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CLOSURE PLAN INFORMATION AND DATA FOR DRUM STORAGE AREA NEAR LOADING DOCK (LAB) REVISION 1 MARCH 1994 REF: 5292

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CLOSURE PLAN INFORMATION AND DATA FOR THE DRUM STORAGE AREA NEAR LOADING DOCK (LAB)

Revision 1
March 1994

Fernald Office
U. S. Department of Energy
Fernald Environmental Management Project
7400 Willey Road
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ATTACHMENT B: SAMPLING AND ANALYSIS PLAN
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but are indicated in the sample analyses will be added to the list for samples taken as illustrated in the SAP, Attachment B.

3.2 Closure Objectives and Performance Standards

Closure performance standards generally applicable to HWMU closures are presented in OAC 3745-66-11 (40 CFR 265.111). The closure process initiated by this CPID is designed to minimize the need for further maintenance by cleaning the concrete surface of the original loading dock area and collecting final rinse samples and soil samples for laboratory analyses to confirm clean closure has been achieved.

If residual contamination is identified, the FEMP will assess the need for removal or remedial actions necessary to control, minimize or eliminate, to the extent necessary to protect human health and the environment, the escape of hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, surface waters, or to the atmosphere. Any additional closure-related clean up will be identified in a revised CPID. Unless additional actions are required to protect human health and the environment, the final remediation necessary to meet the intent of Closure Performance Standards in OAC 3745-55-11 will be incorporated into the final remediation under the ROD for OU3, consistent with the ROD for OU5. If actions are deferred to the OU3 ROD, the revised CPID will identify any interim maintenance and control activities that may be necessary to ensure protection of human health and the environment.

~~Wastes generated by sampling and analyses will be characterized following the facility Waste Analysis and Waste Determination Plans as approved by the OEPA. These wastes will be managed as mixed hazardous waste pending final waste determinations. All wastes will be managed, stored, treated or disposed in accordance with applicable OEPA and USEPA solid and hazardous waste requirements and DOE Orders for low level radioactive wastes.~~

WASTES GENERATED DURING SAMPLING AND ANALYSIS ACTIVITIES (E. G., DECONTAMINATION LIQUID WASTES, PLASTIC SHEETING, DISPOSABLE PROTECTIVE CLOTHING) WILL BE ACCUMULATED AND CONTAINERIZED DURING CLOSURE. A WASTE DETERMINATION SHALL BE CONDUCTED ON THE SAMPLING AND ANALYSIS WASTES FOLLOWING THE FEMP WASTE ANALYSIS AND WASTE DETERMINATION PLANS, AS APPROVED BY OEPA. PENDING THE RCRA DETERMINATION, THE WASTES WILL BE MANAGED AS MIXED WASTE AND TRANSFERRED FROM THE DRUM STORAGE AREA NEAR LOADING DOCK (LAB) DIRECTLY INTO A PERMITTED RCRA STORAGE AREA OR A 90-DAY ACCUMULATION AREA. THE CONTAINERS WILL BE HELD PENDING ANALYTICAL RESULTS AND CHARACTERIZATION PURSUANT TO EXISTING SITE PROCEDURES AND DOE ORDERS.

THE FEMP STORES LOW-LEVEL RADIOACTIVE, HAZARDOUS AND MIXED WASTES ACCORDING TO ALL APPLICABLE RCRA REGULATIONS, AEA (ATOMIC ENERGY ACT) REGULATIONS, AND DOE ORDERS WHILE VARIOUS ON-SITE AND OFF-SITE TREATMENT AND DISPOSAL OPTIONS ARE BEING PURSUED. IT IS NOT ANTICIPATED THAT MIXED WASTES WILL BE GENERATED IN CONJUNCTION WITH CLOSING THE DRUM STORAGE AREA NEAR LOADING DOCK (LAB), ANY WASTES THAT ARE CHARACTERIZED AS MIXED WILL BE STORED ONSITE PENDING THE AVAILABILITY OF ACCEPTABLE TREATMENT AND/OR DISPOSAL FACILITIES FOR MIXED WASTES.

3.3 Sampling and Analyses

The available data from previous sampling and analyses from 1988-1990 does not include analyses for all the chemical constituents and characteristics associated with hazardous wastes that may have been managed in the unit. To evaluate the potential for residual contamination from previous waste storage activities, additional area sampling and analyses will be conducted in accordance with the attached SAP and the schedule discussed in Section 5 of this CPID. The samples collected will be analyzed for waste constituents and characteristics listed in Table 1. The analytical results will be used to determine if there is residual contamination from previous waste storage activities. The samples to be collected include:

1) ~~Two (2)~~ ONE (1) grab sample from the combined surface rinse of the concrete on the top and exposed side of the original loading dock.

2) Five (5) soil samples from 5 separate locations in and adjacent to HWMU No. 4 (see Figure 3) from a depth of 24 to 30 inches below grade (i.e, below concrete and backfill installed for the laboratory upgrade in the lab loading dock area).

3) Quality Assurance and Quality Control Samples consistent with Attachment B, the Lab Loading Dock SAP.

4) All sampling and analyses will be conducted in accordance with the FEMP Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

3.3.1 Soil Sampling

Five (5) soil samples will be collected from the sample locations shown in Figure 3 and will be analyzed for the targeted waste compounds and characteristics listed in Table 1. All sampling will be conducted following SCQ guidance, as referenced in the SAP in Attachment B.

3.3.2 Cleaning and Sampling the Loading Dock Surface

Prior to conducting cleaning and the final surface rinse of the original loading dock, area preparation will be required to remove the plastic and concrete squares, vacuum up any loose dirt or debris and construct temporary rinseate containment berms to protect the monitor wells and catch basins inside HWMU No. 4 (see Figure 3). To facilitate collection of wash and rinse waters, the adjacent ramp (on the south end) and the east side of the ground level driveway area at the base of the loading dock will also be washed and rinsed. Sampling and analyses will follow the procedures discussed in Section 2.3.1 of the SAP (Attachment B). The following procedure will be used to conduct cleaning and a

final surface rinse to enable sampling and analyses to determine if the surface of the original loading dock is clean:

1) Pressure wash the surface area of the loading dock, ramp and ground level paved area at the base of the loading dock with potable water increasing the pressure (up to 10,000 psi), as needed, to remove visible contamination, such as caked on dirt and debris, oily films and residues, and, as much as practical, surface stains.

2) Direct the rinse water toward the base of the loading dock. Vacuum or pump waste water into a drum for further waste characterization. Repeat the rinsing process until the rinse is visibly clean.

3) Conduct a final rinse, using deionized water, in a manner similar to step 2. Use an uncontaminated sampling pump to collect the rinse water in a designated, clean sample collection drum.

4) Collect samples of the rinse waters from the drum using a Coliwasa sampler or an appropriate sampling pump and tubing (see Section 2.3.1 of the SAP in Attachment B). Analyze sample for the presence of the waste constituents or hazardous waste characteristics listed in Table 1.

5) If sample analyses indicates contamination in excess of the clean up action levels listed in Table 2, alternate decontamination procedures will be evaluated and a revised CPID will be submitted.

3.3.3 Use of Analytical Data

If the analytical results meet the criteria, identified in Section 3.5, for clean closure, a RCRA Closure Certification statement will be submitted. A revised CPID will be submitted to discuss any additional clean up required for closure of the unit. The integration of RCRA closure activities with CERCLA removal or remedial actions will be addressed in the revised CPID. The closure actions

under this CPID will be concluded when clean closure is certified or documentation is submitted to demonstrate that the clean up has achieved a condition that will be protective of human health and the environment until completion final remediation under the ROD for OU3, consistent with the ROD for OU5.

If the concrete surface rinse sample analyses demonstrates contamination is in excess of the clean up criteria discussed in Section 3.5, the need for more aggressive cleaning of the concrete will be evaluated. Based on the evaluation, another effort will be made to clean the concrete surfaces and a second set of rinse samples will be collected. The cleaning method selected will be dependant upon the type of contamination and the contaminant of concern. If a more aggressive cleaning method is proposed, reasons for selection of that method will be discussed with the OEPA representative(s) and included in the certification documentation records.

Performance of cleaning efforts will be documented in the daily field activities log. If necessary, a total of three cleaning attempts will be made. After the third attempt, the sample results will either be used to verify clean up and certify clean closure or the data will be used to evaluate the potential risk to human health and the environment. This evaluation will determine if acceptable interim closure of HWMU No. 4 has been achieved and further clean up or remediation can be deferred to the ROD for OU3, consistent with the ROD for OU5.

If clean closure is not certified, a revised CPID will be submitted to characterize HWMU No. 4 contamination and determine the needs and timing for additional actions to complete closure. If additional actions are deferred to the ROD for OU3, the revised CPID will provide data and discussions to support the conclusion that the clean up level achieved is protective of human health and the environment, identify ongoing monitoring or surveillance necessary to identify any future threat from residual contamination, and discuss the remaining RCRA requirements to complete closure of HWMU No. 4. The ROD will define the requirements for final remediation, including how completion of HWMU No. 4

closure will be achieved. To implement and accomplish final remediation and complete closure of HWMU No. 4, the FEMP will prepare and submit to USEPA and OEPA, Remedial Design and Remedial Action (RD/RA) plans after the ROD has been issued.

3.4 Area Surveillance and Monitoring

Prior to the upgrade of the area in 1989/1990, all hazardous wastes were removed from HWMU No. 4. No future hazardous waste management in the unit is planned. Since the waste has been removed, the potential for any future hazardous waste spills causing releases from the HWMU has been eliminated. Based on the previous CERCLA removal action and extensive renovation of the area, there is no reason to suspect significant residues of hazardous waste constituents in the soils. This assumption will be confirmed or refuted by the area sampling to be conducted under this CPID.

General RCRA inspection requirements for HWMUs at the FEMP are stipulated under OAC 3745-65-15 (40 CFR 265.15) and OAC 3745-66-74 (40 CFR 265.174). Until the HWMU No. 4 is closed, or OEPA concurs that these inspections are no longer required, weekly inspections will be continued. These inspections will ensure appropriate documentation of any changes made in the area and confirm that activities in the area do not result in releases of hazardous wastes or waste constituents that would require clean up prior to RCRA closure or completion of the final remediation under the ROD for OU3, consistent with the ROD for OU5.

3.5 Clean Up Criteria

Cleaning and decontamination of the original loading dock concrete surface will be ~~confirmed if concentration in the concrete rinse samples are less than the clean up action levels listed in Table 2.~~ VERIFIED BASED ON SAMPLES FROM FINAL RINSEATES. DECONTAMINATION WILL BE COMPLETE WHEN THE FINAL RINSEATE SAMPLES CONTAIN CONCENTRATIONS OF ANALYTES AT LEVELS BELOW THE ACTION LEVELS FOR RINSE WATER ANALYSES IN TABLE 2.

THE DECONTAMINATION ACTION LEVELS PROVIDED IN TABLE 2 ARE BASED UPON OEPA CLOSURE GUIDANCE - SEPTEMBER 1993. THE OEPA GUIDANCE REQUIRES THAT DECONTAMINATION RINSEATES MEET THE FOLLOWING CLEAN LEVELS.

1. FIFTEEN TIMES THE PUBLIC DRINKING WATER MAXIMUM CONTAMINANT LEVEL (MCL) FOR HAZARDOUS CONSTITUENTS AS PROMULGATED IN 40 CFR 141.11 AND OAC 3745-81-11 FOR INORGANICS AND 141.12 AND 3745-81-12 FOR ORGANICS;

2. IF AN MCL IS NOT AVAILABLE FOR A PARTICULAR CONTAMINANT, THEN FIFTEEN TIMES THE MAXIMUM CONTAMINANT LEVEL GOAL (MCLG) AS PROMULGATED IN 40 CFR 141.50; OR

3. IF THE PRODUCT OF FIFTEEN TIMES THE MCL OR MCLG EXCEEDS 1 MG/L OR IF NEITHER AN MCL NOR AN MCLG IS AVAILABLE FOR A PARTICULAR CONTAMINANT, THEN 1 MG/L SHALL BE THE STANDARD.

Soils will be declared clean if the following criteria are met:

1. An evaluation of sample results indicates the targeted organics listed in Table 1 are less than the ~~Practical Quantitation Limits (PQL)~~ DETECTION LIMIT (DL), and

2. An evaluation of sample results indicates that the targeted inorganics listed in Table 1, are below the mean of the background concentrations plus two (2) standard deviations, as determined by the approved FEMP Background Soil Study, and

3. The sample analyses confirms that soils <u>do not</u> exhibit RCRA hazardous waste characteristics listed in Table 1 (following the approved Waste Analysis and Waste Determination Plans).

~~Although the OEPA guidance recommends using MDL, the FEMP is using the PQL because it is by definition (in SW 846):~~

~~"The practical quantitation limit (PQL) is the *lowest level that can be reliably achieved* within the specified limits of precision and accuracy during routine laboratory operating conditions" (emphasis added).~~

The OEPA levels for clean (as referenced above) will be used to determine if RCRA closure can be certified without additional actions (see discussions in Section 4.0). The CERCLA RODs will define the final clean up standards for OU3 and OU5, including any residual contamination associated with HWMU No. 4. The CERCLA clean up level in the ROD will be based on site-specific risk-based levels and/or ARARs established by an assessment of the risks to human health and the environment. The CERCLA risk assessment will consider the types and concentrations of contamination sources and the potential for releases, environmental transport, and subsequent exposure of the human and environmental receptors.

3.6 Security

The boundary of HWMU No. 4 has been marked and identification signs have been posted. Because of ongoing construction needs, the area is not currently roped off to restrict access. Based on discussions with the OEPA (see Attachment A), a herculite and paver barrier was placed over the surface of HWMU No. 4 in June 1992 to prevent direct contact with the surface areas.

As with all Department of Energy (DOE) facilities, security at the FEMP is strict. The entire FEMP processing area, which includes HWMU No. 4, 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. Site visitors that have not received the required site-specific training are escorted to prevent unauthorized entry into controlled areas.

3.7 Health and Safety

Prior to conducting any field activities at the FEMP, a health and safety assessment must be conducted to characterize existing hazards and conditions. Based on the findings of the health and safety assessment, the Project/Task Specific Health and Safety Plan will specify required health and safety procedures, including personnel protection equipment, entry and exit requirements, and personnel/personal protective equipment decontamination procedures. Guidelines for the Preparation of FMPC Project/Task Specific Health and Safety Plan are included in Attachment C.

As part of the safety assessment, radioactivity screening will be done over the area to determine radiation protection requirements. Additional screening, including on-site laboratory analyses for radionuclides, may be required to further categorize radiation levels and hazards before the samples can be shipped to an off-site laboratory. Radiation survey procedures and requirements for shipping samples to off-site laboratories for analysis will be in accordance with approved FEMP/FMPC procedures.

4.0 RCRA CLOSURE CERTIFICATION

RCRA certification for closure of HWMU No. 4 will be made, if no contamination is indicated by sample analyses. In the event clean closure is not completed through implementation of the activities stipulated in this document (as approved), a revised CPID will be prepared. The revised CPID will provide supporting information and data and state determinations concerning the need for and timing of additional actions to achieve HWMU closure. Additional actions may include clean up/removal activities before the RODs and/or completion of HWMU closure during final remedial actions after the RODs for OU3 and OU5. In addition, the revised CPID will identify any maintenance and surveillance activities necessary to protect human health and the environment until HWMU closure is achieved.

4.1 Certification Inspections and Documentation

To support RCRA closure certification and/or provide documentation for the CERCLA Administrative Record, inspections by the owner (DOE) and an independent, qualified, registered Professional Engineer, or his/her designated representatives, will be maintained to confirm that actions conform to this document, as approved. Documentation will include:

- a daily log of activities
- field notes recorded by the owner or their representative during sampling activities
- sampling plans
- copies of the validated analyses and analytical quality assurance reports
- copies of the hazardous waste manifests (if used)
- chain of custody forms used for sample handling and tracking
- certification statements by both the owner and Professional Engineer.

If RCRA closure is certified, the certification statement, provided in Section 4.2, will be submitted and the supporting certification documentation will be

retained in the operating record at the FEMP for access and inspection by the OEPA and USEPA.

4.2 Statement of Certification

The DOE, and an independent, qualified, registered Professional Engineer will submit certification of closure within 60 days of the determination that HWMU No. 4 is clean. The certification will meet the requirements of OAC 3745-50-42(D) and OAC 3745-66-15 and 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 all activities in this plan for this hazardous waste management unit has been accomplished in accordance with the specifications in the approved plan.

_____

Ohio Registered Professional Engineer

5.0 SCHEDULE

Closure of HWMU No. 4 will be initiated on the date that the FEMP receives the OEPA approval of this CPID. Assuming no modifications to the plan are required or unexpected events are encountered, it is expected that closure activities can be completed within 180 days from the date FEMP receives approval of the CPID. The schedule is illustrated in Figure 4. Closure certification will be submitted within 60 days of completion. If unexpected events arise or clean closure cannot be achieved, a revised CPID will be submitted within 30 days of that determination.

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. If necessary, a request for an extension of the time required for completion of activities 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 an independent, qualified, registered Professional Engineer will be notified at least five (5) business days before critical activities begin (see Figure 4).

TABLE 1: TARGETED WASTE CONSTITUENTS/CHARACTERISTICS

WASTE CONSTITUENT/CHARACTERISTIC	CHEMICAL ABSTRACT SYSTEM (CAS) NO.
Acetone	67-64-1
Acetonitrile	75-05-8
Benzene	71-43-2
Butanol	71-36-3
Carbon Tetrachloride	56-23-5
Chloroform	67-66-3
Cyanide (Compounds)	57-12-5
Cyclohexane	110-82-7
1,1-Dichloroethane [1]	75-34-3
1,2-Dichloroethane [1]	107-06-2
1,1-Dichloroethylene [1]	75-35-4
1,2-Dichloroethylene [1]	540-59-0
Ethyl Acetate	141-78-6
Ethyl Ether	60-29-7
Lead	7439-92-1
Mercury	7439-97-6
Methanol	67-86-1
Methylene Chloride	75-09-2
Methyl Isobutyl Ketone	108-10-1
Phenol	108-95-2
Tetrachloroethylene	127-18-4
Tributyl Phosphate	126-73-8
Trichloroethylene	127-18-4
1,1,1-Trichloroethane	71-55-6
1,1,2-Trichloroethane	79-01-6
Xylene	1330-20-7
Vanadium [1]	7440-62-2
Vinyl Chloride [1]	75-01-4
RCRA Waste Characteristics:	
Corrosivity [2]	Not Applicable
Ignitability	Not Applicable
Reactive Cyanide	Not Applicable
Radiological:	
Gross Alpha and Gross Beta [3]	Not Applicable
Total Uranium [3]	Not Applicable
Total Thorium [3]	Not Applicable

[1] Included on target list as possible degradation products of suspect waste constituents of wastes generated in the laboratories.

[2] Corrosivity waste characteristics and potential contamination from acids and bases will be evaluated based on pH measurements.

[3] Radiological parameters covered by CERCLA remediation that are not regulated by RCRA.

TABLE 2: CLEAN UP ACTION LEVELS FOR RINSE WATER ANALYSES

TARGETED WASTE CONSTITUENTS AND CHARACTERISTICS	CAS NO.	APPLICABLE CLEAN UP ACTION LEVEL [1] (mg/L unless otherwise stated)
Acetone	67-64-1	1.0
Acetonitrile	75-05-8	1.0
Benzene	71-43-2	~~0.03~~ .075
Butanol	71-36-3	1.0
Carbon Tetrachloride	56-23-5	0.075
Chloroform	67-66-3	1.0
Cyanide (Compounds)	57-12-5	1.0
Cyclohexane	110-82-7	1.0
1,1-Dichloroethane	75-34-3	1.0
1,2-Dichloroethane	107-06-2	0.075
1,1-Dichloroethylene	75-35-4	0.105
1,2-Dichloroethylene	540-59-0	1.0
Ethyl Acetate	141-78-6	1.0
Ethyl Ether	60-29-7	1.0
Lead	7439-92-1	0.75
Mercury	7439-97-6	0.03
Methanol	67-86-1	1.0
Methylene Chloride	75-09-2	1.0
Methyl Isobutyl Ketone	108-10-1	1.0
Phenol	108-95-2	1.0
Tetrachloroethylene	127-18-4	1.0
Tributyl Phosphate	126-73-8	1.0
1,1,2-Trichloroethylene	79-01-6	0.075
1,1,1-Trichloroethane	71-55-6	1.0
Xylene	1330-20-7	1.0
Vanadium	7440-62-2	1.0
Vinyl Chloride	75-01-4	0.03
RCRA Waste Characteristics:		
Corrosivity	NA	pH $\geq$ 2 and $\leq$ 12.5
Ignitability	NA	Flash Point > 140 °F
Reactive Cyanide	NA	Total Releasable CN < 250 mg/kg

[1] Values listed are 15 times the Maximum Contaminant Levels or Maximum Contaminant Level Goals as listed in 40 CFR 141.11 and OAC 3745-81-11, 40 CFR 141.12 and OAC 3745-81-12, and 40 CFR 141.50. Where no MCL or MCLG has been established for the constituent or 15 times the MCL or MCLG exceed 1 mg/l, 1 mg/l is used as the decontamination action level.

FEMP Management reserves the right to establish and substitute risk-based cleanup levels if the listed Cleanup Action Levels cannot be met following the procedures set forth in this Closure Plan Information and Data; IF SUCH AN EVENT OCCURS, A REVISED CPID WILL BE SUBMITTED FOR AGENCY APPROVAL.

ATTACHMENT B

SAMPLING AND ANALYSIS PLAN

FOR THE

DRUM STORAGE AREA NEAR LOADING DOCK (LAB)

Revision 1
March 1994

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2) Provide data to evaluate the need for additional CERCLA response actions and prioritize the need for removal relative to other CERCLA response action requirements at the FEMP.

3) Provide HWMU-specific data to support the development and implementation of appropriate remedial actions under the Record of Decision (ROD) for CERCLA OU #3 and OU #5.

From 1988 to 1990, most of the surface soil in the area was removed (see Figure B-1). The sampling being proposed focuses on the concrete surface of the original loading dock and surface soil at a depth of ~~24 to 30~~ 36 TO 42 inches below grade. Sampling at a depth of ~~24 to 30~~ 36 TO 42 inches below grade is being specified to insure sampling of the original soil (i.e., below the 12 to 16 inches of new concrete and backfill materials installed in 1990).

Pending RCRA characterizations and determinations, all wastes and materials generated during sampling and analyses will be managed in a manner consistent with approved FEMP 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 Analyses

Samples collected will be analyzed for the waste constituents and characteristics listed in Table B-1. The presence or absence in the samples of targeted waste constituents and characteristics listed in Table B-1 will be used to determine if there is reason to suspect residual contamination in the area of HWMU No. 4. The samples to be collected include:

1) ~~Two (2) samples plus 1 duplicate sample~~ ONE SAMPLE from a rinse of the concrete surface of the original loading dock area.

2) Five (5) soil samples plus 1 duplicate sample of the underlying soil (i.e, below concrete and backfill installed for the laboratory upgrade in the lab loading dock area) at a depth of ~~24 to 30~~ 36 TO 42 inches below grade (to be collected from 5 sampling locations - See Figure B-1).

3) Quality Assurance and Quality Control Samples consistent with the current requirements of the FEMP SCQ and discussions in Section 4.0 of this SAP.

The proposed sampling locations are identified on Figure B-1. All analyses will be conducted using analytical methods specified in the FEMP Laboratory Analytical Methods, Volumes II, IV and V of the FEMP SCQ. Where methods are not specified in the SCQ, SW-846 methods will be used.

approximate center of the area between the drive and the bulk nitrogen storage tank.

In areas covered with concrete, a concrete coring machine or hammer will be used to core through the new concrete and backfill to reach the underlying soil that would have been in place during the waste management operations. Using an auger or soil coring device, the sample boring will be advanced and one (1) soil sample will be collected at each location from a composite of the soil extracted from a depth of ~~24 to 30~~ 36 TO 42 inches.

2.4.1 Soil Sampling Procedures

Remove concrete or grass and other vegetation from sample collection area prior to sampling and place in drum pending analyses. Where required to sample under concrete, the FEMP proposes to use a jack hammer, concrete coring machine or concrete saw to core or cut through the concrete as discussed in the following procedures:

1) Advance a hole through the concrete, cutting through reinforcement bars and obstructions in the concrete unit reaching sub-base materials.

2) Once the sub-base is reached, use a clean soil auger or coring device to advance the hole through the sub-base materials and into underlying soils.

3) When underlying soils are reached, remove remaining concrete chips and sub-base materials from the hole.

4) Concrete boring will be grouted with new concrete after sampling is complete.

Soil borings of underlying soil will be made for collection of samples in accordance with the following procedures:

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

2) Use a clean stainless steel soil auger or soil core sampler to advance the soil boring to ~~24~~ 36 inches below grade.

3) Decontaminate equipment or use clean augers or soil core samplers to collect a 6 inch soil sample from a depth of ~~24 to 30~~ 36 TO 42 inches below grade.

4) Use a clean spatula (stainless steel or other suitable material), or other approved device to remove soils from the auger and place them into a stainless steel pan (or remove soil core cylinder).

5) To composite the sample (if using the soil auger), divide the sample volume into four quarters within the pan. Mix opposite quarters together, then mix resulting halves together into a single volume. Repeat this step.

6) Using the spatula or other approved device, transfer a sample from the mixed soils in the pan into the appropriate sample container (or, if using a soil core sampler, cap the sample cylinder). Follow container management procedures in Section 2.5.

7) Upon completion of sampling at a sampling location, decontaminate all sampling equipment used, following procedures in Section 2.6. Equipment that is not decontaminated shall be managed in a manner consistent with approved FEMP hazardous waste management practices pending RCRA hazardous waste determinations.