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DEPARTMENT OF THE AIR FORCE
27TH CIVIL ENGINEER SQUADRON (ACC)
CANNON AIR FORCE BASE NEW MEXICO

23 FEB 2000

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Commander
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Mr. James Bearzi, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
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2000
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Dear Mr. Bearzi

Enclosed for your information and files are change pages to be inserted in the Corrective Measures Study Workplan for Site SD-11, Solid Waste Management Units 86-90 on Cannon AFB. These revisions were prepared in response to comments by the New Mexico Environment Department.

If you have any questions, please contact Mr. Sanford Hutsell at (505) 784-6378.

Sincerely

ERIC J. WILBUR, Lt Col, USAF

Attachment:
Insert Pages

cc:
NMED w/o atch (G. VonGotten)
NMED GW Bureau (J. Jacobs)
EPA Region VI (B. Sturdivant)

4.1 CORRECTIVE MEASURES STUDY OBJECTIVES

The overall purpose of a Corrective Measures Study is to develop and evaluate Corrective Measures Alternatives and to recommend the selected Final Corrective Measure(s) that is most cost-effective, most reliable, and easiest to implement.

The preliminary corrective action objective for SWMUs 86 -90 is to implement the Risk-Based Corrective Action (RBCA) process to streamline the decision process for corrective action that is protective of human health and the environment. RBCA is the integration of site assessment, remedial action selection, and monitoring with USEPA-recommended risk and exposure assessment practices. RBCA procedures for the assessment and response to a petroleum release are outlined in the American Society for Testing and Materials (ASTM) E1739-95^{E1}, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM 1996).

The specific objectives for SWMUs 86 - 90 are to:

- Further define the extent and degree of contamination levels at this site, specifically in the area of the former evaporation pond (SWMU 89) and west of previous boring location 8612.
- Further assess the potential for contaminant migration in the surrounding environment.
- Further identify public health and environmental risks of contaminants relative to applicable regulatory standards.
- Based on the results of the RBCA process for the assessment and response to a petroleum release, evaluate and justify the "No Further Action" alternative or appropriate RBCA alternative.

4.2 CORRECTIVE MEASURES STUDY APPROACH

The following decision process has been used to assess the data needs and approach for the Corrective Measures Study at SWMUs 86 - 90 (Site SD-11). The Data Quality Objective (DQO) evaluation process is designed to provide data of sufficient quality and quantity to evaluate whether a release has occurred that could pose a risk to human health or the environment and to evaluate the need for further action, such as corrective measures implementation.

A general decision diagram (Figure 4-1) was developed for the Cannon AFB CMS at SWMU 86 - 90 to present a logical decision process that will be used to evaluate the data resulting from the investigation and CMS to assure that objectives are met.

The decision process is designed to identify appropriate actions based on three alternative recommendations: no further action, further evaluation, or corrective measures implementation. The recommendation for the selection of alternative action will depend upon whether chemicals of potential concern (COPCs) are detected in soils at levels that may pose an unacceptable risk to

will be used. If a Tier 2 assessment is required, the site-specific exposure parameters will be refined and industrial exposure SSTLs will be calculated. Maximum detected concentrations (or UCL, if there is adequate data) will then be compared to the site-specific industrial SSTLs.

It is important to note that MSSLs are not cleanup goals. Cleanup goals are determined on a site-specific basis. Rather, comparing soil concentrations to screening-level MSSLs is adopted as a means of screening whether the chemicals in soils could pose a threat to human health. If the screening-level MSSLs are not exceeded, no further action is recommended. If the screening-level MSSLs are exceeded, further evaluation of potential risks will be completed.

MSSLs for Lead in Soil

EPA withdrew the toxicity factor (i.e., the RfD) for lead in 1989, primarily due to the lack of a discernible threshold dose and because of the numerous sources of lead in the environment. However, EPA guidance (EPA 1994c) recommends an interim soil lead concentration of 400 mg/kg for residential scenarios at CERCLA and RCRA corrective action sites. This level is supported by EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model (EPA 1994c), which predicts that exposures of children ages 0 to 6 years to soils with approximately these levels will not result in blood lead levels that exceed a level of concern (10 $\mu\text{g}/\text{dL}$) established by the Centers for Disease Control. The interim soil lead concentration is the level above which there is sufficient concern that a site-specific study of risks should be conducted if exposure to children is expected at the site. Based on the residential soil-screening level for lead, EPA Region VI set the industrial soil MSSL for lead at 2,000.

4.7 SCREENING-LEVEL ECOLOGICAL RISK EVALUATION METHODOLOGY

The screening Ecological Risk Assessment (ERA) will follow Steps 1 and 2 as described in the EPA Superfund Screening Guidance (EPA 1997a). In this assessment, conservative assumptions are used throughout to evaluate worst-case scenarios. Steps 1 and 2 comprise Tier 1 USACE (1996) assessment. A Tier 2 assessment is conducted for those potential contaminants and exposure pathways indicated by the Tier 1 assessment to pose potential ecological risks. The Tier 2 screening assessment differs from the Tier 1 assessment in its use of more realistic exposure parameters and largely represents a second iteration of Step 2 in the Tier 1 assessment.

Step 1 has two components: a problem formulation process and an evaluation of ecological effects (EPA 1997a).

4.7.1 Tier 1 Screening Level Assessment: Step 1 - Problem Formulation

The purpose of the problem formulation process is to: 1) identify the environmental setting and known or suspected contaminants and their maximum concentrations (by medium) at the SWMU; 2) identify preliminary fate and transport mechanisms that may exist at the SWMU;

This Field Sampling Plan (FSP) is for SWMUs 86 - 90 being investigated as part of the Corrective Measures Study (CMS) at Cannon AFB. The locations of the SWMUs are shown on Figure 1-2 of the CMS Work Plan. The FSP briefly discusses sampling objectives, and proposed sampling locations and frequencies. Sample designation, sampling equipment and procedures, and sample handling, documentation, and analysis are also presented in this section.

Soil sampling will be done using a truck-mounted drill rig and stainless-steel split-spoon samplers or stainless-steel hand augering equipment, where appropriate, according to the applicable SOPs in Appendix A.

The following site-specific activities will be completed to meet the objectives stated in the Corrective Measures Study Work Plan. The projected soil sampling breakdown is shown in Table 1.

Additional characterization in support of the CMS is required in the area of the former leach field and evaporation pond to ensure that the vertical and lateral extent of contamination has been determined. Three soil borings will be drilled to a depth of 40 feet. Five soil samples will be collected from each of these three boring locations. In addition, a fourth soil boring will be drilled west of the location of previous soil boring 8612 to further delineate the western extent of contamination. Exact depth and sampling intervals for this boring will be predetermined through discussions with NMED representatives. The proposed locations of the soil borings are presented in Figure 1. The concrete berm will be removed by the Base to facilitate entry of a drill rig. Soil samples will be collected at the following intervals:

- 0 to 2.0 feet below ground surface (bgs)
- 8.0 to 10.0 feet bgs
- 18.0 to 20.0 feet bgs
- 28.0 to 30.0 feet bgs
- 38.0 to 40.0 feet bgs

Surface soil samples will be collected from 0 to 24 inches for all parameters except VOCs. Samples collected for VOC analysis will be collected from 12 to 24 inches.

Immunoassay analysis will be performed for TPH following SW-846 Immunoassay Method 4030 at each of the sample intervals. Two detection limits may be used for each test. Each sample will be initially analyzed using the low-level analysis kit. If the initial TPH value does not exceed the minimum level of detection, the sample will be reported as nondetect at the minimum level of detection. If the initial value exceeds the lowest level of detection, the sample will be analyzed using a mid-level kit and the reporting limit of 10 times the minimum detection level will be used. The following table identifies the compounds which can be detected using the Immunoassay kits and their associated reporting limits:

SECTION ONE

Sampling Locations, Frequencies, and Analyses

Compound	Low Level Detection Limit (ppm)	Mid-Level Detection Limit (ppm)
Gasoline	10	100
Diesel	15	150
#2 Fuel Oil	15	150
Kerosene	15	150
Jet Fuel A	15	150
Jet Fuel JP-4	15	150
#6 Fuel Oil	25	250
Mineral Spirits	25	250

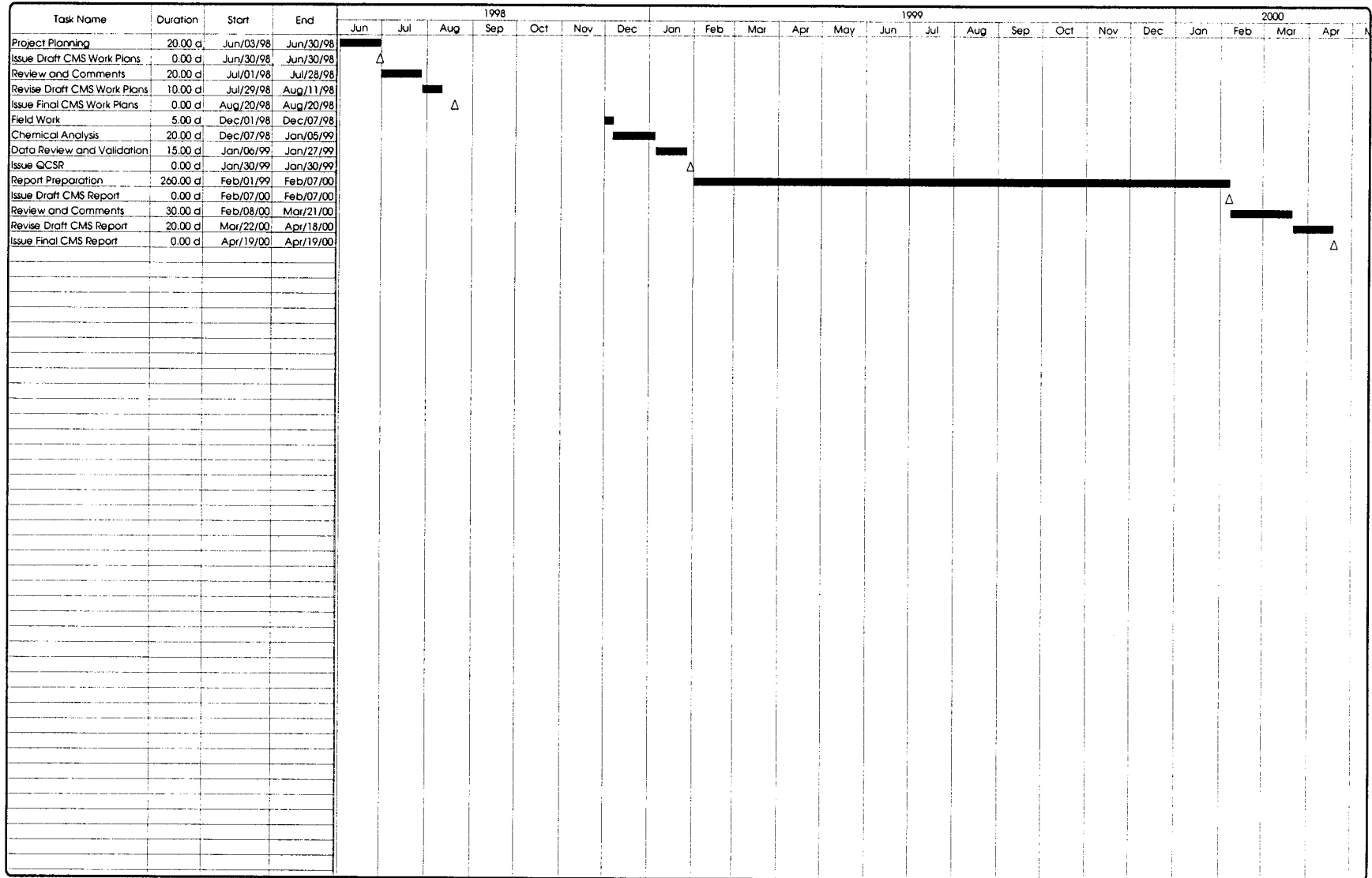
If the field screening results for TPH indicate detections in either of the bottom two sample intervals from any boring, then the USACE Technical Manager will be immediately notified and before the field crew demobilizes from the site.

The soil samples will additionally be analyzed off site for the parameters listed below:

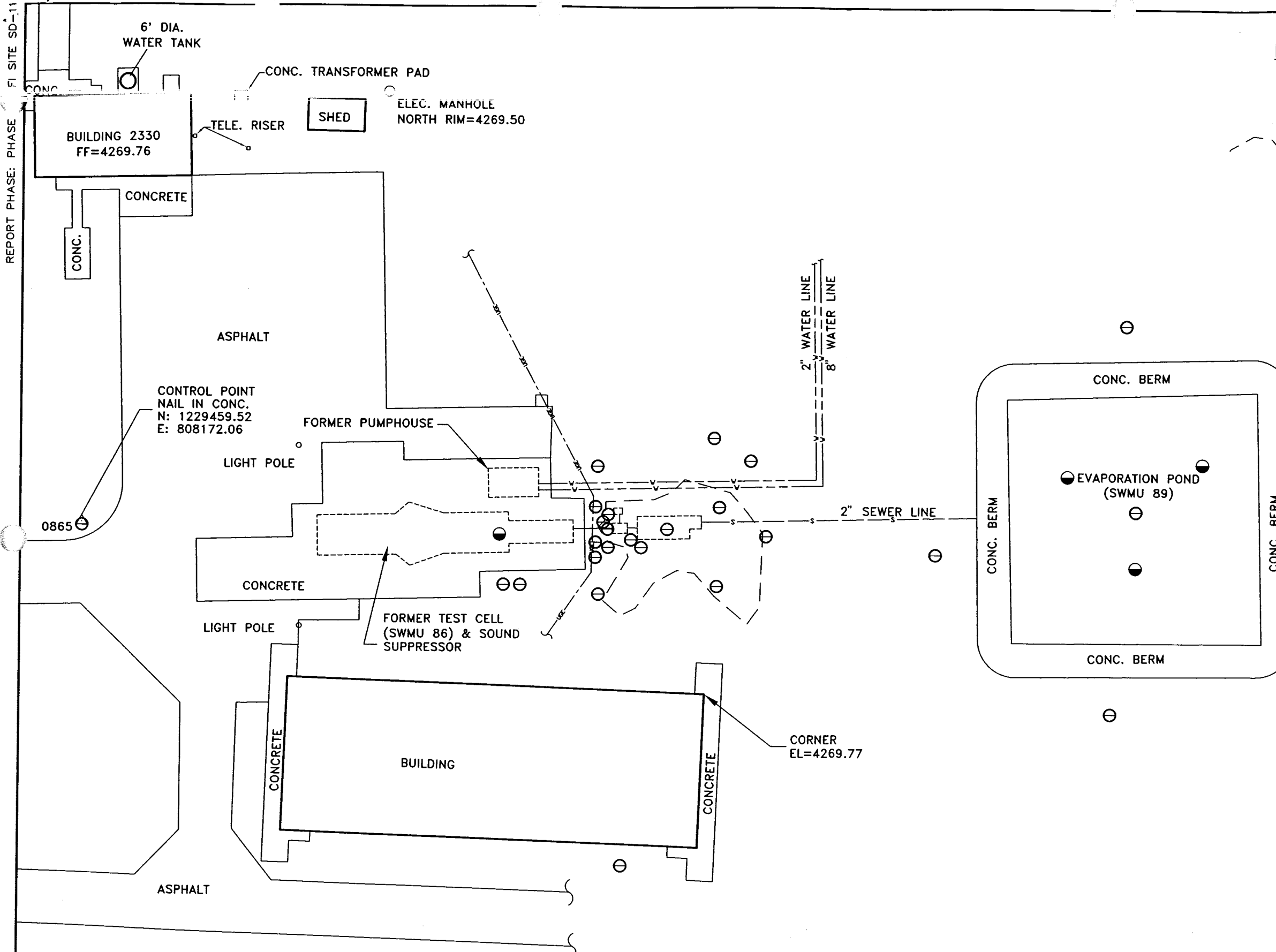
- TPH (DRO) by EPA method 8015B
- TRPH by EPA Method 9071/418.1
- VOCs by EPA Method 8260B
- SVOCs by EPA Method 3550B/8270C

Note: Although the soil samples from the fourth boring, located west of previous boring location 8612, will be analyzed for VOCs using EPA Method 8260B, the samples will be collected following EPA Method 5035 collection techniques.

**Figure 1-3 ESTIMATED SCHEDULE
CORRECTIVE MEASURES STUDY
SWMUs 86-90 (SITE SD-11)**

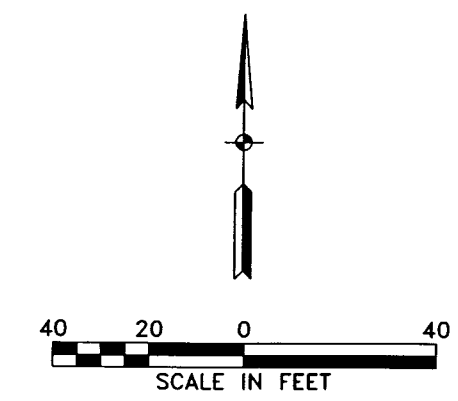


REPORT PHASE: PHASE FI SITE SD-11



LEGEND:

- ⊙ PROPOSED SOIL BORING LOCATION
- ⊖ PREVIOUS SOIL BORING LOCATION
- - - - - APPROXIMATE LIMITS OF EXCAVATION FOR REMOVAL OF OIL/WATER SEPARATOR SYSTEM - REMEDIATION SERVICES INC. 1994



BASE MAP SOURCE: LYDICK ENGINEERS & SURVEYORS, 1993, 1995

APPENDIX 1 SWMUs 86-90 (SITE SD-11)			
PROPOSED SAMPLING LOCATIONS			
CANNON AFB, NEW MEXICO			
DRN. BY: TSSM	DATE: 06/04/98	PROJECT NO. M9602V	FIG. NO. 1
CHK'D. BY:	REVISION: 1		

January 12, 2000 11:30:13 a.m.
 Drawing: T:\CANNON\M9602V\T3200\FIG3-2.DWG (DAP)

NOTE: LOCATION OF UNDERGROUND UTILITY LINES SHOWN ARE APPROXIMATE.

**INSTRUCTIONS FOR PHASE II RFI REPORT
APPENDIX III SWMUs
CANNON AFB, NEW MEXICO**

1. Replace draft covers and spines with final covers and spines.
2. Replace Table of Contents pages iv - xi and pages xiv - xvi with new pages.
3. Replace pages 6-2, 6-3, 6-15, 6-16, and 6-17 with new pages 6-2, 6-3, 6-15, 6-16, and 6-17. Add new page 6-18.
4. Replace Table 6-4 with new Table 6-4. Add new Table 6-4a.
5. Replace pages 8-2, 8-20, 8-21, and 8-22 with new pages 8-2, 8-20, 8-21, and 8-22. Add new page 8-23.
6. Replace Table 8-4 with new Table 8-4. Add new Table 8-4a.
7. Replace pages 9-13, 9-14, and 9-15 with new pages 9-13, 9-14, and 9-15. Add new page 9-16.
8. Replace Table 9-4 with new Table 9-4. Add new Table 9-4a.
9. Replace pages 10-16, 10-17, 10-18, and 10-19 with new pages 10-16, 10-17, 10-18, and 10-19. Add new page 10-20.
10. Replace Table 10-4 with new Table 10-4. Add new Table 10-4a.
11. Replace pages 11-17, 11-18, 11-19, and 11-20 with new pages 11-17, 11-18, 11-19, and 11-20. Add new pages 11-21, 11-22, 11-23, and 11-24.
12. Replace Table 11-4 with new Table 11-4. Add new Tables 11-4a and 11-5.
13. Replace pages 12-8 and 12-9 with new pages 12-8 and 12-9.
14. Replace Table 12-4 with new Table 12-4.
15. Add new Figure 12-3, Location of Landfills.
16. Replace Section 14 (References) with new Section 14.



VOLUME 1B
FINAL APPENDIXES A - B.1



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APPENDIX III
SWMUS - PHASE II

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November 1997

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VOLUME 1C
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APPENDIX III SWMUs
PHASE II

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