

## Chromium in Groundwater at Los Alamos National Laboratory Frequently Asked Questions

### **What is being done to address the chromium plume at Los Alamos National Laboratory?**

A network of 35 monitoring, extraction and injections wells has been installed in and around the chromium plume. These wells and associated infrastructure support efforts to characterize the plume and to halt the plume's movement via an Interim Measure (IM). In January 2018, the IM will be implemented along the Laboratory's southern boundary with the Pueblo de San Ildefonso. Full implementation of the IM will take place in 2018. While the IM is in operation, efforts to characterize the plume and determine a final remedy will continue.

### **Is the plume growing?**

As reported by the Department of Energy (DOE) and the Laboratory in various documents, including the 2015 Interim Measures Work Plan, increasing chromium concentrations in some monitoring wells along the plume's southeastern edge indicate possible plume expansion. The increasing concentrations were the reason that the DOE proposed to the New Mexico Environment Department (NMED) to conduct an IM under the 2016 Compliance Order on Consent (Consent Order) to control and reduce plume migration while a final remedy is evaluated.

### **At what rate is the plume migrating?**

Projected estimates of the growth rate prior to implementation of IM are around 30–60 feet a year. Under the IM, the plume is expected to reduce in size at a similar or faster rate.

### **How confident are you that you know the size of the plume?**

We have sufficient confidence in the size of the plume to support implementation of IM activities along the southern portion of the plume. Additional information

may be necessary along the northeastern portion of the plume because of the discovery of 250–270 parts per billion (ppb) chromium in the most recently drilled injection well.

### **Are more monitoring wells needed to better understand the shape of the plume?**

Evaluations are underway to determine whether additional wells might be necessary to support the IM.

### **Is chromium entering the Los Alamos County drinking water supply?**

No. Los Alamos County's groundwater wells are all outside the chromium plume. There is no chromium contamination in any drinking water production wells. The Laboratory supports the county by supplementing their own monitoring of the water-supply wells. Additionally, two "sentinel" monitoring wells are located between the plume and the nearest water-supply well. These sentinel wells would detect any chromium before it could reach the county's wells.

### **Are there pathways for chromium from this plume to contaminate water-supply systems?**

The Laboratory's actions will reduce the footprint of the plume while a permanent remedy is developed. As well, the Laboratory is working closely with Los Alamos County to ensure that nearby water-supply wells are appropriately monitored so that the county can take action if it were to become necessary. There is no practical way for the chromium contamination to reach the Buckman Well Field (which serves as part of the water supply for the City of Santa Fe and Santa Fe County). The possibility of chromium from the plume reaching the Rio Grande is extremely unlikely, due in part to the distance of the plume to the river.

### **Is there a possibility chromium is being**

### **unknowingly drawn into a Los Alamos County water-supply well?**

No. As well as constant monitoring of the water supply wells, there are monitoring wells in place that would detect that.

### **How close is the plume to the nearest Los Alamos County water-supply well?**

The nearest Los Alamos County groundwater supply well is approximately  $\frac{1}{4}$  of a mile beyond the edge of the plume.

### **How close is the plume to the boundary with San Ildefonso?**

The southern edge of the plume is adjacent to the Laboratory's boundary with the Pueblo de San Ildefonso. A monitoring well on Pueblo de San Ildefonso land indicates background levels of chromium.

### **How close is the plume to the Rio Grande?**

The eastern edge of the plume is approximately five surface miles from the Rio Grande.

### **Has the source of chromium contamination been cut off?**

A non-nuclear power plant, the source of the chromium contamination, stopped releasing water with chromium from its cooling towers in 1972. There are no active sources of chromium at the Laboratory.

### **The chromium contamination was discovered in 2005. What have DOE and the Laboratory been doing for the last 12 years?**

Since the plume was discovered in 2005, over 25 monitoring wells have been used to characterize and monitor the plume's behavior. Comprehensive groundwater models have been developed to guide installation of wells and to support a better understanding of the plume. The wells, treatment system, and several miles of piping necessary for the IM have also been installed. The IM was partially

implemented between January and June of 2017 prior to stopping the work to build some additional piping infrastructure.

### **How exactly will the Interim Measure work?**

Chromium contaminated groundwater is pumped from the regional aquifer via extraction wells and piped to a centrally located treatment system that utilizes a technology called ion exchange to remove chromium from the groundwater. The treated water is then pumped to injection wells located near the edge of the plume via a network of pipes. Over time, the injection of the treated water will reduce the chromium concentrations at the edge of the plume and gradually reduce the plume's size.

### **When will the Interim Measure be fully active?**

Full implementation of the IM is scheduled to begin in 2018.

### **What will the final strategy be for the treatment of the chromium plume?**

DOE and the Laboratory are evaluating potential technologies to remediate the plume, including introduction of amendments into the plume that would convert the chromium in place into a non-mobile and safe form. The final remedy will be proposed by DOE and is subject to public participation and approval by NMED.

### **When will the chromium levels meet New Mexico groundwater standards?**

No date has been established for final remediation, however the goal of the IM is to ensure that the footprint of chromium plume remains within the Laboratory boundary while the technical approach for final remedy is evaluated and approved. The timing of the final remediation will be dependent on the approach selected and a process that involves public participation and NMED approval.