



Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

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December 21, 2007

Mr. E. Kurt Hackmann
Hematite Director, Decommissioning
Westinghouse Electric Company LLC
3300 State Road P
Festus, MO 63028

RE: *Feasibility Study - Operable Unit 1, Buried Waste, Impacted Soils, and Sediment
Westinghouse Electric Company, LLC
Former Fuel Cycle Facility, Hematite, Missouri, Rev 0*

Dear Mr. Hackmann:

Missouri Department of Natural Resources staff has reviewed the referenced report relative to the criteria presented in the U.S. Environmental Protection Agency (EPA) *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. Based on this review we have determined that this Feasibility Study (FS), prepared for Operable Unit 1 (OU1) of the Hematite Radioactive Site (HRS), is consistent with the procedures presented in the EPA guidance document.

During evaluation of remedial alternatives for contaminated sites, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the National Contingency Plan (NCP) require evaluation of nine specific criteria. These are (1) Overall Protection of Human Health and the Environment; (2) Compliance with ARARs; (3) Long-Term Effectiveness and Permanence; (4) Reduction of Toxicity, Mobility, or Volume Through Treatment; (5) Short-Term Effectiveness; (6) Implementability; (7) Cost; (8) State Acceptance; and (9) Community Acceptance. The discussion provided below is based on evaluation of these criteria from the department's perspective, as it pertains to the alternative remedies contained in the FS.

Specifically, five remedial alternatives are listed and evaluated in the FS. They are:

- 1) No Action;
- 2) In-situ Containment with Access Controls as Interim Remedial Action to Defer Final Remediation;



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- 3) Removal, Treatment of VOC Waste, and Disposal of LLRW and Non-Hazardous Treatment Residues in an On-Site Facility;
- 4) Removal, Treatment of VOC Waste, and Off-Site Disposal of LLRW and Non-Hazardous Treatment Residues; and
- 5) Removal and Off-Site Disposal.

The department does not consider Alternative 1 as a viable option and acknowledges that it is included in the FS report primarily as a reference point for other potential actions, and because the NCP also requires that a no action alternative be evaluated. We will not address the no-action alternative further in this letter. The department has also determined that Alternatives 2 and 3 are significantly lacking when evaluated relative to various CERCLA criteria listed above, for reasons discussed in subsequent paragraphs.

Westinghouse presents Alternative 2 as an interim remedial action only, requiring additional response at some future date to arrive at a permanent solution. Waste soils and sediments would be consolidated in the burial pit area, which would then be surrounded by a low-permeability slurry wall. An impermeable cover would limit infiltration, and groundwater pumping and monitoring would be used to reduce and evaluate the spread of Dense Non-Aqueous Phase Liquids (DNAPL) into surrounding areas or bedrock. This alternative would not meet the important CERCLA goals of long-term effectiveness and permanence as future remediation will be required. Short-term effectiveness cannot be assured due to uncertainties associated with effectiveness of the proposed control technologies. While the actual nature of soil and bedrock directly beneath the burial pits is not completely known, the department believes that a permeable zone of the uppermost bedrock formation "subcrops" beneath the area. This results in a potential vertical migration pathway for contaminated groundwater and DNAPL. In addition, treatment to reduce volume, toxicity, and mobility of hazardous wastes/constituents is not contemplated. Finally, this alternative has a higher net present value than Alternative 3, which appears to be a preferable remedy from a technical perspective. For the reasons described above, Alternative 2 is unacceptable to the state, and we anticipate that the level of community acceptance would be low to non-existent.

Alternative 3 contemplates creation of an engineered landfill in the general area of the burial pits. Wastes would be excavated from the burial pits and stockpiled elsewhere on-site while the landfill was constructed. Excavated wastes from the burial pits and other site Areas of Concern (AOC) would be treated as necessary to reduce volatile organic compound (VOC) concentrations and metals mobility, then entombed in the landfill as a permanent repository. Engineering controls, institutional controls and monitoring would be used to provide security and evaluate effectiveness. While this alternative is a more protective course of action than Alternative 2, it has significant deficiencies when evaluated by CERCLA criteria. Long-term effectiveness is not definitive, and permanence is clearly not assured as the remedy relies on artificial man-made structures. While the longevity of the proposed structures is unknown, they will certainly not be permanent, and additional response activities would be required at a future date. Missouri solid

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waste and hazardous waste management statutes and regulations include extensive criteria for landfill construction. CERCLA requires compliance with the substantive requirements of these statutes and regulations, which have been identified as ARARs for the HRS. Additionally, information in the Remedial Investigation for OU1 indicates that the facility is located in an area that is not deemed suitable for landfill construction; thus Alternative 3 would not meet these requirements. While the costs are more reasonable than those for Alternative 4 or 5, regulatory criteria and future uncertainty make those options preferable to Alternative 3. Considering these factors, Alternative 3 is unacceptable to the state and the department anticipates that community acceptance would be low to non-existent.

Alternatives 4 and 5 each contemplate excavation and off-site disposal of waste materials, the significant technical difference being that Alternative 4 proposes on-site treatment of VOC contaminated wastes prior to shipping for off-site disposal. Either alternative can be implemented in a manner that would be protective of human health and the environment and, when completed, should result in a remedy that is effective and permanent. Alternative 4 would be somewhat more difficult to implement from a technical perspective as additional on-site activities (e.g. treatment, handling, confirmatory sampling) would be required before wastes could be shipped. We also expect that on-site treatment would result in a remedy that will take more time to complete. Considering these factors, we expect the community would accept Alternative 5 and the state would generally agree. However, Alternative 5 has a net present value (\$61,353,600) that is significantly greater than Alternative 4 (\$47,765,400), and this cost differential will be given careful consideration during development of the Proposed Remedial Action Plan for the HRS.

For purposes of final review, this letter hereby communicates the department's final assessment and acceptance of Westinghouse's evaluation of remedial alternatives detailed in the FS. Additional and more in-depth details of a specific selected remedy will be identified as we proceed toward development of a Proposed Plan for the HRS OU1. If you have any questions on any of the discussion brought forth herein, or require clarification on any issue, please contact me at (314) 877-3252 or Aaron Schmidt at (573) 751-3154. Direct written correspondence to our attention at the Hazardous Waste Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

HAZARDOUS WASTE PROGRAM



Ben L Moore, P.E.
Senior Project Manager

BM:dd

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- c: Mr. Chuck Banks, Jefferson County Commission
- Mr. Gale Carlson, Department of Health and Senior Services
- Mr. Dennis Deihl, Jefferson County Health Department
- Mr. John Hayes, U.S. Nuclear Regulatory Commission
- Mr. Pat Lamping, Jefferson County Commission
- Mr. Roland Lickus, U.S. Nuclear Regulatory Commission
- Ms. Shelley A. Woods, Attorneys General Office