



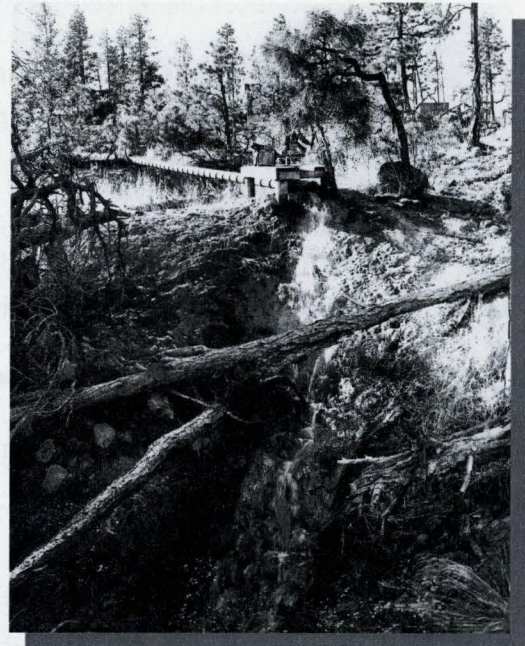
## Information Sheet on Chromium Contamination in Groundwater

### **Background**

Routine groundwater monitoring conducted in 2005 led to the identification of chromium contamination in regional groundwater at monitoring well R-28 located in Mortandad Canyon. Chromium concentrations at that well are approximately 400 ug/L (ppb) exceeding the NMED and EPA standards of 50 ug/L and 100 ug/L, respectively. The Laboratory has prepared and is implementing an "Interim Measures Work Plan" pursuant to a requirement from the NMED.

### **Objectives of the Interim Measures Work Plan:**

- determine the primary source(s) of chromium contamination and the nature of operations associated with releases,
- characterize the present-day spatial distribution of chromium and related constituents,
- collect data to evaluate the geochemical and physical/hydrologic processes that govern chromium transport, and
- collect and evaluate data to help guide subsequent investigations and remedy selection.



*Discharges from original Manhattan Project facilities into Acid Canyon circa 1946*

### **Potential Sources of Chromium Contamination**

Multiple potential sources of chromium contamination have been identified and include electroplating, photoprocessing, and use as a corrosion inhibitor in cooling-tower systems.

The highest chromium usage is believed to be associated with use in the cooling tower system in TA-3 at the head of Sandia Canyon where potentially large volumes (potentially up to 37 lbs/day) of chromate (the highly soluble/mobile form of chromium) were released along with large volumes of water.

### **Extent of Contamination in Regional Groundwater**

In January and February of 2006, 17 groundwater monitoring wells and 3 production wells surrounding R-28 were sampled for chromium speciation to refine our understanding of the forms of naturally occurring chromium and chromium contamination, and to bound the extent of chromium contamination in the groundwater.

- Results showed that of the chromium present in the samples, 100% was in the hexavalent form.
- A background of approximately 3-5 ug/L hexavalent chromium is present beneath the Pajarito Plateau.
- No elevated chromium levels were detected in water-supply wells.

### **Work Plan Scope**

A series of investigation activities will be implemented in 2006. These activities are designed to meet the objectives of the work plan. They include:

- 1) conduct quarterly sampling of selected regional aquifer and intermediate groundwater wells;
- 2) investigate surface water and alluvial groundwater loss in Sandia Canyon;
- 3) install six core holes in lower Sandia Canyon;
- 4) install five alluvial wells in lower Sandia Canyon;
- 5) determine chromium distributions in the upper vadose zone from archival and new cores collected from Los Alamos, Sandia, and Mortandad canyons;
- 6) rehabilitate well R-12 in lower Sandia Canyon;
- 7) refine the understanding of background concentrations and speciation of chromium in groundwater; and
- 8) collect and synthesize data and information to support conceptual model development and remedy selection.

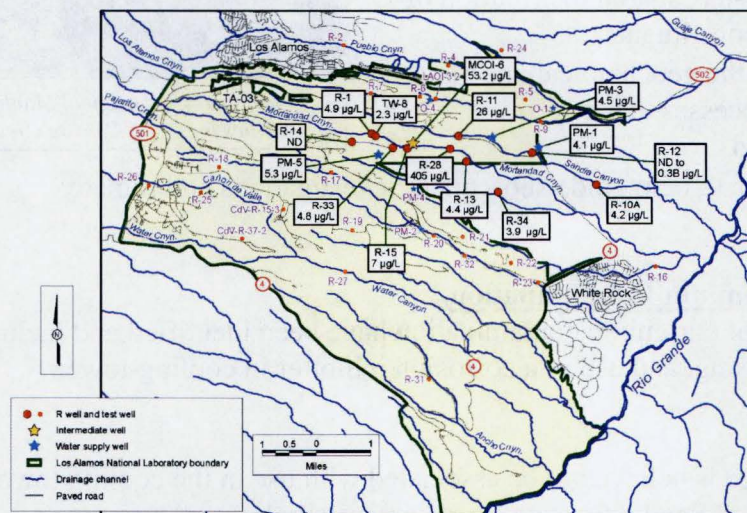


Figure 3-2. Hexavalent chromium concentrations (filtered) in regional and intermediate wells

### **Schedule**

The initial phase of field work is scheduled to begin in May, 2006. With the exception ongoing groundwater monitoring, the majority of the field work is expected to be complete by late Summer – early Fall of 2006. An investigation report and a work plan for the next phase will follow.