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HYDROFLUORIC ACID TANK CAR CLOSURE PLAN INFORMATION AND DATA NOTICE OF DEFICIENCIES

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DOE-FN/OEPA
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LETTER

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JAN 1 3 1993
DOE-0831-93

Ohio Environmental Protection Agency
Division of Hazardous Waste Management
Data Management Section
P.O. Box 1049
Columbus, Ohio 43266-0149

HYDROFLUORIC ACID TANK CAR CLOSURE PLAN INFORMATION AND DATA NOTICE OF DEFICIENCIES

Reference: Letter, OEPA to U.S. DOE-FN, Donald R. Schregardus to W. D. Adams, OH6 890 008 976, 05-31-0681, December 9, 1992.

Dear Mr. Crepeau:

This letter is in response to the Notice of Deficiencies (NOD) for the Hydrofluoric Acid (HF) Tank Car Closure Plan Information and Data that were identified in the above referenced letter. Also enclosed is a copy of a lab sheet from analysis of a sample of the wastes in the HF Tank Car from December, 1992.

On December 23, 1992, Mr. John Sattler, DOE-FN called Mr. Phil Harris (OEPA Division of Solid and Hazardous Waste Management, Southwest District Office) to discuss the need to delay submittal of revised closure plan information and data (CPID). A delay was requested because of the possibility of significant changes in the closure procedure. After the original CPID was submitted in May 1992, the Fernald Environmental Management Project (FEMP) contacted a commercial vendor to evaluate the option of off-site disposition of the Dilute Hydrofluoric Acid (DHF) waste and the tank car. The FEMP is currently awaiting the proposal and details of waste disposition from the vendor. The FEMP is also developing the necessary detailed procedures for on-site neutralization and decontamination. Once the two alternatives have been evaluated and the preferred option is selected, a revised CPID will be prepared to incorporate the necessary changes. It will be sent to you at that time. Mr. Harris suggested this approach. He also recommended that the FEMP include responses to the NOD within the thirty day deadline.

The following comments and responses will be incorporated as appropriate in the revised CIPD. OEPA comments are in Italics followed by the FEMP response.

Recycled and Recyclable

Ohio EPA General Comment:

The closure plan indicated that pH is the only contaminant of concern. DOE-FEMP must provide additional justification for the use of this single analyte as a means of ensuring clean closure. Specifically, OEPA requires further information regarding characterization of the contents of the tank car through either process knowledge or analytical methods.

FEMP RESPONSE:

Prior to 1989, dilute hydrofluoric acid (DHF) was generated from the hydrogen fluoride recovery systems attached to the production process in Plant 4 which reduced UO_3 to UF_4 and, in the late 1980's, a process in the Pilot Plant for reduction of UF_6 to UF_4. The Plant 4 production process involved dissociated ammonium (hydrogen and nitrogen) and anhydrous hydrofluoric acid (AHF) gas. The Pilot Plant process used dissociated ammonium.

Based on previous sampling and analysis and process knowledge, the DHF currently in the Tank Car has been characterized as a RCRA corrosive hazardous waste (Waste Number D002). Samples of the DHF in the tank car were collected in December 1992 and analyzed for the eight metals regulated based on RCRA Toxicity Characteristic Leaching Procedure (TCLP). Sample analyses from December 1992 confirmed that the DHF in the tank car is not hazardous for RCRA TCLP metals (see attached copy of the December 1992 lab report). Since no organics were used in the process, testing for organic contamination was not required.

The period of operation discussed in the closure plan information and data included production uses prior to the storage of hazardous wastes in the Tank Car. During production, the HF tank car was used for storage of DHF used in the production process or sold to off-site buyers. The basis for the HWMU determination was storage of unusable DHF wastes that have been stored in the tank since October 1988. In June 1991, the HF tank car was declared a HWMU in the RCRA Part A permit application, Revision 11 as HWMU No. 38. The boundaries were based on the fact that the tank car has not been moved since wastes were placed in the tank car in October 1988.

Ohio EPA Specific Comments:

1. *Section 2.1, Page 5 - The closure plan describes the present location of the tank car and indicates its period of operation was approximately 15 years. Since the unit is mobile, provide information verifying that the tank car was always located at the same position on the track or indicate the boundaries of the hazardous waste management unit based upon its past movement(s). this information must be provided in accordance with OAC 3745-66-11.*

FEMP RESPONSE:

The period of operation discussed in the closure plan information and data included production uses prior to the storage of hazardous wastes in the Tank Car. Prior to October 1988, the HF Tank Car was used to batch shipments of DHF which were sold. Standing contracts were maintained for the sale of DHF. After the DHF was tested, approved, and sold the DHF was transferred to tank trucks for off-site transport. In October 1988, the DHF, currently in the tank car, was returned from a prospective buyer and placed in storage. Since that time, the DHF in the tank car has exceeded regulatory limits for speculative accumulation and ninety-day storage. As a result, the DHF has been declared a corrosive hazardous waste. In June 1991, the HF Tank Car was declared to be a hazardous waste management unit. The boundaries were based on the fact that the tank car has not been moved since the DHF wastes were placed in the tank car in October 1988.

2. *Section 2.2, Page 5 - Expand this section to provide justification that D002 is the only hazardous waste constituent of concern in the waste (refer to general comment). The plan does not indicate that an appropriate characterization for this waste stream has been done per DOE-FEMP's Waste Analysis Plan procedures. Enclosure A (Sampling and Analysis Plan) and other sections may require modification based upon DOE-FEMP's response to this comment. this information must be provided in accordance with OAC 3745-66-12(B)(1).*

FEMP RESPONSE:

The information discussed in response to the general comment is being incorporated into a revised Materials Evaluation Form (MEF) in accordance with the approved Waste Analyses and Waste Determination Plans.

3. *Section 3.2, Page 8, Item 2 - Following the neutralization process the resultant waste would be non-hazardous based upon the characterization of corrosivity; however, this section should identify the method of disposal. If DOE-FEMP intends to discharge the neutralized waste to the facility waste water treatment system, OEPA requests that this operation be conducted with an awareness of the facility NPDES permit limitation for pH. this disposal option is also dependent upon DOE-FEMP's response to comment #2.*

FEMP RESPONSE:

The FEMP agrees with the comment. Two alternatives are being considered: 1) on-site neutralization and treatment/disposal of non-hazardous waste water in the FEMP waste water treatment system and disposal of the precipitate as a non-RCRA low level radioactive waste and 2) neutralization and disposal at permitted/licensed, off-site, commercial treatment, storage and disposal facilities. If the final neutralization is conducted on-site, a review and any necessary testing of waste waters will be conducted to comply with the NPDES requirements. This is consistent with the statement referenced from the closure plan information and data in Item 2 (above). The statement says, "...the resulting non-hazardous wastes will be handled in accordance with approved procedures and in compliance with all applicable regulations and DOE Orders."

4. *Section 3.2, Page 8, Item 3 - The plan does not describe the procedures which will be used to remove the hazardous waste inventory from the tank car. Expand this section to describe the methods of waste removal (i.e. pumping operations) and identify equipment needed for this operation. the plan should include a detailed drawing of the tank car to include dimensions, other construction details and appurtenant structures. This information must be provided in accordance with OAC 3745-66-12(B)(3).*

FEMP RESPONSE:

The procedures which will be used to remove the hazardous waste inventory from the tank car, neutralize the wastes and clean the tank car will depend upon the alternative selected. The previous site standard operating procedure (SSOP) for removing DHF from the HF Tank Car is being reviewed and revised to ensure compliance with current requirements for removal of the hazardous waste. In addition, the necessary equipment, drawings, construction details and appurtenant structures will be identified in the revised closure plan information and data.

5. *Section 3.2, Page 8, Item 2 - The plan does not detail the methods and procedures to be used for neutralizing the waste. Please expand this description should include equipment, material and personnel needed, procedures to prevent hazards associated with recreation from improper neutralization and the type of vessel that will be utilized for the procedure. This information must be provided in accordance with OAC 3745-66-12(B)(3).*

FEMP RESPONSE:

See response to comment number 3. The specific equipment, material, personnel and procedures to prevent hazards associated with reactions from improper neutralization will be specified in the revised closure plan information and data.

6. *Section 3.2, Page 8, Item 3, Page 9, Item 6 - Identify the procedure that will be used for flushing the walls and bottom of the tank car and for rinsing the interior of the tank car (i.e. power rinse, etc.). This information must be provided in accordance with OAC 3745-66-12(B)(3) &(4).*

FEMP RESPONSE:

See response to comment number 3.

7. *Section 3.2, Page 9, Item 4 - Please describe the procedure that will be used to mechanically agitate the sludge remaining in the bottom of the tank car. This information must be provided in accordance with OAC 3745-66-12(B)(3)&(4).*

FEMP RESPONSE:

See response to comment number 3.

8. *Section 3.2, Page 9, Item 4 - Please identify the caustic material that will be used in the neutralization process and provide an example of the calculations used for pH adjustment. Also, please indicate whether initial bench-scale testing will be utilized to screen for possible reactions during the procedure. This information must be provided in accordance with OAC 3745-66-12(B)(3)&(4).*

FEMP RESPONSE:

See responses to comments number 3,4 and 5.

A bench-scale test for on-site neutralization has been conducted using a 2-stage process involving the reaction of nitric acid and calcium oxide to form calcium nitrate which is then reacted with the dilute hydrofluoric acid to precipitate calcium fluoride. Analyses of the aqueous and solid components are currently being conducted. A final neutralization procedure will be developed based upon a review of the analytical results and a technical review and safety assessment of the full-scale procedure based upon the bench-scale test procedures.

9. *Section 3.3.2, Page 10 - The soil sample locations do not take into consideration the chance that HF could have contaminated an area outside of the boundaries of the tank. Please expand the soil sampling to account for the area surrounding the tank car which would be subject to spills or leaks during routine loading or unloading operations. This information must be provided in accordance with OAC 3745-66-11.*

FEMP RESPONSE:

The soil samples referenced in the closure plan will be taken when the tank car is emptied and removed from the tracks to provide characterization of the soil contamination within the HWMU boundaries. In addition, the HF Tank Car is contiguous with the much larger HWMU identified as the Tank Farm Sump (identified as HWMU No. 11 in the June 1991 Part a Permit Application). During production, the tank farm was used for storage of hydrofluoric acids used in the Plant 4 process. Since there is no distinction between potential contamination from the Tank Farm Sump and the HF Tank Car, adjacent soils outside of the immediate HF Tank Car boundaries will be addressed in the clean-up/ closure of the Tank Farm Sump.

10. *Section 5.0, Page 15 - The closure schedule submitted includes a one hundred eighty day time period needed for "internal activities" before closure can begin. OAC 3745-66-13(B) states that the owner or operator shall complete partial and final closure activities in accordance with the approved closure plan within one hundred eighty days from approval. DOE-FEMP must remove the extra time period from the closure schedule or supply justification for the extension. The Ohio EPA would not normally consider internal administrative activities sufficient cause for an extension.*

FEMP RESPONSE:

The schedule provided was intended to represent an achievable schedule given the constraints placed on contractors at a DOE facility. The "internal administrative activities" referenced in the closure schedule are binding federal statutory and regulatory requirements for contractors at U.S. DOE facilities. As indicated in Section 5.0 of the closure plan information and data, it is expected that most of these requirements can be accomplished concurrently with the Ohio EPA review. However several items, such as contracting outside services, finalization of health and safety requirements, and project-specific employee training, cannot be completed until the final requirements are specified.

The revised CPID will include a schedule that shows closure activities to be completed within one hundred eighty days after approval, or an extended schedule along with a justification for the extension.

11. *Section 4.1, Page A-13 - The first paragraph of this section describes the equipment decontamination process and includes the methods for determining if the cleaning process was effective. The last sentence of this paragraph is unclear. Please revise or explain the meaning of this statement. This information must be provided in accordance with OAC 3745-66-12(b)(4).*

FEMP RESPONSE:

The paragraph will be changed as follows (new wording is capitalized and old wording is struck out):

To prevent cross-contamination between samples and locations, only clean or decontaminated sampling equipment will be used. SAMPLING OF DECONTAMINATION RINSEATE WILL BE CONDUCTED TO CONFIRM EFFECTIVENESS AND IDENTIFY POSSIBLE CROSS-CONTAMINATION OF SAMPLES COLLECTED. AT A MINIMUM, ONE (1) SAMPLE OF FINAL SAMPLING EQUIPMENT DECONTAMINATION RINSEATE WILL BE COLLECTED FOR EACH DAY SAMPLING IS CONDUCTED OR FOR EVERY TWENTY SAMPLES COLLECTED PER SAMPLING EVENT, WHICHEVER IS GREATER. THE FINAL RINSEATE SAMPLES WILL BE ANALYZED FOR pH BY THE DESIGNATED ANALYTICAL LABORATORY USING SW-846 METHOD 9040. THE FOLLOWING PROCEDURE WILL BE USED TO COLLECT THE FINAL RINSEATE SAMPLES: ~~When sampling equipment is decontaminated following collection of a sample, a sample of the final rinseate will be collected and analyzed for pH by the FEMP analytical laboratory using SW-846 Method 9040. These samples will confirm that decontamination was effective. One (1) sample of final sampling equipment decontaminate rinseate will be collected for every twenty samples collected per sampling event, using the following procedure:~~

12. *Section 4.1, Page A-14 - The last paragraph of the Field QA/QC Procedures section should indicate that a duplicate sample will be collected for each sampling event or once for every twenty samples collected. This information must be provided in accordance with OAC 3745-66-12(B)(4).*

FEMP RESPONSE:

In preparation of the sampling plan, it was assumed that less than twenty samples for each media being sampled would be collected during any given sampling event. The referenced frequency of sample duplicates is requirement of the FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ). The FEMP has already committed to following the SCQ in Section 1.0 INTRODUCTION of the sampling and analysis plan. To avoid confusion, the paragraph will be changed as follows (new wording is capitalized and old wording is struck out):

To evaluate the impact of field sampling activities on analytical precision (i.e., repeatability of results), field duplicate samples will be collected. One (1) duplicate sample of the decontamination verification rinseate will be collected for each sampling event OR FOR EACH TWENTY SAMPLES COLLECTED, WHICHEVER IS GREATER. ~~, and~~ One (1) duplicate sample of the soil underlying the unit will be collected for each sampling event OR FOR EACH TWENTY SAMPLES COLLECTED, WHICHEVER IS GREATER. If requested, additional duplicate samples will be collected for QC confirmation by an independent laboratory.

If you or your staff have any questions, please contact John M. Sattler at FTS/Commercial 513-738-8672.

Sincerely,

James J. Fiore
Acting Manager

FN:Sattler

Enclosure: As Stated

cc w/encl:

K. A. Hayes, EM-424 TREV
J. A. Saric, USEPA-Region V
P. Harris, OEPA-Dayton
R. Meyer, OEPA-Columbus
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P. D. Pardi, OEPA-Dayton
AR Coordinator, FERMCO

cc w/o encl:

M. Mc Dermontt, DOJ
J. Van Kley, Ohio AGO
N. C. Kaufman, FERMCO/1
J. W. Thiesing, FERMCO/2
D. P. Dubois, FERMCO/65-2
P. F. Clay, FERMCO/19

ATTACHMENT: Analytical Report for HF Tank Car Sample Analysis from December 1992

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Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

AnaLIS ID: 921203-069 Project: 0020 0001 Customer Sample ID: DHF-1
Customer: FAC. & WAREHOUSE Requisition Number: 2227
Date Sampled: 2-DEC-1992 Date Sample Received: 3-DEC-1992
Sampled By: D. ZAHNER Date Sample Completed: 10-DEC-1992
Material Description: HF RAILCAR DISPOSITION Charge Number: SGC00

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA File Number	Date Completed
105620	1056	As - GFAA AnL INORG	1311	ug/L	LA WALLER	92WF134/FA166	8-DEC-19
105920	1059	Hg - CVAA AnL INORG	<0.2	ug/L	JE REILMAN	92VW051MA 018	8-DEC-19
106020	1060	Pb - GFAA AnL INORG	3.2	ug/L	MJ HARPER	92WF134/FB224	7-DEC-19
106120	1061	Se - GFAA AnL INORG	<5.0	ug/L	MJ HARPER	92WF134/FB223	7-DEC-19
904320	9043	Ag - ICP AnL INORG	94.5	ug/L	GJ KUNZE	92WP171/P2217	8-DEC-19
	9043	Ba - ICP AnL INORG	13622	ug/L	GJ KUNZE	92WP171/P2217	8-DEC-19
	9043	Cd - ICP AnL INORG	26.5	ug/L	GJ KUNZE	92WP171/P2216	7-DEC-19
	9043	Cr - ICP AnL INORG	690.1	ug/L	GJ KUNZE	92WP171/P2216	7-DEC-19

Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

AnaLIS ID: 921203-070 Project: 0020 0001 Customer Sample ID: DHF-2
Customer: FAC. & WAREHOUSE Requisition Number: 2227
Date Sampled: 2-DEC-1992 Date Sample Received: 3-DEC-1992
Sampled By: D. ZAHNER Date Sample Completed: 8-DEC-1992
Material Description: HF RAILCAR DISPOSITION Charge Number: SGC00

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA File Number	Date Completed
300220	3002	U - BrPADAP AnL	63	ppm	FL MILLER	BRENNAN	7-DEC-19
305920	3059	Total Th - Color. AnL	<45	ppm	JJ STOECKEL	MILLER/JJS	7-DEC-19