Groundwater

TRI-0001/014

At this time the EIS should describe and should be withdrawn until it describes results of a full Model Toxics Control Act investigation of the releases and groundwater assessment. We do know that we have conditions that are spreading contamination, we have organics detected in the groundwater near Waste Management Area 4, we have as I said carbon tetrachloride spreading in vapor form at deadly levels, and we have not even begun to describe in this EIS any timeline for investigation of the burial grounds in the near term.

Response

As indicated in Volume I Section 5.3, existing groundwater monitoring data does not indicate that releases from the LLBGs have occurred. As indicated in Volume I Section 4.5.3.3, the carbon tetrachloride in the groundwater under Low-Level Waste Management Area 4 is from an upgradient source. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002). Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4.

Sampling being conducted as part of the ongoing CERCLA program in the LLW Management Area 4 has indicated the presence of carbon tetrachloride vapors in and near several trenches. During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the vent risers above trenches—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers. Monitoring above and below the surface continues. Based on monitoring results and activities to be performed, industrial hygienists specify protective measures to be taken to protect workers. Common measures might include protective clothing, respiratory protection, and removal of contaminants from the work area.

Additional sampling for organic compounds, including carbon tetrachloride, in the Low Level Burial Grounds is being conducted as part of the on-going TRU waste retrieval activities. This sampling started October 15, 2003 and is being conducted in accordance with a State of Washington Department of Ecology approved Sampling and Analysis Plan (SAP). Sampling results will be used both for helping reduce risks during retrieval and to provide information for remediation planning.

In response to carbon tetrachloride vapors found in previous vent riser sampling in trench 4 of LLBG 218-W-4C, a vapor extraction system has been installed and started operation November 15, 2003. This system is currently intended to operate until the carbon tetrachloride concentrations are less than or equal to 10 ppmv. This work is being conducted prior to retrieval in order to reduce the likelihood that higher levels of carbon tetrachloride will be encountered during retrieval that could pose a higher risk to workers and slow progress on retrieval.

Retrieval of the suspect transuranic waste from this burial ground has already started and is anticipated to be complete within the next few years, with Trench 4 retrieval completed by the end of 2006. If the retrievably stored waste is the source of the carbon tetrachloride vapors, the completion of this retrieval will eliminate the source of contamination. Additional sampling results from the SAP sampling after the removal of the retrievably stored waste will provide information to assist in determining appropriate actions after the waste is removed.

Groundwater

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Comments

L-0044/059

The response states: "Current results from the RCRA-compliant groundwater monitoring have not identified any groundwater impacts from the LLBGs." The RCRA Part B permit application text states: "Total organic halides in downgradient well 299-W15-16 has exceeded the upgradient/downgradient comparison value since January 1999, but the source of contamination is believed to be the regional carbon tetrachloride plume, not the burial grounds." Subsequently, investigation by the USEPA Hanford Office and Ecology suggested that the LLBG is a source of CCl_4.

Response

DOE is not aware of any EPA or Ecology investigation that concludes that carbon tetrachloride in the groundwater is from the LLBGs. Further characterization of the carbon tetrachloride plume is being conducted.