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STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF REMEDIATION - DOE OVERSIGHT OFFICE
761 EMORY VALLEY ROAD
OAK RIDGE, TN 37830

June 17, 2016

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

Dear Dave,

Response to Department Of Energy (DOE) Questions on Environmental Management Disposal Facility (EMDF)

I really appreciate you and Brian Henry meeting with me on June 2, 2016 so I could better understand the challenges to the DOE presented by the Tennessee Department of Environment and Conservation's (TDEC's) May 16, 2016 comments on the EMDF Remedial Investigation/Feasibility Study (RI/FS). The discussion was extremely beneficial. With a stronger understanding of DOE's needs, TDEC can better focus on options that will ultimately advance the project while protecting human health and the environment.

I've discussed the challenges with TDEC staff, and we offer the following clarifications and suggested actions in response to each of your questions. I look forward to talking with you and Rich Campbell about these in more detail, as discussion on these points will expedite progress at the project team level and resolution of informal dispute.

We recognize that the recommended path forward may affect DOE's schedule. However, we believe changes to the schedule can be offset by: (1) the enhanced waste segregation effort, which should allow a larger proportion of the waste to be disposed in alternate landfills; and (2) modifications proposed to the final cover of the Environmental Management Waste Management Facility (EMWMF) that would increase capacity of the existing facility by an additional 100,000 cubic yards. Both of these actions should extend the life of the EMWMF.

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1. **Does TDEC agree that Site 7a should be the preferred site?**

   At this juncture, the available information is not sufficient to support a reasonably informed decision as to the preferred alternative. As discussed at the EPC meeting, preliminary data indicate that the East Bear Creek Valley site (Site 5) and West Bear Creek Valley site (Site 14) are not suitable. While Site 6b and portions of Sites 7a and 7b appear to be more viable alternatives, very little hydrogeological data has been collected from these locations. Preliminary modeling suggests the water table is very near the anticipated position of the geologic buffer at all three locations. It has proven difficult to accurately model groundwater levels in Bear Creek Valley, so it seems prudent to complete hydrogeological investigations at all three sites and to evaluate all three in the RI/FS to determine which is best suited for radioactive/hazardous waste disposal.

   While it is possible a reconfigured Site 7a may prove satisfactory, the RI/FS indicates none of these sites could accommodate the quantity of waste projected to be disposed, so the dual-site and hybrid option should remain in the evaluation. Given that DOE intends to initially construct cells to accommodate only one-third of the projected need, construction of two smaller landfills should not significantly impact DOE's deactivation and decommissioning (D&D) schedule. While the state recognizes the cost-benefit of on-site disposal and is willing to work with DOE toward that end, the overriding objective is waste disposal in a manner that is protective of public health and the environment for the duration of the hazard.

2. **TDEC has raised numerous concerns regarding the model used to develop the preliminary Waste Acceptance Criteria (pre-WAC). Would TDEC agree to use the current model to support the Proposed Plan, if DOE commits to use of a more robust, detailed model in parallel with development of the Proposed Plan?**

   Given the challenges presented by the environment of Bear Creek Valley and the uncertainty as to the true service life of engineered barriers, the WAC plays an important role in the long-term protectiveness of the disposal facility. TDEC believes that the pre-WAC also has a significant bearing on the facility design. Consequently, TDEC does not support proceeding with the Proposed Plan until the pre-WAC issues are resolved. However, that does not prevent DOE from proceeding at risk, as it has done previously.

   To address concerns regarding the modeling, TDEC recommends that DOE contract an independent third party acceptable to TDEC and the Environmental Protection Agency (EPA) to run RESRAD and/or RESRAD-Offsite. As the facility would be authorized under CERCLA, the methodology and input parameters to the modeling effort should be discussed and approved by consensus of parties to the Federal Facility Agreement.

TDEC recognizes that there is a DOE milestone to deliver the Proposed Plan by June 30, 2016. Given the time that will be required to resolve informal dispute and proceed with modeling by an independent third party, TDEC is willing to delay the Proposed Plan milestone to provide sufficient time for DOE to complete hydrogeological investigations sufficient to support site evaluation and selection of a preferred disposal location; and to submit a revised RI/FS.

3. **In addition to uranium, what key constituents would TDEC like to see concentration profiles over time?**

TDEC would like to see concentration profiles over time for all contaminants of concern and their progeny. Most commonly used models, including RESRAD and RESRAD-Offsite, provide the means to present such information.

4. **Must all TDEC RI/FS comments be satisfied before TDEC will accept the Proposed Plan?**

The RI/FS includes the detailed evaluation and alternatives analysis that is the basis for any proposed remedial action included in the Proposed Plan. TDEC does not support developing a Proposed Plan without an approved RI/FS. Therefore, TDEC believes all RI/FS comments should be resolved or have a clear path to resolution before the Proposed Plan can be approved. However, TDEC also believes that the project team can resolve most RI/FS comments in collaborative working sessions. During those sessions, RI/FS comments that cannot be resolved by the project team would be elevated to the Senior Management Team.

TDEC believes that the following key actions comprise the critical path:

- Contract an independent third party to perform the complex modeling effort to determine the pre-WAC;
- Develop the pre-WAC based on the CERCLA risk range for the first 2,000 years and promulgated Division of Radiological Health rules thereafter;
- Verify that no scenario consistent with rules and guidance, including those that incorporate the effects of the large quantity of uranium already buried in Bear Creek Valley, results in a uranium pre-WAC that could potentially lead to unacceptable risk of fatality or long-term irreversible effects on the kidneys of exposed individuals;
- Strengthen the waste evaluation process to ensure WAC compliance, as DOE committed to do during the May 24, 2016 EPC meeting; and

- Engage DOE's Low-Level Waste Disposal Federal Review Group (LFRG) to review compliance with DOE Order 435.1 and related orders in parallel, but totally independent of, the CERCLA process as agreed upon at the EPC meeting of May 24, 2016. This should include EPA and TDEC participation, as agreed upon at the EPC meeting.

TDEC recommends a path forward that focuses on resolving these key issues in parallel with project team meetings to resolve individual comments. Early actions by DOE to address these fundamental concerns will increase TDEC's confidence in the RI/FS conclusions and the resulting Proposed Plan.

We appreciate DOE's efforts and ongoing cooperation with TDEC and EPA. This teamwork is critical to select a site and design a disposal facility that best meets Oak Ridge Reservation cleanup needs and protects human health and the environment. TDEC looks forward to working with the DOE project team to continue progress toward that goal.

Sincerely

Chris Thompson

Chris Thompson
Deputy Director

xc Shari Meghreblian
Steve Goins
Andy Binford
Rich Campbell
Brian Henry