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MAY 28 2003

Mr. Phil Harris
Ohio Environmental Protection Agency
Division of Hazardous Waste Management
Southwest District Office
401 East Fifth St.
Dayton, OH 45402-2911

DOE-0384-03

Dear Mr. Harris:

ADMINISTRATIVE CLOSEOUT OF FERNALD'S NEC SOLVENT INVESTIGATION

This letter is a follow-up to our meeting on April 30, 2003, at which the Fernald Team (the United States Department of Energy and Fluor Fernald, Inc.) presented the results of the National Electric Coil (NEC) solvent investigation at the Fernald site. As concluded from the meeting, administrative closeout of the investigation is to be accomplished through submittal of this summary letter and the issuance of an accompanying concurrence letter by the Ohio Environmental Protection Agency (OEPA) Division of Hazardous Waste Management (DHWM).

Background and Investigation Approach

The NEC solvent investigation was conducted at the Fernald site to complete an open action item identified from a historical information re-analysis for Operable Unit 1 (the waste pits) concerning RCRA waste disposal activities. Back in April 2000, the Fernald Team met with DHWM representatives to discuss the re-analysis and close out of seven of the eight areas of inquiry examined during the evaluation. For the eighth area of inquiry, the NEC solvent inquiry, the findings indicated that spent NEC solvent disposal took place in an excavated soil trench between Pit 3 and the Burn Pit in 1977, potentially triggering the contained-in rule for listed wastes in contaminated environmental media. This finding resulted in the need for the follow-up field investigation that is summarized in this letter.

The intent of the field investigation was to identify the concentration levels and affected volume of residual NEC solvent constituents in the soil that may still be present in the burial trench location. Depending on the concentration levels identified and the certainty of the link to the NEC solvent disposal activity, DHWM representatives and the Fernald Team recognized the possibility that the NEC solvent-contaminated soils could require further isolation to be managed as RCRA mixed waste. This possibility and the overall field investigation approach were part of the project scoping discussion conducted in April 2000.

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The field investigation was completed in January 2003, in support of planned waste pit excavation activities to be performed later this year. Two former Fernald employees who were eyewitnesses to the 1977 disposal activity identified the location and depth of the trench, as best they could achieve from recall. The investigation was performed under the auspices of a formal Project Specific Plan (PSP), approved by the OEPA in March 2002 and United States Environmental Protection Agency (USEPA) in May 2002. All samples were analyzed for the two listed solvents of interest (methylene chloride and cresylic acid) comprising Tru-Strip 811, identified previously from the NEC solvent inquiry. It should also be noted that cresylic acid also goes by two technical synonyms in various regulatory and site documents: cresol and methylphenol. Cresol and methylphenol are sometimes referred to by their individual isomers (ortho, meta, and para), and in some documents, cresol can be referred to as "total cresol" which is considered to be the sum of the isomers.

In total, seven borings were advanced by Geoprobe in the study area to a depth of 12 feet, except for one boring where an obstruction was encountered at 10.5 feet. Fifteen total samples were obtained; two from specified target depths in each boring (7.5 to 8 feet and 11.5 to 12 feet), plus a duplicate of one sample. The target depths were selected based on the eyewitness reports of the original trench depths, plus the desire for a sample beneath the reported depth to account for potential migration. Contract laboratory detection limits were set based on Fernald's current EPA Contract Laboratory Program limits and protocols (during execution, in some cases detection limits were adjusted upward as required to overcome matrix interference from non-target constituents; in other cases, the laboratories were able to achieve actual instrument detection limits that were lower than the contract required detection limits).

A photoionization detector (PID) screening tool was also utilized to help guide the final sampling intervals, and no positive PID readings were encountered during the sampling. Observations were also made for other physical evidence of the disposal activity identified by the former employees – e.g., crushed wood and vermiculite commingled in the soil.

Field Investigation Results

The following table summarizes the analytical results obtained during the investigation, and provides several useful comparison values for assessing the results:

Listed NEC Solvent Constituent	Investigation Results			Comparison Values			
	Max. Detected Value (ppm)	Max. Non-Detect Limit (ppm)	Number of Detects	UTS Level (ppm)	OU 5 FRL (ppm)	Ambient Sitewide Soil Levels (ppm)	Ambient Levels in Waste Pits (ppm)
Methylene Chloride	0.76	0.013	4 of 15	30	37	< 1 to 5.5	< 1 to 2.2
Total Cresol	0.44 ^a	5.4	5 of 15	5.6	250 ^b	< 0.1 to 0.2	< 0.1 to 4.2

^am,p-Cresol was detected at 0.11 ppm and o-Cresol was not detected at 0.33 ppm.

^bFRL from Fernald's Operable Unit 5 was established for 4-Methylphenol (also known as p-Cresol).

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As noted in the table, methylene chloride was detected in 4 of 15 samples, with concentrations ranging from 0.21 to 0.76 parts per million (ppm). For cresylic acid (o-cresol and m,p-cresol isomers), 5 of 15 samples showed positive detection, with concentrations ranging from 0.35 to 0.44 ppm. Total cresol, which is the sum of the isomers, was conservatively considered to be detected if either or both of the isomers were reported above the instrument detection limit. In the instance of only one of the isomers being positively detected, the positive result was added to the detection limit for the non-detected isomer to arrive at a conservative, total cresol value.

In order to place the detected values into perspective, the "Comparison Values" side of the table provides the Universal Treatment Standards (UTS) for the two constituents under the RCRA Land Disposal Restriction (LDR) program; Fernald's health-based, site-specific soil Final Remediation Levels (FRL) from the 1995 Operable Unit 5 Record of Decision (ROD); the range of ambient concentrations observed in Fernald's sitewide soils during the Operable Unit 5 Remedial Investigation; and the range of ambient concentrations observed in the waste pit materials themselves during the Operable Unit 1 Remedial Investigation.

In all cases, the detected concentrations from the NEC solvent investigation are below the Operable Unit 5 soil FRLs and the LDR program UTS treatment levels. It is also clear from the table that both constituents have been detected at correspondingly low levels ubiquitously at the Fernald site, both in area wide soils and in the pit materials themselves outside the NEC solvent disposal area. These comparative findings validate that the detected concentrations are below the site's health-based thresholds and are generally indistinguishable from the wider-spread levels seen historically elsewhere across the site.

Remaining "Irreducible" Uncertainties from the Investigation

While the investigation approach was as definitive as the eyewitness's accounts would allow, significant irreducible uncertainties remain:

- More than 25 years have elapsed since the disposal activity took place.
- The borings did not yield consistent physical or anecdotal evidence of the NEC solvent disposal activity; wood chips were observed sporadically, and other heterogeneous materials not associated with the activity were encountered.
- The eyewitness accounts of the disposal location make it difficult to position the borings exactly between Pit 3 and the Burn Pit, and pit materials were likely encountered at depth along with the disposal area soils, bringing in secondary analytical interference.
- Due to the ubiquitous nature of the constituents at correspondingly similar low levels across the site, one cannot definitively link the sporadic and low-level detection encountered in the investigation to the actual 25-year old NEC solvent disposal activity.

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Fernald Team Conclusions

As presented at the April 30, 2003 meeting, the Fernald Team has concluded that the investigation can now be administratively closed out using the same mechanism used for the other seven areas of inquiry that were closed in April 2000. This conclusion is reached based on the low level and generally sporadic detection, the inconsistent physical evidence, the remaining irreducible uncertainties, and the finding that no definitive link to the historical disposal activity can be clearly established.

When these findings are coupled with the fact that the low-level detections are below Fernald's site-specific soil health-based cleanup levels (regardless of origin), the Fernald Team concludes that there is no technical or regulatory need to further isolate the soils in the study area and manage them any differently than the other soils excavated and processed for off-site disposal under the Operable Unit 1 ROD.

Path Forward for the Soils in the Study Area

Following concurrence from the OEPA DHWM, the affected soil will be aggregated, sampled, and processed through the Operable Unit 1 material handling and railcar loadout buildings (along with the other Operable Unit 1 materials), and shipped off site by unit train for disposal at Envirocare. The soils are scheduled to be excavated and shipped for disposal beginning in the fall of 2003.

As part of this process, the affected soil will be sampled for Waste Acceptance Criteria (WAC) compliance parameters, along with the other waste pit materials, per the approved Waste Pits Project Sampling Plan. As part of this plan, all Operable Unit 1 materials are screened and sampled as necessary for Toxicity Characteristic Leaching Procedure (TCLP) constituents, on a bin-by-bin basis, per the approved WAC sampling protocols. As indicated in our Operable Unit 1 compliance documents, the bin-by-bin approach represents the approved WAC and RCRA compliance demonstration point for all wastes leaving the site via the Operable Unit 1 rail pathway.

The follow-up concurrence letter provided by Ohio DHWM will be used to document the eligibility of the affected soil for disposal in Envirocare's low-level radioactive waste cell, which has been receiving Fernald's Operable Unit 1 wastes since April 1999. The concurrence letter will remain a part of the Operable Unit 1 waste profile record and will be retained in the CERCLA administrative record for the site.

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If you have any additional questions concerning the administrative closeout of the NEC solvent investigation, please contact Kathleen Nickel of my staff at (513) 648-3166.

Sincerely,



Glenn Griffiths
Acting Director

FCP:Nickel

cc:

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