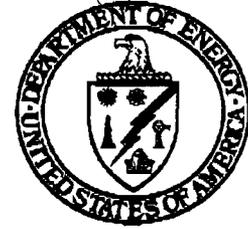


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DATE 7-12-96

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Backgrounder

Lead in Brine Water at WIPP

July 12, 1996

Background Information

Lead levels higher than regulatory limits were detected in brine (salty) water at the U.S. Department of Energy's Waste Isolation Pilot Plant (WIPP) in May 1995. The brine originated in the Exhaust Shaft and accumulated in the Waste Handling Shaft sump at the facility. The discovery presents two separate and nearly independent issues:

- Predictable and seasonal increased amounts of brine entering the Exhaust Shaft.
- The presence of lead in the brine.

The two issues overlap when considering disposing of quantities of leaded water as hazardous waste and examining whether the increase in the quantity of water in the Exhaust Shaft could affect long-term performance of the repository.

Water in the Exhaust Shaft is primarily the result of condensation and some minor leakage through the shaft liner at about the 75-foot level. It appears that the water is picking up lead as it passes through construction materials in the liner or as it passes chain link fence used for support in the shaft. The source of this leakage is the main focus of current investigation.

Neither the lead nor the water is an issue that will impact WIPP's scheduled opening by April 1998.

Moreover, the lead is not an issue in terms of repository performance. It is a manageable hazardous waste issue that is being resolved in accordance with all applicable regulatory requirements.

The small amount of water entering the Exhaust Shaft is minimal compared to most mines, is easily managed, and is not considered a long-term issue. Water removed from the site has reached a maximum of 4700 gallons per month. Ultimately, the shaft will be closed and completely sealed once WIPP is decommissioned, permanently blocking any water from reaching the disposal area 2,150 feet underground.

**Lead in WIPP Brine
July 12, 1996**

Questions and Answers

Q. Where is the water in the Exhaust Shaft coming from?

- A. While most of it comes from condensation, a small amount of the water comes from leakage through a crack in the shaft liner, about 75 feet below the surface. The crack was first noticed shortly after construction in 1987, and is a typical concrete crack caused by tension due to shrinkage.

The condensation turns to precipitation, which is the result of moisture in the air cooling as it rises up the Exhaust Shaft. This is a seasonal and predictable condition. It increases in the more humid summer months, and decreases in the drier winter months. Normal operation of the mine ventilation fans is adequate to evaporate the small amount of leakage and condensation entering the shaft. However, as a cost cutting measure in 1993, the ventilation system was curtailed on weekends when no operations were occurring in the mine. This caused an increase in moisture in the shaft. Observed accumulations during the Spring of 1996 were 35 gallons per week in March (dry weather) to as much as 1850 gallons per week in June (when relative humidity normally rises). There is virtually no accumulation of water when the ventilation system is in normal operation.

Q. What actions are being taken?

- A. Leakage:

We are testing the fire water and domestic water distribution systems to make sure there are no subsurface leaks. In parallel, we are looking at ways to address the hydrology around the shaft. While geophysical non-intrusive methods are being considered as a first step, intrusive methods may ultimately be required. This could include drilling a well to gain physical access to the potential source. This activity will most likely require a permit from the New Mexico Environment Department. It is hoped the non-intrusive studies will produce the data necessary to resolve the issue.

Leaded Water:

Initially, most of the water from condensation in the Exhaust Shaft was being collected after it reached a sump in the nearby Waste Handling Shaft. To control this source, a catch basin was designed and installed (March 1996) at the bottom of the Exhaust Shaft to capture this condensation. This has substantially reduced the amount of water in the Waste Handling Shaft sump. It also allows more efficient management and handling of this water.

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When the water contains lead concentrations higher than the RCRA regulatory limit (5 milligrams per liter), we are managing it as we would any hazardous waste -- according to requirements of the Resource Conservation and Recovery Act. We accumulate and store it for no more than 90 days and ship it to an approved and permitted treatment/storage/disposal facility.

Q. Is this drinking water?

A. No. The water -- with or without lead -- is not for drinking. It's saturated sodium chloride brine -- a great deal saltier than sea water.

Q. Where is the lead coming from?

A. The Exhaust Shaft Water and Lead Working Group, comprised of senior engineers, scientists, and quality assurance personnel, is evaluating possible lead sources. One likely source of consideration is chain link fence used for support in the Exhaust Shaft. Other potential sources, such as lead wool packing behind the Exhaust Shaft liner, are also being evaluated.

Q. Why do you feel it's the fencing?

A. The fence is galvanized. The galvanizing process uses zinc, and lead is a minor impurity of the zinc used in this process.

Initial data indicate a higher level of zinc than lead, which makes the fencing an obvious candidate as the lead source. We'll take fence samples and test them by subjecting them to corrosion. We can then see whether lead leaches out from the galvanized fence, and in what quantities.

Q. Should WIPP employees or the public be concerned about the water and the lead in it?

A. No. The water in the shaft (and whatever's in it) is being analyzed, monitored continually, and managed responsibly. There is no connection with any drinking water supplies.

Q. Were the proper regulatory agencies notified?

A. Yes. The DOE made both the New Mexico Environment Department and the U.S. Environmental Protection Agency aware of this issue in 1995.

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