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CLOSURE PLAN INFORMATION AND DATA FOR THE HF TANK CAR REVISION 1 JUNE 1993

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CLOSURE PLAN INFORMATION AND DATA FOR THE HF TANK CAR

Revision 1
June 1993

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
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U. S. Department of Energy
Fernald Environmental Management Project
Cincinnati, Ohio

1.0 INTRODUCTION

1.1 Background and Purpose

The Fernald Environmental Management Project (FEMP) is a U.S. Department of Energy (DOE) owned facility. The FEMP was formerly operated as the Feed Materials Production Center (FMPC). Facility construction and start up occurred in 1951/1952. The FEMP site is located on 1,050 acres in a rural area in Hamilton and Butler Counties, Ohio. The site is approximately 18 miles northwest of Cincinnati, Ohio. The FEMP production facilities are limited to an approximate 136 acre tract near the center of the site. The villages of Fernald, New Baltimore, Ross, New Haven, and Shandon are all located within a 5 mile radius of the plant (Figure 1).

The former FMPC facility was established to produce high-purity uranium metals and intermediate compounds from uranium ore concentrates or recycled uranium materials for use in government defense programs. A wide variety of chemical and metallurgical processes were used to support the production of uranium metal products. Production operations began in the early 1950's and continued until July 1989 when production ceased.

THIS CLOSURE PLAN INFORMATION AND DATA (CPID) IS BEING SUBMITTED TO CLOSE THE HF TANK CAR, AS SHOWN IN FIGURE 2. THE HAZARDOUS WASTE MANAGEMENT UNIT (HWMU NO. 38) IS LOCATED ON A RAILWAY EAST OF THE MAIN TANK FARM AND WEST OF THE MAINTENANCE SERVICE BUILDING (BUILDING 12). THE LOCATION OF THE TANK CAR IS SHOWN ON THE UNIT LOCATION MAP IN FIGURE 3. ~~This closure plan information and data is being submitted to close the HF Tank Car, a hazardous waste management unit (HWMU) located on a railway east of the Main Tank Farm and west of the Maintenance Service Building (Building 12). The location of the tank car is shown on the unit location map in Figure 2.~~ The HF Tank Car will be closed as a CONTAINER ~~tank~~ consistent with OAC 3745-66-10 to 3745-66-15 (40 CFR 265.110 to

265.115). A copy of this closure plan information and data will be kept at the site per OAC 3754-55-15 (40 CFR 265.115) until final closure.

The FEMP management intends to ensure efficient integration of all RCRA closure activities with related Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response actions. This CPID has been prepared to ensure closure actions are consistent with RCRA requirements. These actions also will adhere to the terms of the DOE/U.S. EPA Consent Agreement (as amended) and the STIPULATED AMENDMENT TO THE CONSENT DECREE (SACD) ~~Proposed Amended Consent Decree~~ between DOE and the OEPA. Additional discussion of the impact of the FEMP CERCLA Program is provided in Section 1.2.2 of this document.

1.2 Regulatory Integration

Management of radioactive materials at the FEMP must comply with DOE orders and regulations. The RCRA closure activities must comply with all applicable federal, state, and local regulations, including those of the U.S. Environmental Protection Agency (U.S. EPA), Ohio Environmental Protection Agency (OEPA), and with all DOE orders. In addition, all FEMP RCRA closure activities must comply with the various legal agreements that the DOE has negotiated with the U.S. EPA and the OEPA. To resolve conflicting requirements, this closure plan information and data has proposed an integrated approach consistent with all applicable regulatory and legal requirements.

PRIOR TO CONSTRUCTION OF THE NEUTRALIZATION PROCESS LINE, THE FEMP WILL EVALUATE AIR POLLUTION PERMIT REQUIREMENTS. AS MUCH AS IS FEASIBLE, THE PROCESS WILL UTILIZE EXISTING EQUIPMENT FOR WHICH AIR POLLUTION PERMITS HAVE BEEN ISSUED. IF REQUIRED, NEW OR REVISED AIR POLLUTION PERMIT APPLICATIONS WILL BE SUBMITTED.

1.2.1 Mixed Radioactive and RCRA Hazardous Wastes

Most FEMP wastes that are RCRA characteristic or listed hazardous waste are handled on-site as mixed radioactive and hazardous wastes. The radioactive portion of mixed waste is not regulated under RCRA. Determination of the radionuclide component of most material on-site is based upon an assay value.

These materials have been analyzed to determine their uranium content. Assay values are based on prior sampling of the same or similar materials, or upon process knowledge. If assay values have not been established, the FEMP considers materials generated in the uranium processing area to be contaminated with radionuclides. This determination is based upon process knowledge, experience in uranium production operations, and the fact that *de minimis* concentrations or below-regulatory-concern (BRC) levels for radionuclides have not been established for the residues or wastes in question.

Recognizing the dual nature of these wastes, the FEMP stores mixed (hazardous combined with radioactive) wastes according to RCRA regulations and DOE orders. These materials are stored pending the availability of acceptable treatment or disposal facilities for mixed waste. DOE orders are administrative orders that govern the conduct of operations at DOE sites. DOE orders apply both to DOE personnel and contractors employed at DOE sites.

DOE will, for informational purposes only, provide OEPA with the results of the radiological analysis that will be conducted during the closure of the HF Tank Car. This monitoring will be performed according to the HF Tank Car Sampling and Analysis Plan (SAP) - Attachment A, and with existing FEMP Standard Operating Procedures.

1.2.2 Integration of RCRA Closures with CERCLA Response Actions

RCRA closures at the FEMP will be integrated with CERCLA requirements, and be consistent with all other applicable or relevant and appropriate requirements (ARARs). In July 1986, the U.S. EPA and the DOE entered into a Federal Facilities Compliance Agreement (FFCA). Pursuant to the FFCA, the DOE initiated a Remedial Investigation and Feasibility Study (RI/FS) at the FEMP. On November 21, 1989, the U.S. EPA added the FEMP to the National Priorities List (NPL) of hazardous waste sites. The CERCLA section of the FFCA was replaced by the April 9, 1990 and September 20, 1991 Consent Agreements to reflect requirements of Sections 106 and 120 of CERCLA relative to activities at the FEMP. Pursuant to the amended Consent Agreement, the FEMP will:

- Characterize chemical and radiological contamination at the FEMP and establish site cleanup objectives,

- Conduct necessary short-term response actions to eliminate or minimize immediate threats to human health and the environment.

- Implement any necessary long-term monitoring and surveillance of the facility and surrounding environment.

Consistent with the terms of the Consent Agreement (as amended), the FEMP RI/FS has been divided into 5 Operable Units (OUs). A Proposed Plan (PP) will be recommended for the CERCLA Records of Decision (RODs) for each of the 5 OUs. The RODs for each OU will specify the required final remediation or removal of contaminated media, equipment and structures. Remedial Design/Remedial Action (RD/RA) plans will be prepared to implement the requirements of the RODs and accomplish final remediation for each of the Operable Units. The closure of the HF Tank Car is included within the scope of Operable Unit 3 (OU 3) which covers FEMP production areas and production-associated facilities and equipment.

1.2.3 Financial and Liability Exemptions

The FEMP is a federally owned facility. According to OAC 3745-66-40 C [40 CFR 265.140(c)], the Federal Government is exempt from financial requirements of OAC 3745-66-40 through OAC 3745-66-48 (40 CFR 265.140 through 40 CFR 265.150).

1.3 Post-Closure Requirements

Post-closure plans are required when the hazardous waste management unit or facility is closed as a landfill under OAC 3745-66-18 (40 CFR 265.118). A post-closure plan and post-closure notices are not ANTICIPATED TO BE required for the HF Tank Car SINCE PROCESS KNOWLEDGE INDICATES THAT NO SPILLS HAVE OCCURRED FROM THE TANK CAR AND "CLEAN" CLOSURE OF THE UNIT (INCLUDING SOILS) IS EXPECTED ~~because it will be "clean" closed,~~ and it will not be closed as a landfill.

If "clean" closure cannot be achieved, a revision to this CPID will be submitted

to the agency. The revised CPID will describe how the RCRA closure activities, or Removal Actions required under CERCLA to mitigate any immediate threat to human health or the environment, will be coordinated with the CERCLA schedule and ongoing long term remedial activities at the site.

2.1 Waste Management Unit Description

THE HF TANK CAR, HWMU NO. 38, IS A RUBBER LINED MILD STEEL RAIL TANK CAR (#OROX17501). ~~The Hazardous Waste Management Unit (HWMU) is a rubber lined mild steel rail tank car #OROX17501.~~ The age of the tank car is approximately 40 years. Its period of operation at the FEMP was approximately 15 years. It was used for storage of dilute hydrofluoric acid (DHF) generated at the FEMP. PRIOR TO OCTOBER 1988, THE HF TANK CAR WAS USED TO BATCH SHIPMENTS OF 35% SOLUTION 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 WAS RETURNED FROM A PROSPECTIVE BUYER AND PLACED IN STORAGE IN TANK CAR #OROX17501 AT ITS CURRENT LOCATION. 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 WAS DECLARED A CORROSIVE HAZARDOUS WASTE AND, IN JUNE 1991, THE HF TANK CAR WAS IDENTIFIED AS HWMU NO. 38. THE BOUNDARIES WERE DEFINED AS THE PERIMETER OF THE TANK CAR BECAUSE THE TANK CAR HAS NOT BEEN MOVED SINCE THE DHF WASTES WERE PLACED IN THE TANK CAR IN OCTOBER 1988 AND NO SPILLS HAVE BEEN REPORTED.

The HF Tank Car is approximately ten (10) feet wide by thirty-six feet (36) long by fifteen (15) feet high. The area occupied by the rail car constitutes the physical horizontal boundary of the unit. The HF Tank Car sits on an elevated rail siding, track #6. FIGURE 4 IDENTIFIES THE LOCATION OF THE RAIL CAR, THE SECONDARY CONTAINMENT AREA WEST OF THE TANK FARM AND THE AREA SURROUNDING THE HF TANK CAR.

The physical condition of the tank itself is good, but the tank car as a whole is not serviceable as railway rolling stock. IN SEPTEMBER 1992, AN INDEPENDENT RAIL CAR INSPECTOR REPORTED THAT TANK CAR #OROX17501 HAS OBSOLETE COMPONENTS WHICH PROHIBITS IT FROM INTERCHANGES; HOWEVER, THE INSPECTOR STATED THAT THE TANK CAR COULD BE SAFELY TRANSPORTED WITHIN THE CONFINES OF THE FEMP RAIL SYSTEM.

2.2 Waste Inventory

The HF Tank Car contains a 35% SOLUTION OF DILUTE hydrofluoric acid (DHF). THE DHF WAS CHARACTERIZED PER THE FEMP WASTE ANALYSIS AND WASTE DETERMINATION PLANS. PROCESS KNOWLEDGE AND ANALYTICAL INFORMATION USED IN THE CHARACTERIZATION IS DOCUMENTED IN A MATERIALS EVALUATION FORM (MEF). A REVISED MATERIALS EVALUATION FORM (MEF NO. 1691R, REV. 01-04-93) IDENTIFIES THE DHF STORED IN RAIL CAR #ORDX17501 TO BE RCRA HAZARDOUS FOR CORROSIVITY (EPA HAZARDOUS WASTE CODE D002). BASED ON DECEMBER 1992 SAMPLE ANALYSES (ATTACHMENT C), CORROSIVITY IS THE ONLY HAZARDOUS WASTE CHARACTERISTIC OF CONCERN. BASED ON PROCESS KNOWLEDGE, IT WAS DETERMINED THAT THE DHF WAS A PROCESS WASTE AND, THEREFORE, NOT A DISCARDED COMMERCIAL CHEMICAL PRODUCT UNDER OAC 3745-51-33. There are no records that indicate the maximum inventory of the DHF stored in the tank car; however, the maximum capacity of the tank car is approximately 8,000 gallons.

2.3 Current Use

The HF Tank Car currently stores approximately 4,400 gallons of DHF ~~dilute hydrofluoric acid~~. AS A PRECAUTIONARY MEASURE, PLANS ARE BEING FINALIZED TO MOVE THE RAIL CAR TO THE SECONDARY CONTAINMENT AREA UNTIL THE DHF CAN BE REMOVED AND NEUTRALIZED.

2.4 Security

As with all Department of Energy (DOE) facilities, security at the FEMP is strict. The entire FEMP processing area, which includes the HF Tank Car, is surrounded by chain link fencing and monitored by on-site security personnel. All employees and visitors enter through one of several guarded entrances into the administration and processing area.

3.0 CLOSURE INFORMATION

3.1 Closure Objectives and Performance Standards

It is the intention of FEMP management to demonstrate RCRA "clean" closure of the HF Tank Car. Clean closure will be demonstrated by analyses of samples from the decontamination rinseate and samples of the soil underlying the unit.

This CPID for the HF Tank Car is in accordance with the closure performance standards in OAC 3745-66-11 (40 CFR 265.111). These standards include the following:

- Minimize the need for further maintenance by removing all stored materials, and by sampling residual waste materials and soils to determine that all hazardous waste has been removed from the unit. Post-closure maintenance is not required for the unit if no hazardous wastes or unacceptable levels of contamination remain in the unit or unit soils after closure (e.g., "clean" closed).

- Control, minimize or eliminate, to the extent necessary to protect human health and the environment, the escape of hazardous waste, hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground water, surface waters, or to the atmosphere.

- Conduct closure actions according to the approved RCRA CPID.

3.1.1 "Clean" Standards

The HF Tank Car decontamination verification rinseate will be analyzed for pH using Method 9040 of the U.S. EPA "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition (SW-846). BASED ON DECEMBER 1992 SAMPLE ANALYSES OF THE LIQUID IN THE TANK CAR (ATTACHMENT C), CORROSIVITY IS THE ONLY HAZARDOUS WASTE CHARACTERISTIC OF CONCERN. The interior of the tank car will be considered "clean" for RCRA closure if the decontamination verification

rinseate samples ~~do not~~ have a pH GREATER THAN 2 AND LESS THAN 12.5 ~~less than or equal to 2 or greater than or equal to 12.5~~. FURTHER pH ADJUSTMENTS OF THE RINSEATE WILL BE MADE, AS NECESSARY, TO MEET THE FEMP NPDES AND LOCAL AREA WATER QUALITY DISCHARGE STANDARDS FOR BOTH RINSEATE AND WASTE WATER FROM THE NEUTRALIZATION PROCESS (SECT. 3.2).

The soil underlying the HF Tank Car will be analyzed for pH using SW-846 Method 9045. The soil will be considered "clean" for RCRA closure if the soil samples ~~do not~~ have a pH GREATER THAN 2 AND LESS THAN 12.5 ~~less than or equal to 2 or greater than or equal to 12.5~~.

3.2 Closure Methodology

This section addresses the procedures that will be followed to accomplish clean closure of the HF Tank Car. Since this plan is written only for the closure of HWMU NO. 38, closure of the HF Tank Car constitutes only a partial closure of the entire FEMP facility.

According to this CPID ~~closure plan information and data~~, the following closure actions will be taken:

~~1) The FEMP will notify the OEPA at least forty five (45) days prior to the initiation of closure.~~

1) THE EMERGENCY PUMP-DOWN LINES CONNECTING THE HF TANK CAR TO THE TANK FARM WILL BE FLUSHED OUT WITH POTABLE WATER AND DISCONNECTED. THE RINSEATE WILL BE COLLECTED AND SENT TO THE PLANT 8 SUMP. THE HF TANK CAR WILL BE MOVED BY RAIL TO THE SECONDARY CONTAINMENT PIT AREA LOCATED WEST OF THE TANK FARM. DURING THE RELOCATION, A SPILL RESPONSE TEAM WILL MONITOR THE TANK CAR FOR RELEASES. APPROPRIATE ACTIONS WILL BE TAKEN AND DOCUMENTED IN THE EVENT OF A RELEASE.

2) THE NEUTRALIZATION PROCESS WILL TAKE PLACE AT THE RAIL CAR SECONDARY CONTAINMENT PIT (FIGURE 4). SPILL RESPONSE SUPPLIES WILL BE LOCATED IN THE VICINITY OF THE RAIL CAR SECONDARY CONTAINMENT PIT WEST OF

THE TANK FARM (FIGURE 4). LIME SLURRY WILL BE LOCATED NEXT TO THE CONTAINMENT PIT TO ASSURE IMMEDIATE RESPONSE IN THE EVENT OF ANY POSSIBLE SPILLS OR LEAKS OF DHF.

3) THE FEMP HAS IDENTIFIED A LIME SLURRY - ELEMENTARY NEUTRALIZATION PROCESS USING THE DESIGN SHOWN IN FIGURE 6. PRIOR TO ASSEMBLING THE PROCESS COMPONENTS AND CONDUCTING THE PROCESS, BENCH SCALE TESTING WILL BE CONDUCTED TO CONFIRM THAT THE PROPOSED DESIGN WILL SAFELY ACHIEVE THE REQUIRED NEUTRALIZATION. IN THE NEUTRALIZATION PROCESS, LIME SLURRY, A BASE, REACTS WITH HYDROFLUORIC ACID IN THE FOLLOWING WAY:

$$Ca(OH)_2 + 2HF \rightarrow CaF_2 \downarrow + 2H_2O$$

THE NEUTRALIZATION PROCESS WILL BE CONTROLLED TO MINIMIZE HEAT GENERATION AND STEAM EVOLUTION. THE LIME SLURRY WILL BE PREPARED UTILIZING EXCESS QUICK LIME IN AN EXISTING LIME SLAKING UNIT AT THE GENERAL SUMP AND TRANSPORTED TO THE TANK FARM AREA FOR USE IN THE NEUTRALIZATION PROCESS.

THE NEUTRALIZATION PROCESS (FIGURE 6) WILL BE CONDUCTED AS FOLLOWS:

A. THE LIME SLURRY WILL BE ADDED AT A CONTROLLED RATE TO ONE OF THE TWO STAINLESS STEEL REACTORS (REACTOR "B") LOCATED ADJACENT TO THE CONTAINMENT PIT. EACH REACTOR HAS A 5800 GALLON CAPACITY AND IS EQUIPPED WITH AN AGITATOR. THE RECIRCULATED STREAM WILL BE PUMPED VIA A LARGE CAPACITY PUMP (~250 GPM) FROM REACTOR "B" TO A HYDROCLONE TO SETTLE OUT AND SEPARATE HEAVIER SOLIDS.

B. THE RECIRCULATED STREAM FROM THE HYDROCLONE WILL PASS THROUGH A HEAT EXCHANGER TO REMOVE EXCESS HEAT FROM THE SOLUTION AND THEN RETURN TO REACTOR "A".

C. THE DHF SOLUTION FROM THE TANK CAR WILL BE SLOWLY ADDED TO REACTOR "A" CONTAINING THE LIME SLURRY. THE RESULTING REACTION WILL NEUTRALIZE THE DHF TO FORM CALCIUM FLUORIDE AND

WATER. THE RATE OF ADDITION WILL BE CONTROLLED USING AIR PRESSURE APPLIED TO THE DIAPHRAGM PUMP WHICH WILL BE LOCATED ON TOP OF THE TANK CAR. THE DHF FROM THE TANK CAR WILL BE TRANSFERRED USING THE TANK CAR DIP TUBE, A DIAPHRAGM PUMP AND A TRANSFER LINE TO REACTOR "A". THE PUMP AND TRANSFER LINE WILL BE CONSTRUCTED WITH HF COMPATIBLE MATERIALS.

D. THE DISCHARGE OF THE DHF TRANSFER LINE WILL EXTEND INTO THE REACTOR TANK, NEARLY TO THE BOTTOM. THE RECYCLED FLOW LINE WILL ALSO EXTEND TO THE BOTTOM OF REACTOR "A", TO ALLOW THOROUGH MIXING FOR THE ~20 MINUTE RETENTION TIME BEFORE OVERFLOWING INTO REACTOR "B".

E. FOR SAFETY REASONS, THE ADDITION OF DHF WILL ONLY BE CONDUCTED DURING DAYLIGHT HOURS. HOWEVER, THE RECYCLE FLOW AND AGITATION OF THE REACTORS WILL BE MAINTAINED CONTINUOUSLY IN ORDER TO MINIMIZE SETTLING AND/OR SCALING PROBLEMS.

4) AFTER THE RESIDUAL DHF IS REMOVED FROM THE HF TANK CAR, THE WALLS AND BOTTOM OF THE TANK CAR WILL BE THOROUGHLY FLUSHED WITH A SOLUTION OF POTABLE WATER AND A NEUTRALIZING AGENT SELECTED FROM THE BENCH SCALE TEST TO REMOVE ANY CORROSIVE RESIDUES. THE FLUSHING WILL BE CONDUCTED USING A ROTATING WATER SPRAYER HEAD CONNECTED TO A WAND CAPABLE OF BEING MOVED UP AND DOWN INSIDE THE TANK. THE WAND AND SPRAYER SHALL BE CONSTRUCTED OF ACID RESISTANT MATERIALS. THE WAND ASSEMBLY WILL BE FITTED TO THE TOP OF THE TANK CAR IN A MANNER THAT PREVENTS THE RELEASE OF MISTS OR BACK SPRAY. THE SPRAYER WILL BE CONFIGURED AND PROVIDED SUFFICIENT PRESSURE TO CONTACT ALL INTERIOR SURFACE AREAS OF THE RUBBER-LINED TANK CAR. THE RESULTING RINSE SOLUTION WILL BE PUMPED TO REACTOR "A" AND PROCESSED THROUGH THE NEUTRALIZATION SYSTEM.

5) FOLLOWING THE INITIAL NEUTRALIZATION FLUSH, THE INTERIOR OF THE TANK CAR WILL BE PRESSURE WASHED WITH POTABLE WATER USING A WAND AND SPRAYER ASSEMBLY TO THOROUGHLY REMOVE RESIDUES ON THE INTERIOR

SURFACE OF THE RUBBER-LINED TANK CAR. THE RINSEATE WILL BE PROCESSED THROUGH THE NEUTRALIZATION SYSTEM.

PART OF THE RINSEATE WILL BE RETAINED IN A DRUM LINED WITH HF COMPATIBLE MATERIAL. ANALYSES OF A SAMPLE COLLECTED FROM THE DRUM WILL BE USED TO CONFIRM THAT THE RAIL CAR IS CLEAN (I.E., pH IS GREATER THAN 2 AND LESS THAN 12.5). FIELD SAMPLES WILL BE TAKEN AND ANALYZED FOR pH USING SW-846 METHOD 9040. WHEN FIELD MEASUREMENTS INDICATE THE TANK CAR IS CLEAN, TWO ADDITIONAL SAMPLES WILL BE COLLECTED FOR LABORATORY CONFIRMATION OF THE pH ANALYSES.

6) USING A REMOTE CAMERA A VISUAL INSPECTION OF THE TANK INTERIOR WILL BE CONDUCTED. ANY LOOSE SOLID DEBRIS OBSERVED IN THE BOTTOM OF THE NEUTRALIZED TANK CAR (E.G., PRECIPITATE FROM THE NEUTRALIZATION FLUSH OR PIECES OF RUBBER LINER LOOSENED BY PRESSURE SPRAY), WILL BE VACUUM PUMPED TO AND PROCESSED IN THE NEUTRALIZATION SYSTEM. AFTER THE TANK CAR IS DECLARED "CLEAN", THE TANK CAR WILL BE REMOVED FROM THE TRACK AND SCRAPPED.

NOTE: ALL RINSEATE AND RESIDUES REMOVED FROM THE TANK WILL BE PUMPED TO REACTOR "A" AND PROCESSED THROUGH THE DHF NEUTRALIZATION SYSTEM.

7) THE SOLIDS THAT SETTLE OUT OF THE NEUTRALIZATION SYSTEM HYDROCLONE AND THE REACTED LIME SLURRY WILL BE TRANSFERRED TO PLANT 8 WHERE IT WILL BE FILTERED, DRIED AND DRUMMED. PRIOR TO DISPOSAL AS LOW LEVEL RADIOACTIVE WASTE (LLW) AT THE NEVADA TEST SITE (NTS), THE FILTER CAKE WILL BE TESTED TO CONFIRM THAT NO RCRA METALS ARE PRESENT IN EXCESS OF TCLP LIMITS.

8) PRIOR TO DISCHARGE TO THE PLANT 8 WASTEWATER TREATMENT SYSTEM, THE WASTEWATER WILL BE ANALYZED FOR RADIOLOGICAL CONTAMINATION, FLUORIDES AND pH TO CONFIRM THAT IT WILL NOT EXCEED THE FEMP NPDES LIMITS OR AREA WATER QUALITY CRITERIA. IF THE FILTRATE MEETS THE CRITERIA, IT WILL BE DISCHARGED TO THE GENERAL SUMP, TREATED IN THE BIODENITRIFICATION FACILITY (BDN), AND DISCHARGED TO THE RIVER.

9) IF THE SAMPLE ANALYSES OF THE FILTERED WASTEWATER DOES NOT MEET NPDES AND LOCAL WATER QUALITY DISCHARGE CRITERIA, IT WILL BE RETURNED TO THE NEUTRALIZATION PROCESS REACTOR "A" FOR FURTHER PROCESSING.

~~2) The hydrofluoric acid will be removed from the tank car and rendered non hazardous by neutralization. The neutralization process will be controlled to minimize heat generation and gas evolution. The resulting non hazardous wastes will be handled in accordance with approved procedures and in compliance with all applicable regulations and DOE orders.~~

~~3) After removal of the acid from the Tank Car, the walls and bottom of the tank car will be thoroughly flushed with potable water. The wash water will be collected and neutralized. The resulting non hazardous waste will be handled as described in step 2. This process will be carried out to remove as much sludge as possible.~~

~~4) After flushing the tank car, the drain will be closed. The remaining sludge in the tank car will be covered with a pool of potable water. Any remaining sludge will be mechanically agitated to form a slurry and to assure a uniform pH. A dip sample will be taken and field tested using a pH meter. While continuing to agitate, the appropriate quantity of caustic (calculated based on preceding pH test) will be slowly added to adjust the pH to within the range of 3 to 8 as verified by additional dip samples and field testing. After the desired pH has been obtained, a sample will be submitted to the FEMP Analytical Laboratory for verification.~~

~~5) The neutralized waste residues (sludge, etc) and rinseate will be flushed and drained or pumped into appropriate containers, and handled as described in Step 2.~~

~~6) The interior of the tank car will be triple rinsed with potable water. A sample of the third rinseate will be analyzed for pH in the FEMP analytical laboratory to verify decontamination.~~

~~7) If needed, steps 4, 5 and 6 may be performed two additional times. If the tank car is not clean after the third attempt, the tank car will be managed as hazardous waste and will be stored in an approved FEMP RCRA storage location.~~

~~After each cleaning attempt, decontamination verification rinseate samples will be collected and analyzed in the field and in an analytical laboratory. If the analysis of the sample in the field and in the laboratory confirms that the tank car is clean, then the tank car will be disposed according to DOE requirements.~~

~~8)~~ 10) After the tank car has been removed from the unit, the soil underlying the tank car will be sampled. TWELVE GRIDS (6 FT. BY 6 FT.) ~~A six foot by six foot grid~~ will be laid out over the area where the tank car was previously located (Figure 5).

~~9)~~ 11) All waste generated during the RCRA closure will be characterized according to the FEMP Waste Analysis and Waste Determination Plans. WASTES ~~Any hazardous waste~~ removed from the unit will be managed in a manner consistent with DOE orders, RCRA regulations, and CERCLA Removal Action #17 - "Improved Storage of Soil and Debris". MATERIALS DETERMINED TO BE HAZARDOUS WASTES WILL BE CONTAINERIZED, STORED, AND MANAGED AS HAZARDOUS WASTE IN AN APPROVED FEMP RCRA STORAGE LOCATION. ~~If any of these materials are determined to BE contain hazardous wasteS constituents (by the "clean" standards established in Section 3.1.1), then the materials will be containerized, stored, and managed as hazardous waste in an approved FEMP RCRA storage location.~~

~~10)~~ 12) A revision to this CPID will be submitted if any soil underlying the tank car is found to be contaminated (as determined by the "clean" standard in Section 3.1.1).

3.3 Sampling and Analysis

3.3.1 HF Tank Car Decontamination Verification Rinseate Samples

After each decontamination attempt, samples of the final decontamination rinseate will be collected from the tank car using the procedures described in the HF Tank Car SAP, Attachment A. These samples will be analyzed in the field for pH using SW-846 Method 9040. If the final decontamination rinseate field analysis indicates that the tank car is "clean" according to the standards listed in section 3.1.1, two additional grab samples of the decontamination rinseate will be analyzed for pH by the FEMP analytical laboratory.

3.3.2 Soil Samples

SINCE THERE IS NO DISTINCTION BETWEEN POTENTIAL CONTAMINATION FROM THE TANK FARM SUMP (HWMU NO. 11) 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. AS A RESULT, SOIL SAMPLES WILL ONLY BE COLLECTED FROM THE SOIL UNDERLYING THE HF TANK CAR (FIGURE 5). The thirty-six (36) soil samples will be collected from the ~~soil underlying the HF Tank Car. The soil samples will be collected~~ FOLLOWING INTERVALS: from the interval starting just below the rail sub-base to six (6) inches below the sub-base, six (6) inches to eighteen (18) inches below the sub-base, and eighteen (18) to thirty (30) inches below the sub-base. A grab sample will be collected from the center of each grid or from a directed sampling location within the grid, using the procedures outlined in the HF Tank Car SAP (Attachment A). The soil samples will be submitted to the FEMP analytical laboratory to be analyzed for pH.

3.3.3 Quality Assurance/Quality Control

The Quality Assurance/Quality Control procedures that will be used during the closure of the HF Tank Car are outlined in Attachment A. One (1) duplicate sample will be collected for every twenty samples collected from the tank car decontamination verification rinseate, and one (1) duplicate sample will be collected for every twenty samples collected from the soil underlying the tank

car. If less than twenty decontamination verification rinseate samples are collected during each sampling day, then one duplicate sample will be collected for each sampling day. If less than twenty soil samples are collected in one sampling day, then one duplicate sample will be collected for each sampling day. Laboratory bias will be reduced by labeling and numbering the duplicate samples in such a manner that does not indicate the sample is a duplicate. The field logbook will identify all duplicate samples by the sample location and their sample identification number.

The FEMP analytical laboratory will follow the appropriate U.S. EPA Test Methods for Evaluating Solid Wastes (SW-846), and will follow the approved or current draft version of the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ)~~(QAPjP)~~. The laboratory shall have on file a quality assurance/quality control plan to be followed for analytical determinations as required in this CPID.

3.4 Equipment Decontamination and Disposal

Before any closure activities, all equipment that will be used during the decontamination and sampling will be cleaned or properly decontaminated, reducing the possibility of cross contamination from other RCRA units. All non-disposable equipment used will be decontaminated following each cleaning or sample collection effort using the methods listed in Attachment A. The equipment decontamination will be conducted adjacent to the HF Tank Car. The equipment decontamination procedures will minimize the potential for release of hazardous waste or hazardous waste constituents to the environment. An impervious layer of synthetic sheeting will line the equipment decontamination area. Temporary dikes will be placed on the impervious sheeting to prevent run-off of decontamination liquids.

All decontamination wastes will be evaluated in accordance with the approved FEMP Waste Analysis and Waste Determination Plans. Wastes generated during closure will be placed in appropriate containers, properly labeled, and managed in accordance with all applicable regulations and DOE orders.

3.5 Health and Safety

Before conducting any field activities at the FEMP, a health and safety assessment will be conducted to characterize current hazards and conditions. The Project/Task Specific Health and Safety Plan will specify the health and safety procedures required for performing the closure activities. This plan will include personnel protection equipment requirements, entry and exit requirements, and personnel and equipment decontamination procedures. A copy of Guidelines for the Preparation of FEMP Project/Task Specific Health and Safety Plan is included in Attachment B.

As part of the safety assessment, radioactivity screening will be done over the area to determine radiation protection requirements. Additional screening, including laboratory analyses for radionuclides, may be required to further categorize the samples for level of radiation hazard.

4.0 CLOSURE CERTIFICATION

The RCRA closure certification will be made as described in this section unless the sampling and analysis indicates that the HF Tank Car cannot be decontaminated (i.e., remains outside the "clean" standards listed in section 3.1.1).

If contamination levels cannot be reduced below the "clean" standards described in section 3.1.1, a revision to the HF Tank Car CPID will be submitted. Response actions under CERCLA necessary to remove or remediate soil, ground water, or other media contaminated by RCRA hazardous waste managed in this unit will be determined according to the requirements of the Consent Agreement, as amended. Any actions taken under CERCLA will be consistent with RCRA regulations and all others ARARs and identified guidance.

4.1 Certification Inspections and Documentation

Certification inspections by the owner and an independent, qualified, registered, Professional Engineer, or his/her designated representatives, are an integral part of the closure process. The purpose of closure inspections is to confirm that closure actions conform to the approved CPID.

RCRA closure certification documentation shall include: a daily log of activities; field notes recorded by the owner and or the owner's representative during closure activities; copies of the laboratory analysis reports; copies of the hazardous waste manifests (if used); chain of custody forms used for sample handling and tracking; and certification statements by both the owner and Professional Engineer. All RCRA closure certification documentation will be compiled and retained at the FEMP for access and inspection by the OEPA.

4.2 Statement of Certification

The DOE, and an independent, qualified, registered Professional Engineer will submit certification of closure within 60 days after unit closure is complete. The certification will meet the requirements of OAC 3745-50-42(D) and OAC 3745-66-15 (40 CFR 270.11(d) and 40 CFR 265.115). The certification statement will be worded as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____

U.S. Department of Energy

I hereby certify that the hazardous waste management unit has been closed in accordance with the specifications in the approved closure plan.

_____

Ohio Registered Professional Engineer

5.0 CLOSURE SCHEDULE

To comply with ~~internal~~ DOE orders and other FEDERAL regulatory requirements, several activities must be undertaken before physical closure of HWMU NO. 38 can begin at the FEMP. These activities include PREPARING AND SUBMITTING AIR PERMITS, preparation of NEPA documentation, assessment surveys, preparation of a project/task specific health and safety plan, assembly of the neutralization treatment equipment equipped with appropriate control devices, preparation of internal work plans, preparation and approval of Operational Readiness Review (ORR), and training of personnel involved in closure activities. It is expected that these activities will ~~require a minimum of 180 days to complete~~ OCCUR SIMULTANEOUSLY WITH BENCH SCALE TESTING AND ASSEMBLY OF THE NEUTRALIZATION SYSTEM. ~~These activities are indicated in the Schedule for Closure of the HF Tank Car (Figure 7) as internal activities to prepare for closure. Some portions may be initiated before CPID approval; however, to incorporate changes required by OEPA, certain activities would need to be completed after OEPA approval.~~

~~The OEPA will be notified at least 45 days prior to beginning closure of the HF Tank Car.~~ Assuming no modifications to the plan are required or unexpected events are encountered, it is expected that physical closure activities can be completed within 180 days AFTER APPROVAL OF THE CPID ~~from the date closure begins~~. The schedule for closure is provided in Figure 7. The schedule assumes that funding is available to complete all closure activities. The schedule does not anticipate unexpected events; such as adverse weather, samples lost or damaged in shipment, or invalidated data due to the analytical laboratory exceeding sample holding times. Any request for an extension of the time required for completion of closure, if necessary, will be submitted to the agency according to OAC 3745-66-13(A) and OAC 3745-66-13(B) [40 CFR 265.113(a) and 40 CFR 265.113(b)].

The OEPA and the independent, qualified, registered Professional Engineer will be notified at least five (5) business days before any critical closure activities. These critical activities are noted on the Schedule for Closure.

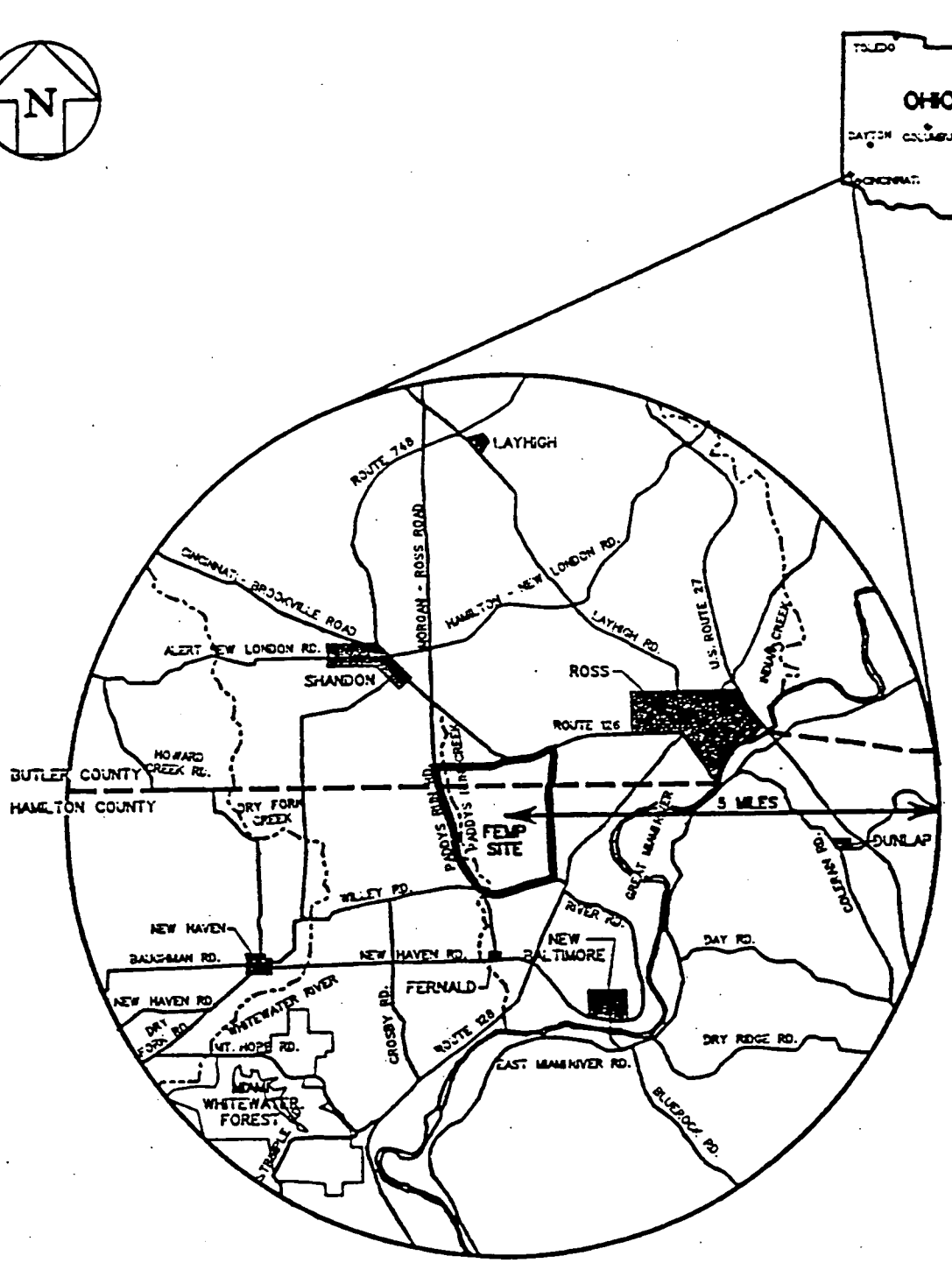


FIGURE 1

FEMP AND VICINITY MAP

DATE: 4-15-92 DRAWN: D.TEEL	U.S. DEPARTMENT OF ENERGY FERNALD, OHIO	DWG. NO.: 089-1-0022

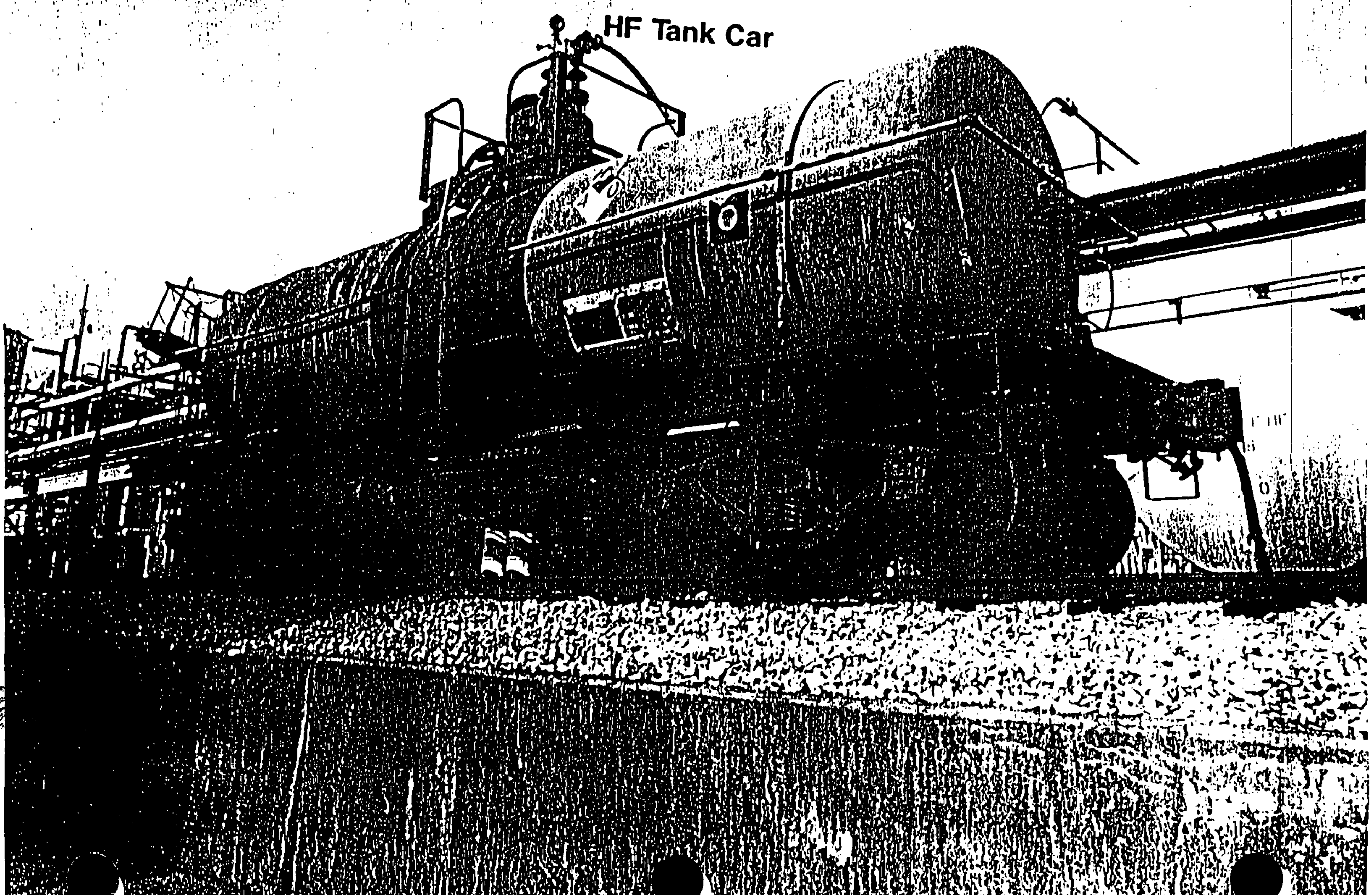
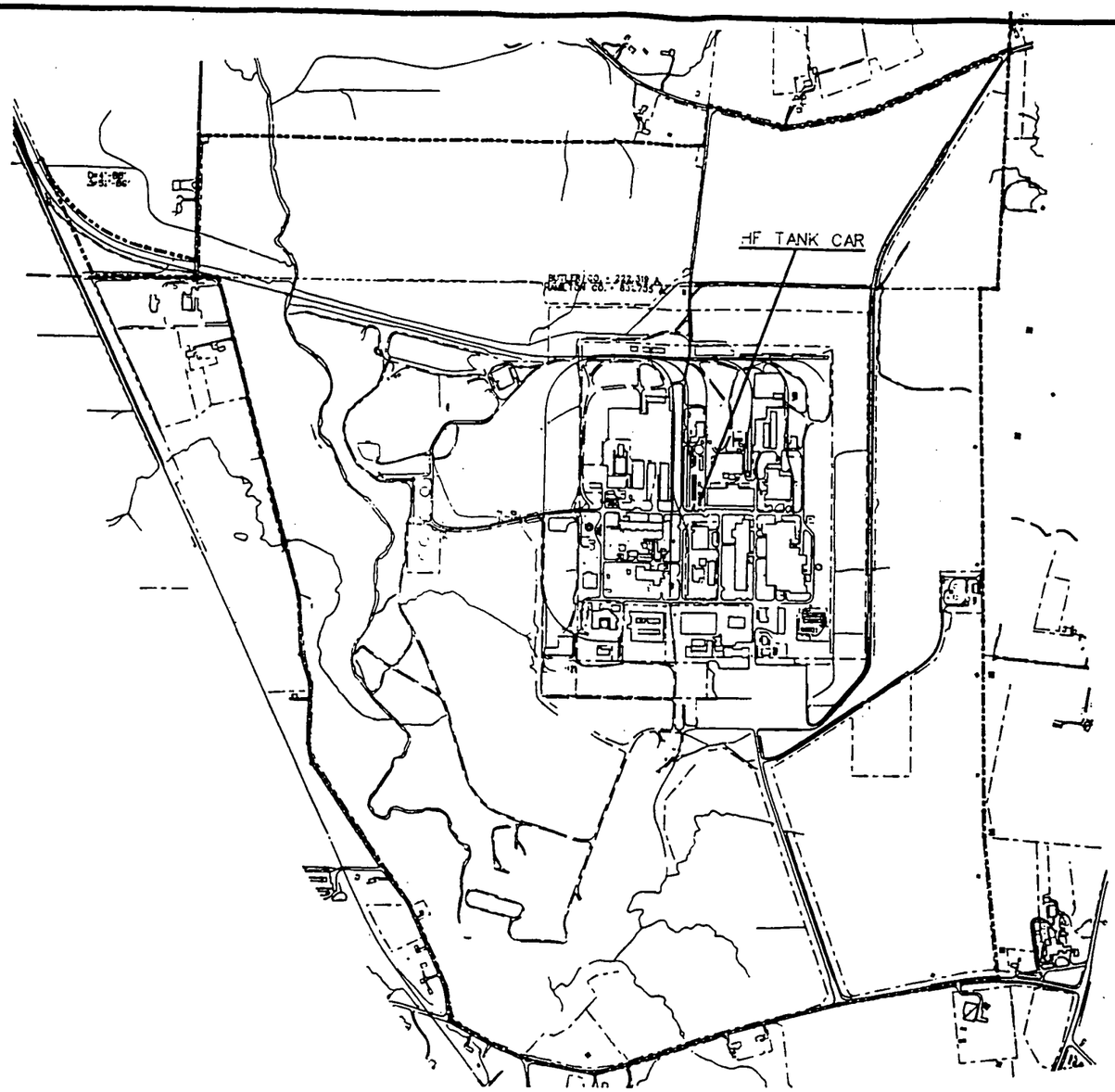


FIGURE 2



1000 500 0 1000 2000 3000

SCALE IN FEET

U.S. DEPARTMENT OF ENERGY

FERNALD, OHIO

FIGURE 3

HF TANK CAR LOCATION MAP
SCALE: 1"=1200'

DATE 4-16-92	089-3-0023	0
DRAWN D. TEEL		

FILE NAME: 08930023.dgn

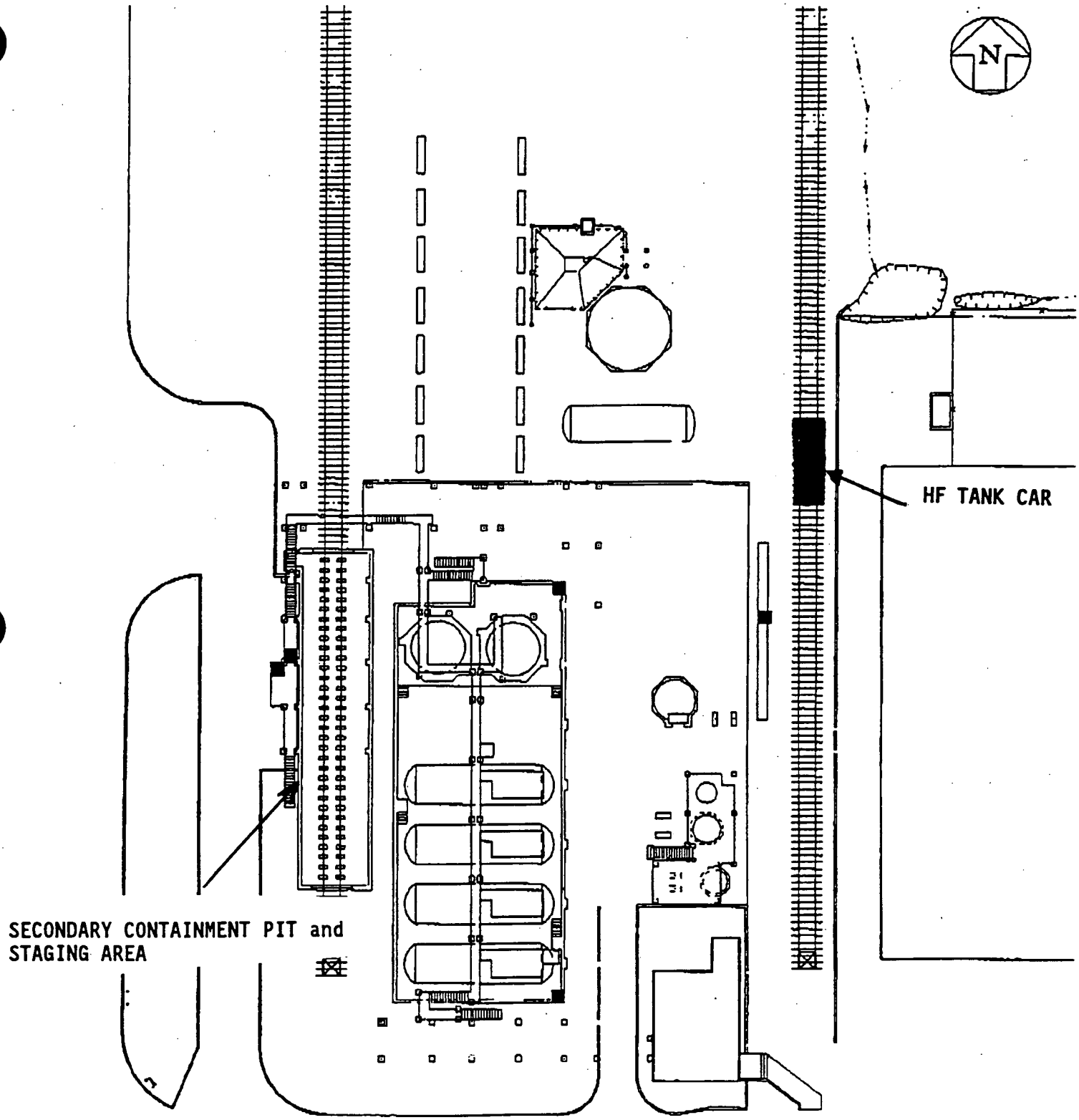


FIGURE 4

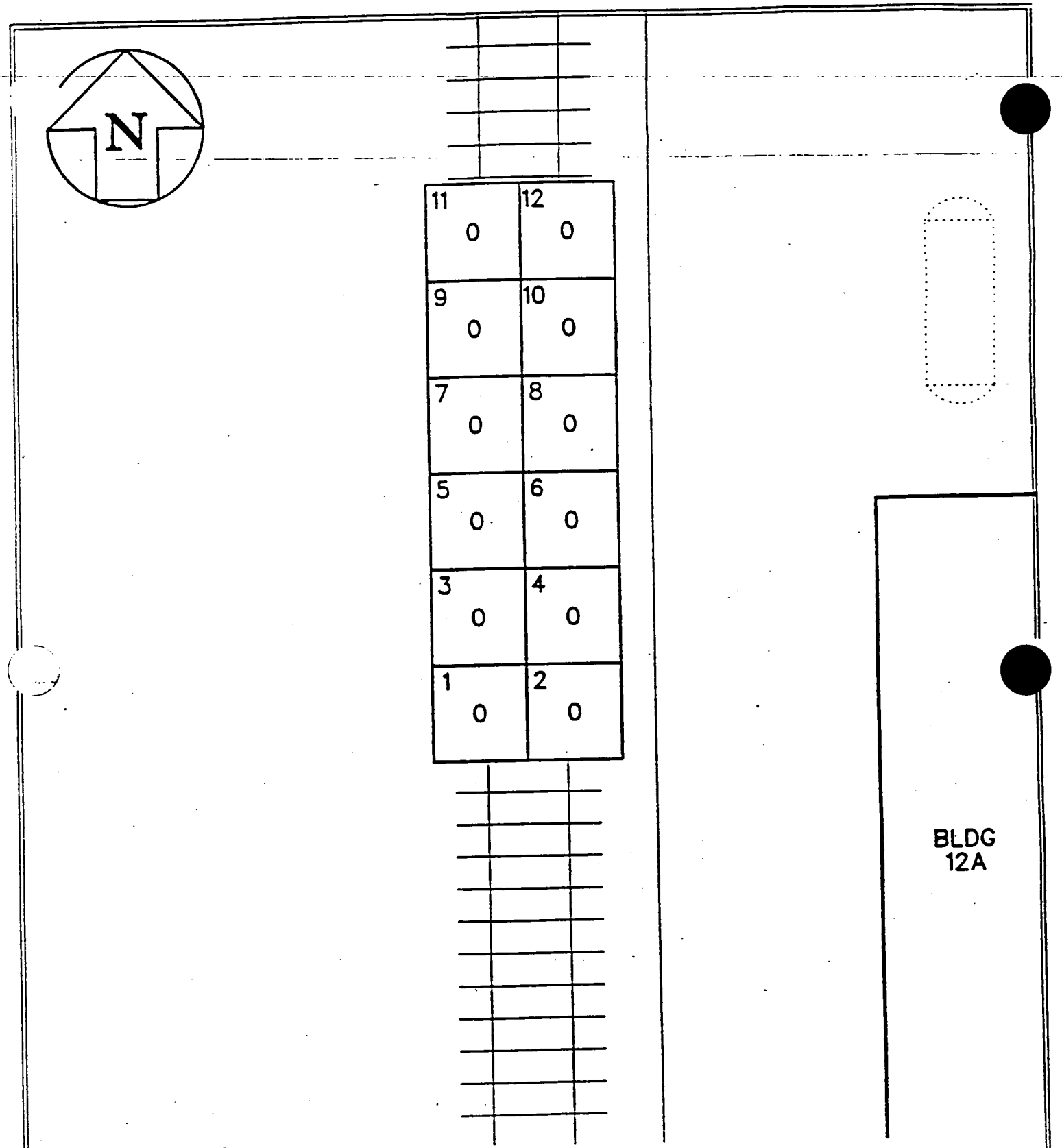


FIGURE 5

HF TANK CAR
PROPOSED SAMPLING LOCATIONS

DATE: 4-27-92 DRAWN: D.TEEL	U.S. DEPARTMENT OF ENERGY FERNALD, OHIO	DWG. NO.: 089-1-0024

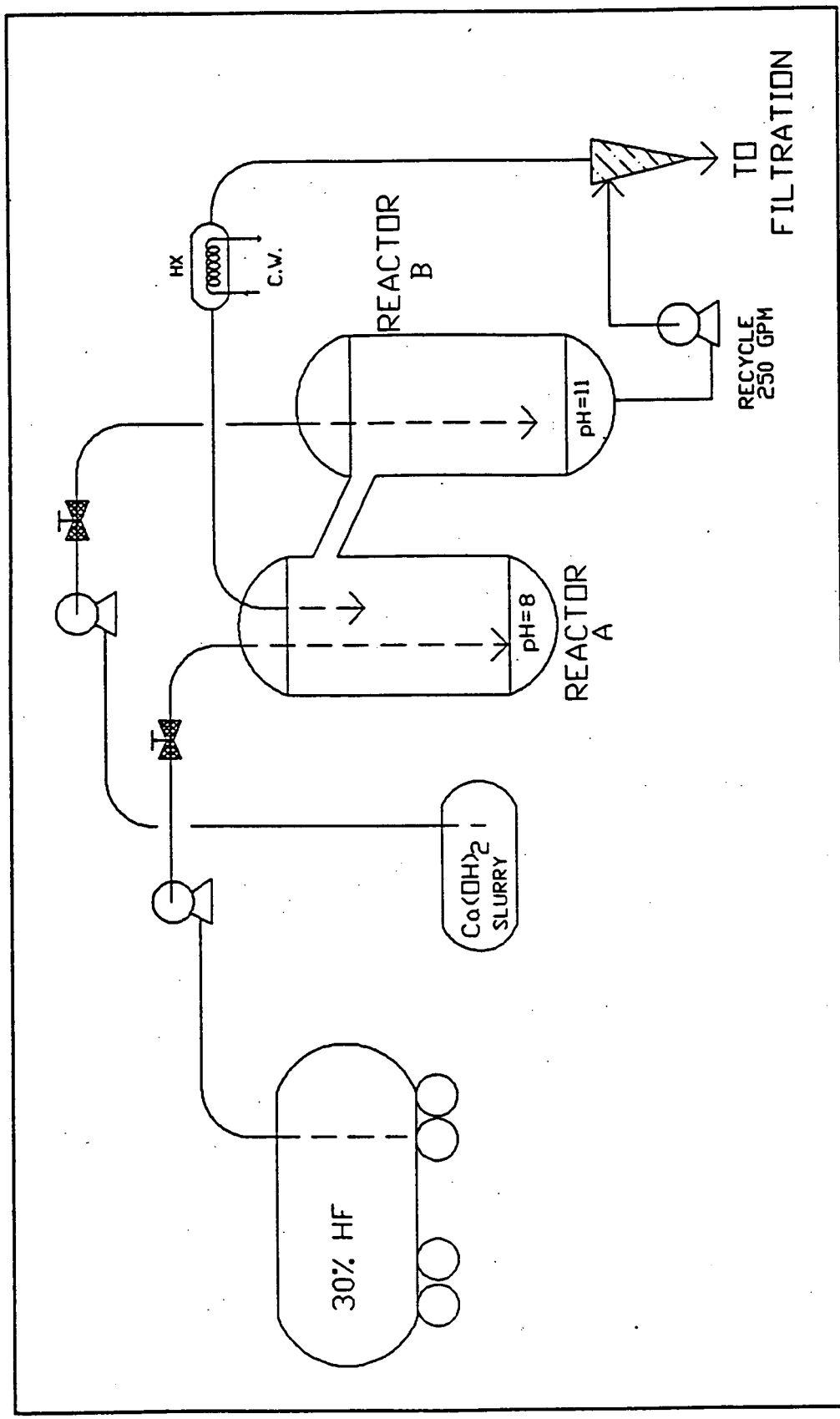
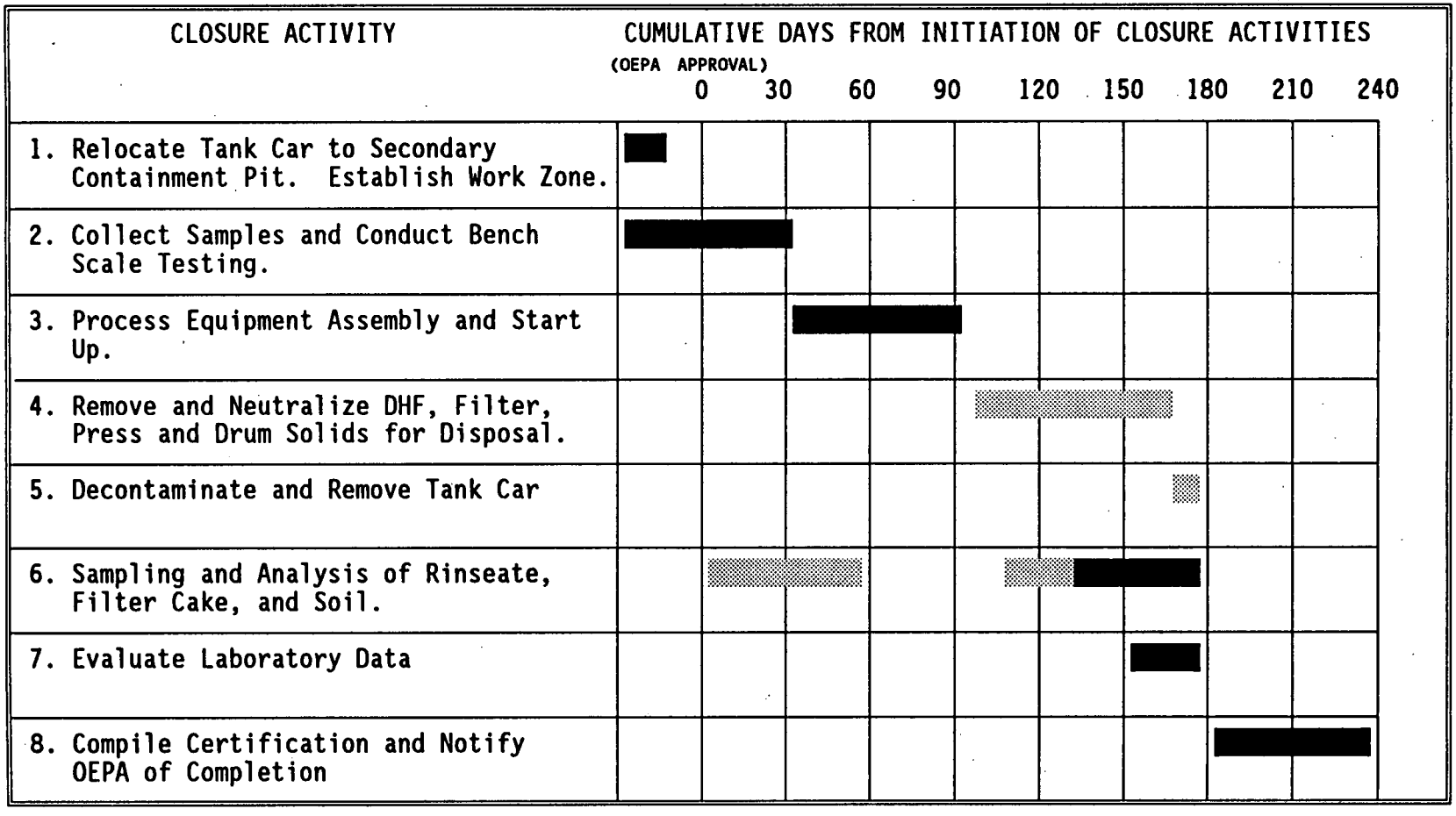


FIGURE 6: LIME SLURRY - ELEMENTARY NEUTRALIZATION EQUIPMENT SCHEMATIC



Notes:

▒ - Indicates critical activities when an independent, qualified, registered Professional Engineer or his representative should be present.

FIGURE 7 SCHEDULE FOR CLOSURE OF THE HF TANK CAR

ATTACHMENT A

HF TANK CAR
SAMPLING AND ANALYSIS PLAN

Revision 1
June 1993

U.S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
Fernald, Ohio 45030

TABLE OF CONTENTS

1.0 INTRODUCTION

This HF Tank Car Sampling and Analysis Plan (SAP) describes the sample collection and handling procedures, references analytical methods, and specifies the quality assurance/quality control procedures for the closure of the HF Tank Car. All closure sampling and analysis will follow approved procedures discussed in this SAP. This SAP is prepared to be consistent with the current draft or approved version of the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ) ~~(QAPjP)~~. Sampling and analytical procedures referenced in this SAP will also comply with the U.S. EPA "Test Methods for Evaluating Solid Wastes" (SW-846).

This RCRA closure plan information and data specifies sampling and analysis to determine if the hazardous waste management unit (HWMU) and the underlying media is contaminated. The sample types, sample locations, and number of samples to be collected during closure of the unit are specified in the plan. The closure analytical results will be used to evaluate closure performance.

1.1 Sampling Objectives

Sampling in support of RCRA closure actions will be performed to:

1) Confirm decontamination of the unit.

2) Determine the presence of contamination resulting from waste management practices associated with the HWMU being closed.

3) Screen for radiological parameters in the samples.

4) Characterize waste materials generated during RCRA closures. (Waste characterizations and determinations referenced in this SAP will be conducted according to the Feed Materials Production Center (FMPC) Waste Analysis and Waste Determination Plans, as approved by the OEPA.)

All wastes and materials being held for RCRA determinations will be managed in a manner consistent with hazardous waste management practices. Wastes determined to be RCRA hazardous will be managed and disposed according to applicable hazardous waste rules and regulations.

1.2 Sample Analysis

To evaluate HWMU closure performance, samples collected during RCRA closures will be analyzed for pH. The analyses will be conducted using applicable SW-846 analytical methods.

Radiological analyses, using analytical methods specified in the FEMP Laboratory Analytical Methods Manual, will be conducted to determine gross alpha and gross beta levels on samples that will be collected during closure.

2.0 SAMPLE COLLECTION

The following sections discuss the procedures that will be used for sampling in support of this RCRA closure as specified in the closure plan information and data.

2.1 Sampling Equipment

The following equipment may be used in the process of collecting samples during closure of the HF Tank Car:

- Bucket or hand auger (stainless steel)
- Bowls or buckets (stainless steel or other suitable material)
- Spoons, scoops or trowels (stainless steel or other suitable material)
- Spatulas (stainless steel or other suitable material)
- Sample bottles
- Thermal coolers and freezer packs
- Sample labels
- Waterproof marking pen
- Field sampling logbook and field data forms
- Chemical resistant gloves
- Polyethylene or other approved impervious sheeting
- Telfon coliwasa samplers

This list may be modified as appropriate by a trained, qualified sampling supervisor or manager. Any change to this list will be noted in the field sampling logbook.

2.2 Decontamination Verification Rinseate Sampling Procedures

Two decontamination verification rinseate samples will be collected from the final rinse after each decontamination attempt. AFTER THE RINSEATE IS PUMPED OUT

~~OF THE TANK CAR AND INTO A DRUM LINED WITH HF COMPATIBLE MATERIALS, THE SAMPLES~~ WILL BE COLLECTED USING A CLEAN TEFLON COLIWASA, OR OTHER APPROPRIATE SAMPLING DEVICE. ~~These samples will be collected from manways located on top of the tank car or from the container receiving the rinseate using a clean teflon coliwasa, or other appropriate sampling device.~~ These samples will be analyzed in the field for pH using SW-846 Method 9040. Two additional samples will be collected using a clean teflon coliwasa, or other appropriate sampling device. The samples will be placed into appropriate containers, labeled, and transported to the FEMP analytical laboratory. These samples will be analyzed for pH using SW-846 Method 9040.

2.3 Soil Sampling

2.3.1 Soil Sampling Locations

The soil sampling locations will be selected using a grid. The grid interval was determined using the following formula from SW-846:

$$GI = [(A/3.14)^{1/2}]/2,$$

where GI is the grid interval and A is the area to be gridded.

The calculation for the grid interval for the storage area (including the ramp) is shown below:

Width = 12 feet
Length = 36 feet
Area = 12' X 36' = 432 ft^2
$GI = [(432/3.14)^{1/2}]/2 = 5.865$ ft.

To facilitate the gridding, the grid interval was increased to 6 ft. The grids have been numbered 1 through 12. Directed samples will be collected from within the grids where signs of contamination are present, or in areas where leaks may

have occurred (under valves). Otherwise the samples will be collected from the center of the grid. The grid and proposed sample locations are displayed on Figure 3 in the HF Tank Car Closure Plan information and data.

2.3.2 Soil Sampling Procedures

Samples of the soil underlying the tank car will be taken, as indicated in the closure plan information and data, to determine whether a hazardous waste release has occurred at the HF Tank Car.

Before initiating any sampling activities at the HF Tank Car, site blueprints will be reviewed with the facility engineer to determine if there are any known underground utilities, pipes, wiring or other similar structures. Underground structures will be identified and marked at the unit to prevent sampling in these areas. Sampling or decontamination activities will not be conducted during adverse weather (e.g., rain, snow).

The following procedures will be used to collect samples of the soil underlying the HF Tank Car. The soil samples will be collected from the locations described in section 2.3.1 of the SAP.

1) Place clean polyethylene or other approved impervious sheeting on the ground to protect sampling equipment from potential contamination.

2) Use a decontaminated stainless steel bucket auger or soil coring device to advance the soil boring to extract a 6 inch soil sample.

3) Use a decontaminated spatula (stainless steel or other suitable material), or other approved device to remove soils from the auger. Transfer the sample into the appropriate sample container.

4) Follow container management procedures in Section 2.4.

5) Using the above procedures, collect one (1) duplicate sample of the soil from a randomly selected sampling location.

6) Upon completion of sampling at a sampling location, decontaminate all sampling equipment used, following procedures in Section 2.5. Sampling equipment that cannot be decontaminated shall be managed in a manner consistent with FEMP hazardous waste management practices pending a RCRA hazardous waste determination.

Upon completion of sampling, seal sample coolers and transfer them to the designated FEMP sample receiving area. These samples will be analyzed by the FEMP analytical laboratory using SW-846 Method 9045.

2.4 Management of Sample Containers

Once a sample has been placed inside a sample container it should be managed as follows:

1) For all samples: Tightly close the lid, and attach appropriate label that has been filled out using indelible ink.

2) Document and record sample label and container information in the field sampling logbook, and on a sample Analysis Request/Custody Record form.

3) Immediately place sample containers into a sample cooler that will maintain samples at approximately 4° C.

4) Record all transfers of sample custody on the Analysis Request/Custody Record form.

5) To maintain chain-of-custody, ensure that access to all samples is controlled. This requires the sample collector or designated sample custodian to:

- have constant direct physical control,
- use a locked limited access area under his/her control, or
- affix signed container custody seals on samples or sample coolers.

2.5 Equipment Decontamination

All decontamination and sampling equipment to be used during closures must be clean or decontaminated. Before beginning any decontamination procedures, all personnel shall inspect their clothing to ensure that clean clothing or clean disposable outer coveralls are used. Clean chemically resistant gloves will be used during the decontamination process, and when handling any clean equipment. Equipment decontamination procedures are discussed in the following sections.

2.5.1 Decontamination Supplies

Supplies used in decontamination may vary based on the media being sampled and the type of contamination encountered. The following basic list of supplies may be modified, as necessary, by a trained, qualified supervisor or manager:

- Laboratory grade non-phosphate detergent solution
- Long-handled scrapers (stainless steel, glass)
- Long-handled, soft bristled brushes
- Portable low-pressure water sprayer
- Potable water
- Deionized water (organic free)
- Polyethylene or other approved impervious sheeting
- Heavy duty plastic bags
- Absorbent materials, socks, and pads

- Wash/rinse tubs, buckets, or other approved containers

2.5.2 Decontamination Procedures

All reusable equipment will be decontaminated after each use. If decontamination is not practical, the equipment will be managed in a manner consistent with FEMP hazardous waste management practices pending RCRA hazardous waste determination. The following procedures will be used to decontaminate equipment:

1) Establish a decontamination area in a location that is protected from potential contamination. Use a double thickness of 6-mil polyethylene, or other approved impervious sheeting, to line the decontamination area. As appropriate, construct containment dikes for control of run-off.

2) Provide appropriate containers for containment, handling, and collection of wastes and rinse water. Non-liquid wastes shall be collected in a heavy duty plastic bag, 55-gallon drum, or other approved container. Liquid wastes will be collected in buckets and/or placed into 55-gallon drums or other approved liquid storage containers.

3) Remove visible residues and stains from the equipment by brushing, scraping, or scrubbing.

4) Rinse with potable water.

5) Wash with a non-phosphate, laboratory grade, detergent and potable water solution.

6) Rinse with potable water.

7) Triple rinse with deionized, organic-free water.

8) Air dry in a dust-free environment. Cover with plastic or aluminum foil.

An equipment decontamination rinseate sample will be collected each day sampling is conducted. The sample will be collected using the procedures described in section 4.1.

2.6 Wastes Generated During Closure

Non-liquid wastes and wastewaters collected during closure of the HF Tank Car including the wastes generated from the decontamination of sampling equipment, and miscellaneous wastes (e.g., plastic sheeting, brushes, and disposable protective clothing), will be managed in a manner consistent with FEMP hazardous waste practices pending RCRA determinations. Waste determinations shall be conducted on the materials following the FEMP Waste Analysis and Waste Determination Plans, as approved by the OEPA. Wastes will be managed and disposed according to all applicable hazardous and solid waste rules and regulations.

Sample handling and documentation procedures shall conform to approved FEMP procedures applicable at the time closure activities are conducted. The information in the following sections presents the procedures to follow after the samples have been collected.

3.1 Field Sampling Logbook

A field sampling logbook will be kept and updated to document information pertinent to the RCRA closure sampling activities. The logbook will be bound, with consecutively numbered pages. At a minimum, the entries in the logbook will include the following:

- Name of supervisor(s) responsible for HWMU management
- Name of FEMP closure project manager
- Maps, drawings, or photographs of the sampling site
- Purpose of sampling (e.g., verification of decontamination)
- Description and location of sampling points
- Description of sampling methods and field sampling activities (e.g., containers, types of samples, etc.)
- Documentation of any deviations from this SAP
- Weather conditions at the time samples are collected
- Number, type, and volume of samples taken
- Date and time of collection
- Field sample identification number(s)
- Names of sampling personnel
- Date and time of transfer to sample receiving/shipping area
- Field observations (e.g., spills or other activities nearby)
- Data from field measurements (e.g., pH, specific conductance)
- Signatures of persons responsible for maintaining the logbook

The logbook will record information sufficient to reconstruct the sampling event without reliance on the collector's memory. The logbook shall be stored and maintained according to FEMP document control procedures.

3.2 On-Site Handling/Processing Procedures

Sample coolers, along with the signed and completed sample Analysis Request/Custody Record form, will be taken to the designated FEMP sample receiving/shipping area. Each person who takes possession of the samples or sample coolers shall sign the Custody Record and record the date and time of transfer.

The FEMP will characterize radiation levels associated with the samples to determine disposition of the samples for analysis.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance/Quality Control (QA/QC) procedures are required to identify, evaluate, and control conditions and activities that can affect the quality and validity of the analytical data obtained from sampling and analyses. Validation of data requires accurate records to document procedures and conditions during the sampling and analysis. At a minimum, these records will include:

- an updated field sampling logbook
- properly completed sample labels
- field and laboratory QA/QC samples
- completed sample Analysis Request/Custody Record forms

Quality assurance procedures will include:

1) Only clean sample containers will be used.

2) Clean chemical resistant gloves will be used whenever contact is made with the sampling equipment.

3) Sampling containers and collection equipment shall be handled, stored, and maintained in a manner that prevents cross-contamination.

4) Any field conditions, events, or activities that may affect analytical results will be documented in the field sampling logbook (see Section 3.1 of this SAP).

Sampling activities conducted during RCRA closures shall be consistent with applicable FEMP and THE SCQ ~~draft QAPjP (as revised or approved)~~ QA/QC procedures. The following sections discuss field QA/QC, laboratory QA/QC, and sample Analysis Request/Custody Record forms.

4.1 Field QA/QC Procedures

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. AT A MINIMUM, ONE (1) SAMPLE OF THE RINSEATE WILL BE COLLECTED EACH DAY OR ONE (1) FOR EVERY TWENTY SAMPLES COLLECTED EACH DAY, 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 decontamination rinseate will be collected for every twenty samples collected per sampling event, using the following procedure:~~

1) Pour deionized water over and through the cleaned surfaces of the decontaminated equipment.

2) Collect the deionized water rinseate using an appropriate sample container.

3) Follow container management procedures in Section 2.4.

Blanks will be collected and analyzed as part of normal QC procedures. At a minimum, the following samples will be collected each sampling event:

- one (1) container blank, a sample of clean deionized water prepared in a non-contaminated area and taken into the field during each sampling event.

- one (1) field blank, a grab sample of the deionized rinse water

~~supply, collected in the field.~~

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.

4.2 Laboratory QA/QC Procedures

The FEMP analytical laboratory shall use the approved SW-846 methods, as specified in this SAP.

The laboratory will document the use and results of laboratory quality control samples and analyses. Laboratory samples for quality control (QC) may include:

- laboratory equipment blanks to detect residual contamination of analytical equipment that may affect analytical results,
- duplicate samples prepared in the laboratory to evaluate the precision (i.e., the ability to reproduce analytical results) achieved by the methods used.
- Laboratory control and calibration verification samples (to verify calibration of the equipment).

All pertinent information concerning problems and conditions that may affect the validity of the analytical data must be clearly identified. In addition to laboratory QC and analytical data, information to be provided by the laboratory includes:

- Name of person receiving the sample
- Date and time of sample receipt
- Laboratory sample number (if different from field ID)
- Date and time of sample analysis
- Signature of the laboratory supervisor

Conditions outside the control of the laboratory that could affect sample quality and validity of analytical results shall also be documented by the laboratory. These include items such as:

- discrepancies between sample shipping records, sample analytical requests, custody records and the sample shipments as received by the laboratory,

- sample containers and packaging problems, such as broken containers, loose lids, and broken custody seals.

To reduce any laboratory bias, field duplicate samples shall be submitted that will not be identifiable from the sample labels or sample identification number. Field duplicate samples will be noted in the field sampling logbook for use in FEMP QA/QC review of analytical reports.

4.3 Sample Analysis Request/Chain-Of-Custody Procedures

Each sample container shall be labeled with the sample number and identification that is consistent with the sample Analysis Request/Custody Record form. A sample Analysis Request/Custody Record form shall be filled out according to procedures in sections 2.4. The Analysis Request/Custody Record form shall accompany all samples throughout the sample handling and analysis process. The Custody Record will document sample possession from the time of collection through analysis by the FEMP analytical laboratory. Records of any custody seals used on sample containers shall be maintained. The laboratory will document the condition of any custody seals on containers that they receive.

ATTACHMENT B
TO THE
CLOSURE PLAN INFORMATION AND DATA
FOR THE
HF TANK CAR

Revision 0
May 1993

GUIDELINES FOR THE PREPARATION OF FEMP PROJECT/TASK SPECIFIC HEALTH AND SAFETY PLANS (APPENDIX II OF THE FEMP SITE HEALTH AND SAFETY PLAN, MAY 1993)

PROJECT/TASK TITLE: _____
PREPARED BY: _____
DATE: _____

REVIEWED BY:
Centralized training: _____
Radiological Safety: _____
Industrial Hygiene and Safety: _____

NOTE: This plan and associated permits shall be reviewed with each worker and be posted at the work site at all times. Review of all of the listed sections is required prior to work start.

CRU3 S&H PLAN

1.0 CRU3 Description and History

1.1 FEMP Site History

1.2 Characterization

1.3 Define Scope or Goal of the Work
- 1.3.1 Short Term
- 1.3.2 Long Term

1.4 Goal of this Project

2.0 Work Area (for this project) and Management

2.1 Define Work Area within FEMP

2.2 Define Management Chain of Command
- 2.2.1 Program Manager
- 2.2.2 Project Manager
- 2.2.3 S&H Officer

3.0 General Safety Requirements

3.1 Permits and Postings

3.2 Safety Equipment List

3.3 Heat Stress

3.4 Cold Stress

3.5 Material Safety Data Sheets (MSDS) Locations

3.6 Illumination

3.7 Sanitation at Temporary Worksites

3.8 Standard Operating Procedure and Other Requirements

4.0 Site Control

4.1 FEMP Requirements

4.2 Work Site Requirements for Entry

4.3 How Work Site will be defined (Safety Fence - CHAWLWK Fence)

4.4 Exclusion Zones

11.0 Hazard (Risk) Assessment and Accident Prevention

11.1 Industrial Hygiene Issues (Identify the Physical, Chemical and Health Hazards)
- 11.1.1 Explosive Chemical Contaminants
- 11.1.2 Heavy Metals
- 11.1.3 Organic

11.2 Radiological Safety Issues (Identify the Physical, Chemical and Health Hazards)

11.3 Industrial Safety Issues (Identify the Physical, Chemical and Health Hazards)

11.4 Fire Protection Issues (Identify the Physical, Chemical and Health Hazards)

11.5 Nuclear Safety Issues (Identify the Physical, Chemical and Health Hazards)

11.6 Natural Occurrence Issue (Weather) (Identify the Physical, Chemical and Health Hazards)

11.7 (Identify and State Action to Correct Each Noted Hazard)

12.0 Emergency/Contingency Plans

12.1 Reporting
- 12.1.1 Numbers
  - 12.1.1.1 Emergency Phone Number
  - 12.1.1.2 Emergency Radio Number
- 12.1.2 Site Notification Procedure
- 12.1.3 What/How to Report

12.2 Evacuation Routes/Accountability
- 12.2.1 Rally Point Accountability
- 12.2.2 Plant Wide Accountability
- 12.2.3 In Place Accountability

12.3 Available Emergency Equipment
- 12.3.1 Site Equipment
- 12.3.2 Plant Equipment
- 12.3.3 Off-Site Equipment

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-1992
105920	1059	Hg - CVAA AnL INORG	<0.2	ug/L	JE REILMAN	92VW051MA 018	8-DEC-1992
106020	1060	Pb - GFAA AnL INORG	3.2	ug/L	MJ HARPER	92WF134/FB224	7-DEC-1992
106120	1061	Se - GFAA AnL INORG	<5.0	ug/L	MJ HARPER	92WF134/FB223	7-DEC-1992
904320	9043	Ag - ICP AnL INORG	94.5	ug/L	GJ KUNZE	92WP171/P2217	8-DEC-1992
	9043	Ba - ICP AnL INORG	13622	ug/L	GJ KUNZE	92WP171/P2217	8-DEC-1992
	9043	Cd - ICP AnL INORG	26.5	ug/L	GJ KUNZE	92WP171/P2216	7-DEC-1992
	9043	Cr - ICP AnL INORG	690.1	ug/L	GJ KUNZE	92WP171/P2216	7-DEC-1992

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-1992
305920	3059	Total Th - Color. AnL	<45	ppm	JJ STOECKEL	MILLER/JJS	7-DEC-1992