

### MEETING MINUTES

Subject: ADDITIONAL GEOPHYSICAL AND REMEDIAL INVESTIGATIONS OF THE HORN RAPIDS LANDFILL IN THE 1100-EM-1 OPERABLE UNIT

TO: DISTRIBUTION BUILDING: \_\_\_\_\_

FROM: S. W. Clark *[Signature]* WHC CHAIRMAN: R. K. Stewart DOE-RL

Dept-Operation-Component	Area	Shift	Meeting Date	Number Attending
Environmental Engineering Group	3000		Jan. 14, 1991	20

**ATTENDEES:**

Vey Allen	PNL	John Anderson	COE
Jeff Ayres	WHC	Steve Clark	WHC
Kathy Davis	GSSC	Dave Einan	EPA
Richard Fink	COE	Bill Green	WHC
Wendell Greenwald	COE	Pieter Hoekstra	BG
Joseph Kunk	WHC	Alan Krug	WHC
M. L. Lauterbach	WHC	Jim McBane	COE
Tom Mitchell	WHC	Fred Roeck	WHC
Gerald Sandness	PNL	Kevin Singleton	WHC
Ward Staubit	USGS	Bob Stewart	DOE-RL



**Meeting Highlights:**

The main trenches of buried waste at the Horn Rapids Landfill (HRL) in the 1100-EM-1 operable unit of the Hanford Site were toured on foot on the morning of 1/14/91. Following the tour participants met with geophysics teams from Battelle Pacific Northwest Laboratories (PNL) and Westinghouse Hanford Company (WHC) and discussed doing additional geophysical investigations at the HRL. The U.S. Environmental Protection Agency (EPA) has two concerns leading them to request additional geophysical work: (1) Does the landfill contain collections of buried waste drums; and (2) Is it safe to drill boreholes in the HRL burial trenches? The position of the U.S. Department of Energy Richland Operations Office (DOE-RL) is that the ground water at the HRL has been contaminated by unspecified upgradient sources and further investigations are not necessary to arrive at a decision to close and continue to monitor the landfill. After lengthy discussion it was agreed that a Statement of Work for electromagnetic induction (EMI) and metal detector surveys on a 10 ft. grid in the areas of the main burial trenches would be written. Anomalies corresponding to the size of a collection of 10 drums will be further investigated by ground penetrating radar (GPR). Anomalies investigated in this manner will be considered for trenching to determine what is actually buried. Additional borehole drilling in the HRL is postponed pending the results of the geophysical investigations.

**Discussion:**

Small areas of contaminated soil near the surface of the landfill have been found by surface sampling and vadose zone borehole drilling. Monitoring wells have found the ground water in the vicinity of the landfill to be contaminated with trichloroethene (TCE), nitrates, and radionuclides in excess of primary drinking water standards. It is known that leaks from lagoons at Advanced Nuclear Fuels Corp. (ANF) caused levels of nitrate and dissolved uranium above drinking water standards at the HRL.

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WHC stated that trichloroethene (TCE) analyses of ground water and soil gas upgradient and downgradient of the HRL indicate that ANF is the most likely origin of this contaminant as well. Boreholes for soil sampling were not drilled in the burial trenches during the Phase I remedial investigation for health and safety concerns which are still valid. The borings which were done were adequate to determine that the soils around the burial trenches are not highly contaminated. If hazardous wastes are buried in the trenches they are apparently not spreading to those locations where boreholes were drilled. Anecdotal information is the only reason an accumulation of drums is suspected to exist in the burial trenches at the HRL. Additional drilling has a very low probability of actually finding any concentration of drums which may be buried in the 50 acre landfill.

The EPA stated that because detailed, site-specific surface geophysical surveys were not done and boreholes were not drilled into burial trenches as scheduled in the original remedial investigation/feasibility study work plan for the 1100-EM-1 operable unit (DOE/RL 88-23, August 1989) this work must now be done.

The original geophysical investigations of the HRL performed by PNL were intended as a reconnaissance to find major features. The investigations, using ground penetrating radar (GPR), electromagnetic induction (EMI), and a metal detector, showed several prominent trenches in the south-central part of the landfill and areas of relatively shallow dispersed debris in the southeastern part of the HRL. A significant anomaly was also found near the burn cage, in the northern part of the landfill.

During the meeting, it was agreed that a 500 x 900 ft. area in the south-central HRL and a 200 x 300 ft. area in the northern part of the HRL (highlighted on the attached map) would be investigated on a 10 ft. grid spacing with EMI and metal detectors. If significant anomalies were found they would be further investigated with GPR.

After considerable discussion it was agreed that no anomalies smaller than the signature of ten (10) drums would be investigated. EMI and metal detection will be run on a 10 ft. grid in the two selected areas of the HRL. A statement of work will be written by Mr. Sandness of PNL and reviewed by Mr. Hoekstra of Blackhawk Geophysics (BG) to have the geophysical investigations done in two phases: 1) EMI and metal detector to find anomalies of ten drums or larger; followed by 2) GPR to determine if anomalies should be investigated by trenching. Forward modelling to determine the expected signature from an accumulation of 10 drums must be done before geophysical surveys begin.

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