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Chromium source traced

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Editor

Two weeks after the announcement that high levels of chromium were found in the regional aquifer, official stakeholders at Los Alamos National Laboratory and regulators have stepped up efforts to find the cause. Elevated counts of chromium were first detected in the deep ground water in January 2004, shortly after development of well R-28 in Mortandad Canyon, about a quarter mile north of the laboratory's boundary with San Ildefonso pueblo.

Updated to include samples from 2005, the readings are considered significant by all the parties. They were reported to the New Mexico Environment Department and came to public attention shortly before a 10-day break for Christmas late last month.

The drinking water standard in New Mexico is .05 parts per million (ppm); the federal standard, the Maximum Contaminant Level (MCL), as set by the Environmental Protection Agency, is .1 ppm.

The initial detection in early 2004 was .27 ppm, increasing in subsequent samples to .375 in May 2005 (with a duplicate sample reading .373 ppm), and to .404 in the most recent test on Nov. 10, as reported to NMED on Dec. 23.

Typical background levels for naturally occurring chromium in the Pajarito Plateau are around .003 ppm.

NMED Communication Director Adam Rankin said Friday that the state was taking the issue very seriously and had given the laboratory 90 days to respond with a plan for determining

the nature and extent of the problem.

Tim Glasco, Los Alamos County deputy utilities manager said the county would increase monitoring on three of the county's drinking water wells to quarterly checks. He affirmed that current samples from the county's wells have shown no excessive contamination.

He said the county has insurance against environmental damages in the drinking water and legal remedies with the Department of Energy to recover costs of treatment or recovery of any contaminated water source.

"Until the day that the MCL is exceeded, we don't have a legal recourse, because we haven't been harmed," he said.

Danny Katzman, the laboratory's lead manager for the canyon investigations, said Friday that the interim report required by NMED, was now the focus of efforts to review possible sources, primarily in Sandia and Mortandad Canyons.

A memorandum by Stephen Yanicak of the NMED Oversight Bureau in White Rock on Jan. 3, identified a possible source coming from Sandia Canyon or Tensite Canyon. After looking at the historical data, Yanicak suggested the problem might originate with industrial and sanitary sewage releases and cooling tower effluent.

He noted that "many thousands of acre feet" of waste fluids were released into Sandia and Tensite canyons, "but the fate of these waters is unknown" because they "seem to 'disappear' through some type of subsurface recharge/discharge sink."

"Groundwater characterization and monitoring at these discharge-sink areas have not occurred at LANL; hence the lack of knowledge concerning these releases," Yanicak wrote.

Katzman said cooling tower sources in upper Sandia Canyon discharged up to 36 pounds of chromate, phosphate and zinc-type corrosion inhibitors daily from the 50s to the early 70s, but that the investigators are not sure if that was truly a "daily" amount, day after day.

Cooling towers in the main administrative area are associated with a power plant, he said, and the chromate association has

been specifically monitored at points of interest.

"Cooling towers are part of the steam generation process," he said, which have been investigated and watched for years.

"What we are apparently discovering," he added, "is that a mobile form of this (contaminant) may have worked its way into the groundwater."

Tom Widner, the director of the Los Alamos Historical Document Retrieval and Assessment (LAHDRA) Project, said his team has collected relevant documents and will also be examining new data.

He said that cooling towers were also associated with Technical Area 2, the site of the old Omega West reactor, which was shut down some decades ago.

"Anywhere there was water in a cooling system, there was chromium to reduce corrosion and prevent scaling," he said. "You have to get rid of the water. That's called a blow-out and it usually went into one canyon or another."

He recalled that on a tour of that area in about 1999, he had observed trees changing colors, which was attributed to airborne releases of chromium, called "cooling tower drift."

LAHDRA is a multi-year project under the direction of the Centers for Disease Control, examining hazardous radiological and chemical releases at the lab.

Widner said he intended to provide a report on the environmental measurements of chromium from the project's data at a public meeting in the next couple of months.

The laboratory's techniques for well drilling have been criticized recently by DOE's Inspector General and the Environmental Protection Agency, adding another layer of concern to the investigation.

Bob Gilkeson, an independent hydrologist and former contractor to the laboratory, has reported that the R-28 well was a more recent installation and was more likely to detect chromium than some of the lab's other characterization wells in the wet canyons.

At four times the EPA standard, he wrote, "The chromium

groundwater contamination in well R-28 is serious because the contamination is in a very productive aquifer strata" discharging "100,000 gallons per day per foot of aquifer thickness" and because it is so close to the pueblo boundary.

Gilkeson's critiques of the drilling engineering and sampling techniques employed in the lab's hydrology project, along with the IG and EPA reviews, have prompted DOE to reevaluate the quality of the monitoring wells.

NMED has also asked for a full accounting.

"In a recent note of deficiency," Katzman said, "they've asked us to write during this calendar year a plan for what we're going to do about the drilling process."

The Northern New Mexico Citizens Advisory Board, chartered by DOE to review environmental issues at LANL, requested a presentation on the chromium findings from the laboratory at an Environmental Monitoring Remediation and Surveillance Committee meeting in Santa Fe on Wednesday.

Other high chromium indicators in regional, intermediate and surface water samples from the monitoring data will be discussed.

A form of chromium, known as hexavalent chromium was the subject of a lawsuit in California that was dramatized in the movie, "Erin Brockovich." The film, released in 2000, starred Julia Roberts. The case was, at length, settled out of court for \$333 million.