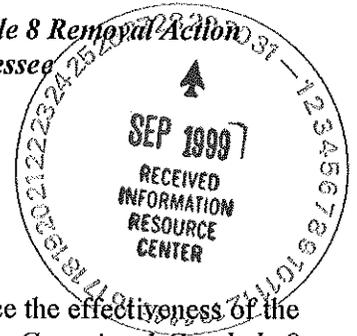




U.S. Department of Energy Office of Environmental Management
Action Memorandum Addendum

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Action Memorandum Addendum for the Waste Area Grouping 1 Corehole 8 Removal Action at the Oak Ridge National Laboratory, Oak Ridge, Tennessee (DOE/OR/01-1831&D1)



August 30, 1999

PURPOSE AND BACKGROUND

This action memorandum addendum authorizes additional actions to enhance the effectiveness of the scope of work specified in the original *Action Memorandum for the Waste Area Grouping 1 Corehole 8 Removal Action at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/02-1317&D2) and documented in the *Engineering Evaluation/Cost Analysis for the Waste Area Grouping 1 Corehole 8 Removal Action at the Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/02-1303&D2).

The Department of Energy (DOE) held a 30-day public comment period on the engineering evaluation/cost analysis (EE/CA) in support of the original action memorandum from September 19, 1994, to October 18, 1994. Notice of the public comment period was published in local newspapers. DOE received no public comments that warranted altering the removal action as presented in the EE/CA. Because the additional actions are similar to those already considered in the EE/CA, no new analysis or new response alternatives are required.

In 1994, a french drain collection system was installed in accordance with the original action memorandum. In November 1998, because of an increase in contaminants detected in First Creek, a second french drain was added to the system. It is anticipated that near source groundwater extraction from Well 4411, in conjunction with plume collection currently occurring at the Corehole 8 Plume Collection and Transfer System, will aid in reduction of discharges of plume contaminants to First Creek. The objective of the Well 4411 project is to design and construct a groundwater pre-treatment system and initiate groundwater extraction at Well 4411 in an effort to assess the effectiveness of providing further containment of the Corehole 8 groundwater plume located in the Oak Ridge National Laboratory (ORNL) main plant area. Effective containment will be based on the ability to create a regional cone of depression near the Corehole 8 plume source area.

RECOMMENDED ACTIONS

The additional actions are consistent with the actions taken under the original action memorandum and are intended to enhance the groundwater collection system to further aid in mitigating releases of radiological contaminants to First Creek. These actions include the following:

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for release to the public

- Groundwater extraction. Groundwater will be extracted from Well 4411 at the completion of the Corehole 8 Plume Source Removal Action (removal of tank W-1A). Well 4411 is located just downgradient from Tank W-1A and intersects a narrow limestone bedrock layer that has been determined to be the preferential flow pathway of the Corehole 8 plume.
- Groundwater pre-treatment. Groundwater extracted from Well 4411 will be pre-treated before discharge to the Process Waste Treatment Plant (PWTP) at ORNL. A pre-treatment system will be designed and constructed to remove uranium isotopes from the groundwater before discharge to the PWTP.

The *Phase I Operations Report for Construction of a Groundwater Pre-Treatment System and Groundwater Extraction at Well 4411 Located at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/01-1832&D1) provides additional details of the proposed pre-treatment system and scheduled activities associated with Well 4411.

PROJECT SCHEDULE

The pre-treatment system development, installation, testing, and activities associated with the Well 4411 pumping test will take place upon approval and receipt of the reprogramming funding and prior to the initiation of the extraction activities. It is anticipated that the groundwater extraction activities from Well 4411 will be initiated in the third quarter of FY 2000 following the completion of the Tank W-1A Removal Action (Corehole 8 plume source). A Phase II Operations Report discussing system progress, establishing the Operations and Maintenance Plan for the ongoing care of the system, and a technical evaluation criteria will be generated after the first 6 months of system operation. Based upon the technical evaluation of the pumping activities as documented in the Phase II Operations Report, if it is determined that the system is not cost effectively providing additional plume containment, pumping will be discontinued. A letter will be submitted to the Administrative Record for the project documenting the decision to discontinue pumping activities. If the system is determined to be cost effective, pumping will be continued until a final groundwater action is implemented in the Record of Decision for the Bethel Valley Watershed.

PROJECT COST

Costs associated with the design, construction, operation, and maintenance of the extraction and pre-treatment system are presented in the *Phase I Operations Report for Construction of a Groundwater Pre-Treatment System and Groundwater Extraction at Well 4411 Located at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/01-1832&D1). Waste management is the primary cost uncertainty associated with this action. Regeneration of the pre-treatment column resin is calculated to require more than 13,000 gal/year of sodium nitrate solution and an equivalent volume of system flush water. The cost estimate assumes that the sodium nitrate solution can be handled by the ORNL Liquid Low Level Waste system and the system flush water by the PWTP. System operations will be assessed to determine the viability of these waste management options, and will be reported in the Phase II Operations Report. Alternative disposal requirements may increase operational costs.

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

In accordance with Section 40 CFR 300.415(j) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and DOE Guidance, on-site removal actions conducted under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) are required to meet applicable or relevant and appropriate requirements (ARARs) of other environmental laws to the extent practicable considering the exigencies of the situation. The proposed action will comply with the ARARs

previously identified for the non-time-critical removal action in the *Action Memorandum for the Waste Area Grouping 1 Corehole 8 Removal Action at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE/OR/02-1317&D2). In addition, the spent resin from the groundwater pre-treatment system will be managed in accordance with the requirements for low level waste specified in DOE Order 435.1, "Radioactive Waste Management."

PUBLIC PARTICIPATION

A public notice of this addendum will be issued and published in local newspapers documenting that the addendum will be placed in the Administrative Record file. The Administrative Record file is available for public review at the DOE Information Resource Center (IRC), 105 Broadway, Oak Ridge, Tennessee, 37830. The IRC is open Monday through Friday, 8 a.m. to 5 p.m.

RECOMMENDATION

Releases from Tank W1-A in the past have contaminated groundwater in the ORNL main plant area, resulting in a contaminated groundwater plume referred to as the Corehole 8 Plume. Previous removal actions have been undertaken to mitigate releases of plume contaminants to First Creek. The creek is located along the western boundary of the laboratory and flows south-southwest into White Oak Creek and eventually into the Clinch River. This addendum to the original removal action is being recommended to increase protection of the public health, welfare, and the environment by enhancing the current groundwater collection system with further plume control near the source area (Tank W-1A). This non-time-critical removal action will be performed pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation. The U.S. Environmental Protection Agency and the Tennessee Department of Environment and Conservation agree with the scope proposed in the Action Memorandum Addendum. Based on the analysis presented in the EE/CA, this action is appropriate and will be implemented in accordance with CERCLA requirements.

Approval

Lester Price, Acting Group Leader
ORR Remediation Management Group
U.S. Department of Energy
Oak Ridge Operations

Date