



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

June 17, 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Dave Adler, Chief
Program Support Branch
Oak Ridge Office for Environmental Management
Department of Energy
P.O. Box 2001
Oak Ridge, TN 37831

Dear Mr. Adler:

The U.S. Environmental Protection Agency and the Tennessee Department of Environment and Conservation (TDEC) have worked closely with the Department of Energy (DOE) Oak Ridge Reservation (ORR) in the development of a groundwater strategy whose objectives include providing a framework for implementing early remedial actions and serving as a continuous long-term strategy for groundwater investigation and remedial implementation. The document driving this strategy "Groundwater Strategy for the U.S. Department of Energy Oak Ridge Reservation, Oak Ridge, Tennessee (DOE/OR/01-2628&D2, February 2014)" was approved by all three Federal Facility Agreement (FFA) parties in 2014. Specifically, the strategy states, "*Pursue selected remedial actions as necessary (both early and long term), to prevent unacceptable risk and groundwater degradation and migration and to restore groundwater to beneficial reuse wherever practicable.*" This a requirement of the National Contingency Plan (CFR 40 §300.430(a)(1)(iii)(F)).

The first mutually-agreed-upon investigation was directed toward the assessment of DOE-ORR offsite groundwater contamination. It is composed of two phases. Phase 1 was to (1) obtain validated and verified water quality data from a suite of off-site wells and springs, including those from earlier results where the potential presence of contamination was unclear; (2) establish or refute the presence of DOE-related contaminants downgradient and off-site from the ORR; and (3) support the development of a Phase 2 investigation that would proceed should the data indicate a second phase was necessary per the data quality objective decision tree in the approved "Offsite Groundwater Assessment Remedial Site Evaluation Work Plan - Phase 1, Oak Ridge, Tennessee (DOE/OR/01-2649&D1)." The Phase 1 effort is currently being documented in a Remedial Site Evaluation Report. Project summary data were presented to the EPA and TDEC on April 13, 2016, and indicate that a Phase 2 may be necessary. The EPA and TDEC await the forthcoming Remedial Site Evaluation Report.

In the interim, the EPA and TDEC recommend that DOE begin implementation of the “shovel ready” project of the remediation of TCE contamination in the 7000 Area. This work should proceed in conjunction with the development of the Phase 2 work plan, if necessary.

The EPA and TDEC are concerned that the DOE currently has insufficient near term plans to implement remedial actions to make progress toward its statutory/regulatory mandate to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable. Our selection of the 7000 Area as the next Groundwater Strategy project is based on its high score in the Groundwater Strategy plume ranking and completion of a successful treatability study in 2012. The restoration of the groundwater at the 7000 Area is consistent with the NCP and the stated goals of the Groundwater Strategy Project Team Charter:

“The objective of this project is to develop an interagency strategic approach to identify, manage, and pursue any potential on-site and off-site groundwater public health threats and to protect and restore the U.S. Department of Energy (DOE)-Oak Ridge Reservation (ORR) groundwater resources to beneficial use.”

The “Recommendations” section in the 7000 Area Treatability Study final report conveyed the following:

“The treatability study has shown that bioremediation of the 7000 Area VOC plume is a viable remedial option even in the fracture flow environment of the plume.

Future plume treatments need to be conducted using new wells constructed for the sole purpose of amendment injection in bedrock. If a full-scale (or scale-up) injection using the proven amendments, as combined or singular, is selected for treatment of the plume, a data quality objectives-based remedial design approach will be used. A formal design process with necessary documentation will be used, and any further testing of amendment delivery approaches will be incorporated into this design process. Two possible approaches are suggested below to implement this approach in the long-term.

One possible approach to full-scale implementation is the concept of injection coupled with hydraulic control via extraction that is, an injection approach that incorporates recirculation for better amendment distribution control. ...Based on site physical constraints such as existing building locations compared to the targeted treatment locations, it appears that controlled injection of amendment with groundwater head control, via groundwater extraction and recirculation, has the highest probability of successful remediation of the plume.

A second approach to full-scale remediation of the shallow portion of the plume (i.e., depths to 30 ft) at the site would be distribution of HRC® as a stand-alone amendment addition. HRC® can be introduced into the target areas of the plume as a slurry into open boreholes strategically positioned to provide partial or whole plume coverage, depending on funding constraints and remedial goals. The high viscosity of the HRC® suggests the material will not be transported any significant distance once injection is complete.

The investigations conducted to date at the Bethel Valley 7000 Area have not established that there is no DNAPL present in the source area. An evaluation for potential presence of DNAPL is warranted due to the persistent TCE concentrations above 10,000 µg/L in the core of the plume. Therefore, the design process discussed above should also include an effort to determine if any forms (mobile or residual) of DNAPL are present. If DNAPL is found, then an evaluation of removal or treatment approaches for this contaminant material will also be needed.”

The full scope of this project (based on no DNAPL present) was estimated to require approximately \$3.5 million dollars covering a period of three years (based on 2012 estimates conveyed to the project team).

To plan and support efforts to seek funding for this project, the EPA and TDEC request a modification of FFA Appendices E and J to include milestones no later than the following:

- **RD/RAWP** **9/30/17**
- **Construction Start** **9/30/18**
- **RD/RA Report** **9/30/21**
- **RAR** **9/30/22**

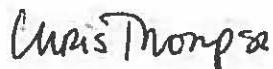
We look forward to working with the DOE in the development of a 7000 Area Remedial Action/Remedial Design Work Plan to be delivered in FY2017, followed by a construction start in FY2018. As stated above, it is our expectation that this 7000 Area work should proceed concurrent with any further work that may be necessary to complete the offsite investigation (i.e. the development and implementation of the Offsite Phase 2 Work Plan). In addition to these two project activities, Appendix J to the FFA should be updated to include other early action, high priority groundwater response actions identified in the Groundwater Strategy Document (See EPA letter of March 31, 2016, Crane to Japp).

If you have any questions concerning this matter or need additional information then please contact Mr. Carl Froede Jr., of my staff at (404) 562-8550 or Mr. Eddie Worthington, with TDEC at (865) 220-6564.

Sincerely,



Richard R. Campbell, P.E., Chief
Restoration & DOE Coordination Section
Restoration & Site Evaluation Branch
Superfund Division



Chris Thompson, Deputy Director
Division of Remediation, Oak Ridge
Tennessee Department of Environment and Conservation

cc: R. Young, TDEC
E. Worthington, TDEC
W. McMillan, DOE
D. Mayton, DOE
L. Sims, RSI