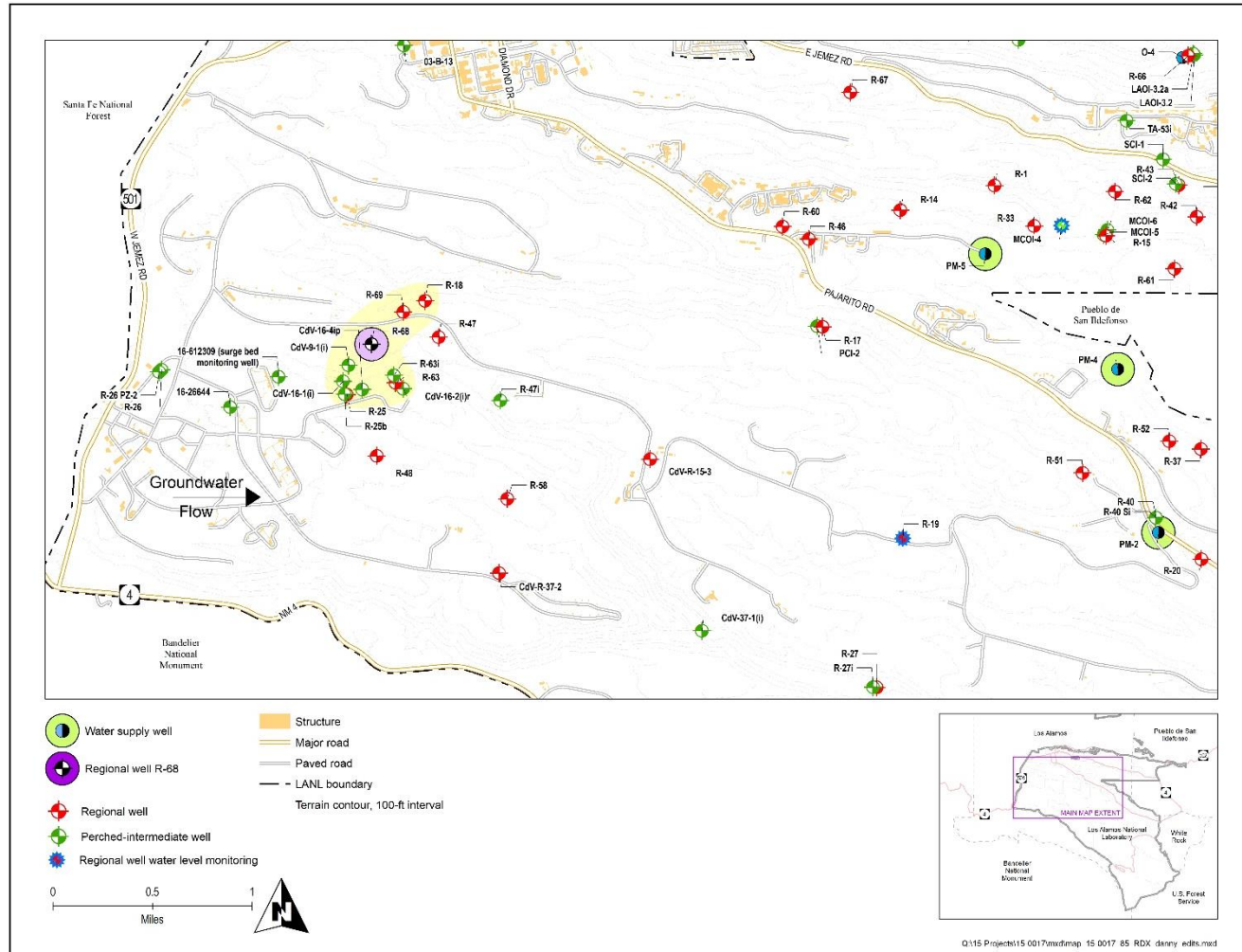
Regional Aquifer Water Table





RDX in Regional Aquifer

- RDX is present in several regional groundwater monitoring wells
- Known since 2005
- Only one monitoring well (R-68, completed in 2017) has RDX above the NMED's 7.02 ppb screening level
- RDX is not present in LAC water-supply wells (approx. 3 miles away)
- DOE collects groundwater samples from water-supply wells for RDX analysis
 - sampled since 1998
 - Current semi-annual sampling supplements LAC's sampling requirements
- DOE will continue to monitor for RDX in water-supply wells and in upgradient monitoring wells closer to the RDX project site



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- **Deep Groundwater Investigation Report (DGIR)**
 - Due in August 2019 (Consent Order “Appendix B” Deliverable)
- **Field Activities to support DGIR**
 - R-69 aquifer testing, monitoring
- **DGIR Path Forward**
 - DGIR will include a groundwater model that includes
 - Model long-term fate of RDX in regional aquifer
 - Determine whether groundwater remediation is necessary at this time to protect regional aquifer
 - Long-term monitoring will follow

