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Phase II

RCRA FACILITY INVESTIGATION

Work Plan

to Appendix I

18 Solid Waste Management Units



27th Combat Support Group

Cannon Air Force Base,

New Mexico 88103-5128

April 9, 1993

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## INTRODUCTION

This is a Revised follow-up Work Plan to complete a RCRA Facility Investigation (RFI) of the first third (Appendix I) of Solid Waste Management Units (SWMU) defined at Cannon Air Force Base. This work plan is a part of the original RFI Work Plan was submitted in 1990 and approved December 1990. Work commenced in the spring of 1991, with field work being done in the fall 1991. Report writing and reviews occurred during 1992. In August 1992 EPA Region VI sent their comments on the RFI Report to Cannon AFB. A meeting was held on September 17, 1992 in Region VI offices to discuss the report. The Final Report was submitted in October 1992. On November 29, 1992 EPA Region VI sent a letter approving the RFI Report with modifications enclosed in the letter. This revision is based on comments received March 15, 1993 from Region VI.

This document fulfills the work plan requirements of the above mentioned modifications. The preceding documents are complete as to the purpose, background, history, settings, objectives, and results; so no attempt will be made to reiterate the preceding documents.

This document addresses the SWMUs in numerical order, with the SWMUs needing administrative requirements being first. The only SWMU of Appendix I not addressed in this document is SWMU # 113 - Landfill No. 5 because this landfill is being further investigated in conjunction with the New Mexico Environment Department (NMED). The investigation, Project No. CZQZ 92 7007 is to start this spring. Investigation plans will be reviewed and joint signatures obtained from EPA and NMED.

As with the original work plan, detailed supplements about the details of intrusive sampling actions will be furnished to EPA for review and approval prior to the start of each task described herein. Administrative requirements for the group of SWMUs will not have detailed supplements furnished before field work commences.

As with all Federal Actions, accomplishing the projects as shown in the schedules are dependent upon funding and the timing of the funding.

SWMUs #	34	AGE Drainage Ditch	(IRP SD-15)
	76	Sludge Weathering Pit	(IRP WP-14)
	78	Fire Training Area No. 1	(IRP FT-6)
	81	Solvent Disposal Site	(IRP DP-16)
	98	Sanitary Sewer Line	
	106	Fire Training Area No. 2	(IRP FT-7)
	107	Fire Training Area No. 3	(IRP FT-8)

Requirement is for Administrative Requirements -- Survey Plats & Notification Monuments

Boundary corners will be established at the corners of each SWMU and surveyed into the boundary system of the Base and thus the region. This work shall be done by a New Mexico Registered Professional Land Surveyor.

Three numbered original Plats of the Appendix I SWMUs will be prepared, they will be filed with:

- a. Curry County zoning authority or the authority with jurisdiction over local land use.
- b. Environment Protection Agency Region VI.
- c. Cannon Air Force Base.

Notification signs shall consist of monuments placed on the boundary corners. Cannon AFB RCRA SWMU # x x x will be stamped on the monuments alerting oncoming persons of the unit location.

These steps will be accomplished as part of a Class III permit modification for the above named SWMUs.

Schedule for accomplishing this task

Award Work Order	June 1, 1993
Mobilization	August 16, 1993
Demobilize	September 17, 1993
File Plat locally, submit to EPA	October 25, 1993

This task is combined with the boring at the Old Entomology Rinse Area SWMU # 96 into the same procurement action.

SWMU #s 86-90 Engine Test Cell (TRP SD-11)

Requirement is for removal of oil/water separator and contaminated soil.

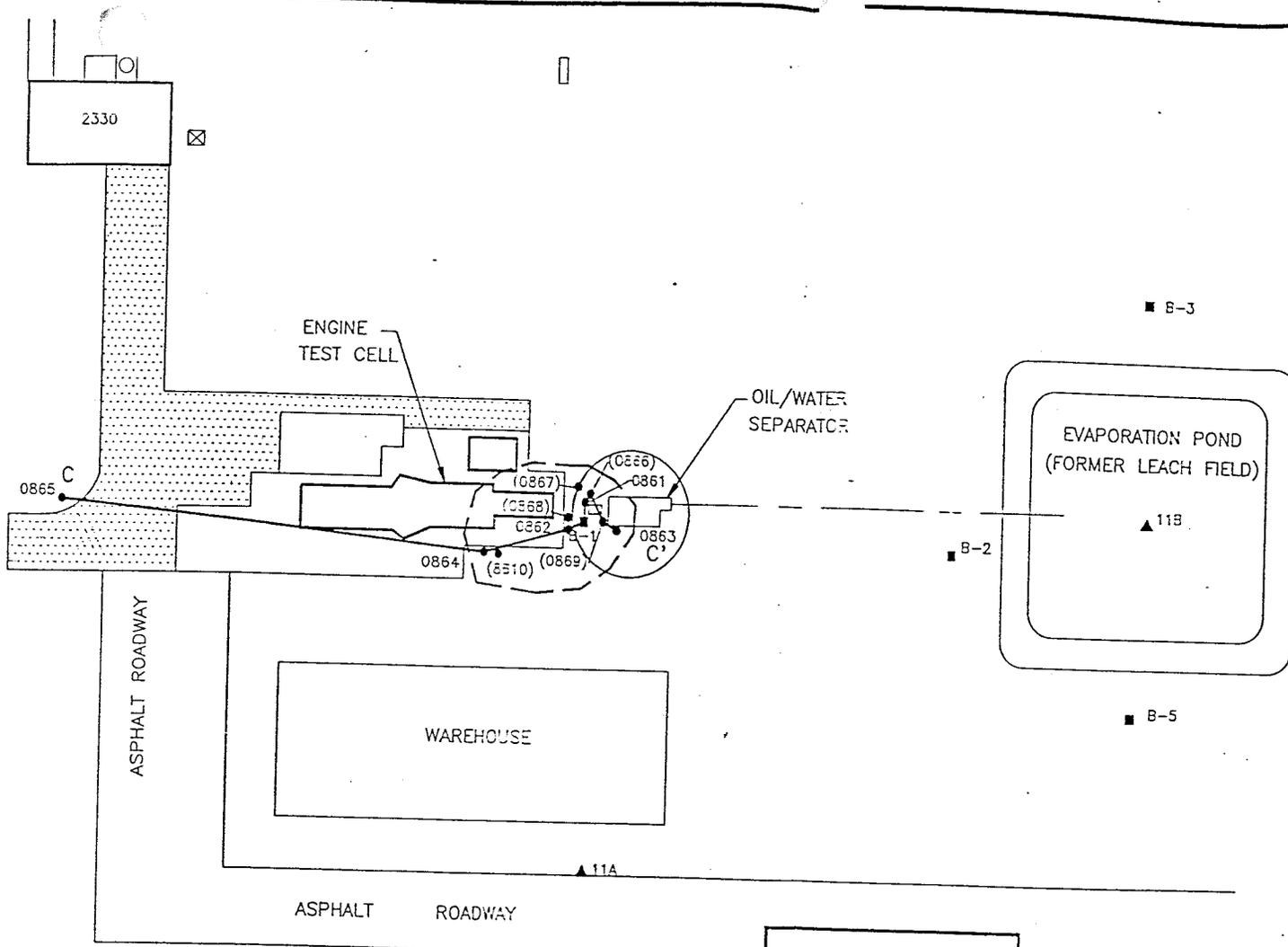
This will be accomplished via a removal project with the designation CZQZ 937011 Interim Removal Action Engine Test Cell, SD-11.

This project will:

1. Remove and dispose of the two oil/water separators, associated piping, and necessary overlying surface paving and foundations encountered.
  - a. Larger separator is about 50' x 10' x 15'.
  - b. Smaller separator is about 10' x 5' x 5'.
2. Excavate all contaminated soils. Excavation will continue until clean soil is encountered. It is anticipated to remove 1200 Cubic yards. Contaminated soil will be placed in the on-base *AN*  
*Approved land farm. 01/10/93*
3. Collect and analyze samples from the walls and from the bottom of the excavation to verify removal of petroleum hydrocarbon contaminated soil.
4. Provide documentation in the form of a short report verifying removal of the oil/water separators and contaminated soil.

Schedule for accomplishing this task

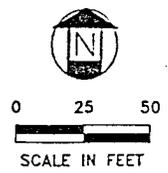
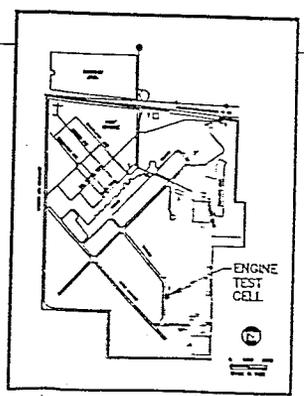
The schedule for accomplishing this task is dependent upon programming of Air Force projects. The only date that can be committed to with any certainty is that the oil/water separators, piping, and soil will be removed, samples taken, and results back is the end of Fiscal Year (FY) 1994. This means that the project and be funded between now and September 30, 1993, or if not this FY, then in FY 1994 with completion by September 30, 1994.



**LEGEND**

- ▲ 11A RADIAN 1984-1985 FIELD INVESTIGATION SOIL BORING LOCATION
- B-1 WALK, HAYDLE & ASSOCIATES 1987 FIELD INVESTIGATION SOIL BORING LOCATION
- 0861 WCC 1991 FIELD INVESTIGATION SOIL BORING LOCATION
- EXTENT OF WCC 1991 INVESTIGATION
- 2330 BUILDING NUMBER
- C-C' GEOLOGIC CROSS-SECTION LOCATION
- Area of Removal

NOTE:  
THE NUMBERS IN PARENTHESIS CORRESPOND TO REDRILLS/RESAMPLES OF THE ORIGINAL BORING /SAMPLE



LOCATION OF SOIL BORINGS AT  
ENGINE TEST CELL AREA  
SWMU NOS. 86-90/IRP NO. SD-11  
CANNON AFB, NEW MEXICO

Requirement is for detailed monitoring plan.

The NorthEast Storm Drainage Area (Outfall 001), a 42 inch diameter CMP that discharges to the east of the runways, collects drainage from a watershed with varied industrial activities including fuel storage, maintenance, and flight line operations.

A detailed monitoring plan for the NorthEast Storm Drainage Area is present as part of a Base-wide National Pollution Discharge Elimination System (NPDES) Permit. (40 CFR parts 122, 123, and 124) being filed as part of a group application consisting of 71 Air Force installations. This Permit specifically addresses the sampling of effluent discharge into this area.

Table 95 presents those chemicals for which quantitative data are required under the Base-wide National Pollution Discharge Elimination System (NPDES) Permit also listed are the Chemical Abstracts Services Registry (CAS) number and the appropriate analytical method. Only the chemical components are given CAS numbers. CAS number are not given to parameters such as BOD5, COD, and Ph. Those chemicals that require grab samples, or whose approved sampling method precludes the use of automatic samplers are noted in Table 95. Results of this sampling will be forwarded to the appropriate NPDES program regulatory officials in accordance with the guideline set forth by the PERMIT.

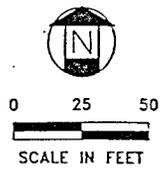
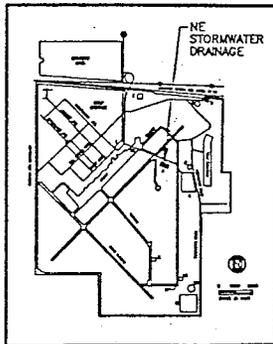
It must be noted that the State of New Mexico is not authorized to issue NPDES permits, therefore, the NPDES program will be administered by EPA Region VI. Also, there are no major differences between the Federal group application requirements published in 40 CFR 122 and those accepted by EPA Region VI (1992). The state regulatory agency will be given the opportunity to certify the EPA Permit.

Schedule for accomplishing this task

See ¶ 3 above.

Table 95, Chemicals to be sampled in Storm Water

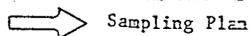
<u>Chemical</u>	<u>CAS #</u>	<u>Analytical Method</u>
Oil and Grease	na	EPA 413.1
pH <sup>1</sup>	na	EPA 150.1
BOD5	na	EPA 405.1
COD	na	EPA 410.4
TSS	na	EPA 160.2
Total Phosphorus	na	EPA 365.1
Total Kjeldahl Nitrogen	na	EPA 351.2
Nitrate plus Nitrite Nitrogen	na	EPA 353.2
Total Antimony	7440-36-0	EPA 200.7
Total Arsenic	7440-38-2	EPA 206.2 CLP-M
Total Beryllium	7440-41-7	EPA 200.7 CLP-M
Total Cadmium	7440-43-9	EPA 200.7 CLP-M
Total Chromium	7440-47-3	EPA 200.7 CLP-M
Total Copper	744050-8	EPA 200.7 CLP-M
Total Lead	7439-92-1	EPA 200.7 CLP-M
Total Silver	7440-22-4	EPA 200.7 CLP-M
Total Thallium	7440-28-0	EPA 200.7 CLP-M
Total Zinc	7440-66-6	EPA 200.7 CLP-M
Volatile Organic Compounds	na	EPA 624
SemiVolatile Organic Compounds	na	EPA 625
Pesticides / PCBs	na	EPA 608



LEGEND

- WALK, HAYDLE & ASSOCIATES 1987, FIELD INVESTIGATION SOIL BORING LOCATION
- B-2
- WCC 1991 FIELD INVESTIGATION SOIL BORING LOCATION
- 0951
- - - SWMU BOUNDARY
- 4284 GROUND SURFACE CONTOUR LINE IN FEET MSL CONTOUR INTERVAL 1-FOOT
- D—D' GEOLOGIC CROSS-SECTION LOCATION

NOTE: THE NUMBERS IN PARENTHESIS CORRESPOND TO REDRILLS/RESAMPLES OF THE ORIGINAL BORING/SAMPLE



LOCATION OF SOIL BORINGS AT  
NE STORMWATER DRAINAGE AREA  
SWMU NO. 95/IRP NO. SD-20  
CANNON AFB, NEW MEXICO

Requirement is a Boring at the sink rinse pit.

Drill one boring to 100' below ground surface at the point of the sink rinse pit. Soil samples will be taken at 10' intervals starting at the 10' depth and continuing to the bottom of the boring. The soil samples will be analyzed using the following methods. Ten percent Quality Control by the Contractor will be done, and 10 % Quality Assurance will be performed by the Government.

The location of the sink rinse pit was surveyed in during the field work of the RFI, and will be easily located.

Volatle Organic Compounds	EPA SW 846, method 8240
Semi-volatile Organic Compounds	EPA SW-846, method 8270
Total TAL Metals (23)	EPA SW-846, method 3005/6010; graphite furnace methods 3005/7060 & 3005/7740 cold vapor method 7471
Pesticides / PCBs	EPA SW-846, method 8080
Herbicides	EPA Method 8150
Total Recoverable Petroleum Hydrocarbons (TRPH)	Method 9071/418.1
Total Petroleum Hydrocarbons (TPH)	California LUFT Mod. EPA 8015 for Light and Heavy Hydrocarbons.

Schedule for accomplishing this task

Award Work Order		June 1, 1993
Prework safety MEETING	@ Cannon AFB, NM	August 3, 1993
Mobilization		August 16, 1993
Demobilize		September 17, 1993
Send Out Pre-Draft Supplement Report to CoE, AF		November 12, 1993
Pre-Draft Supplement Report Conference Call		December 7, 1993
Send Draft Supplement RFI Report to EPA Region VI		January 7, 1994
Draft Supplement, MEETING	@ Dallas, TX	February 8, 1994
Send Out Final Supplement		March 11, 1994

This task is combined with the SWMUs needing administrative requirements into the same procurement action.

OLD CONCRETE  
FOUNDATION FOR  
BUILDING 2160

0961

2165

17A

17B

B8

B4

17C

B7

B3

B2

B1

B6

B5

4280

4280

4280

4280

NORTH LAGOON

PERIMETER ROAD

4275

4275

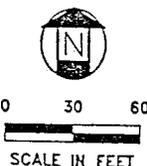
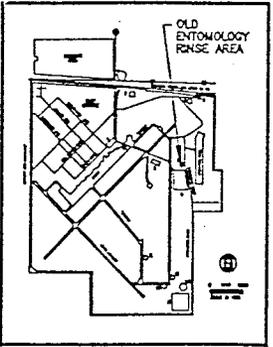
4275

**LEGEND**

- ▲ 17C RADIAN 1985 FIELD INVESTIGATION SOIL BORING LOCATION
- B6 WALK, HAYDLE & ASSOCIATES 1987. FIELD INVESTIGATION SOIL BORING LOCATION
- 0961 WCC 1991 FIELD INVESTIGATION SURFACE SOIL SAMPLE LOCATION
- ⊙ 096K MONITORING WELL LOCATION
- SWMU BOUNDARY
- 4280 GROUND SURFACE CONTOUR LINE IN FEET MSL  
CONTOUR INTERVAL = 5 FEET
- 2165 BUILDING NUMBER
- ➔ New Boring

MONITORING WELL K

096K



LOCATION OF SURFACE SOIL SAMPLES,  
SOIL BORINGS AND MONITORING WELL  
AT ENTOMOLOGY RINSE AREA  
SWMU NO. 96  
CANNON AFB, NEW MEXICO

SWMU #s 101, & 102          Sewage Lagoons

Requirement is for monitoring of the groundwater monitoring wells.

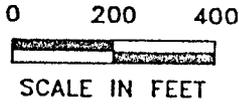
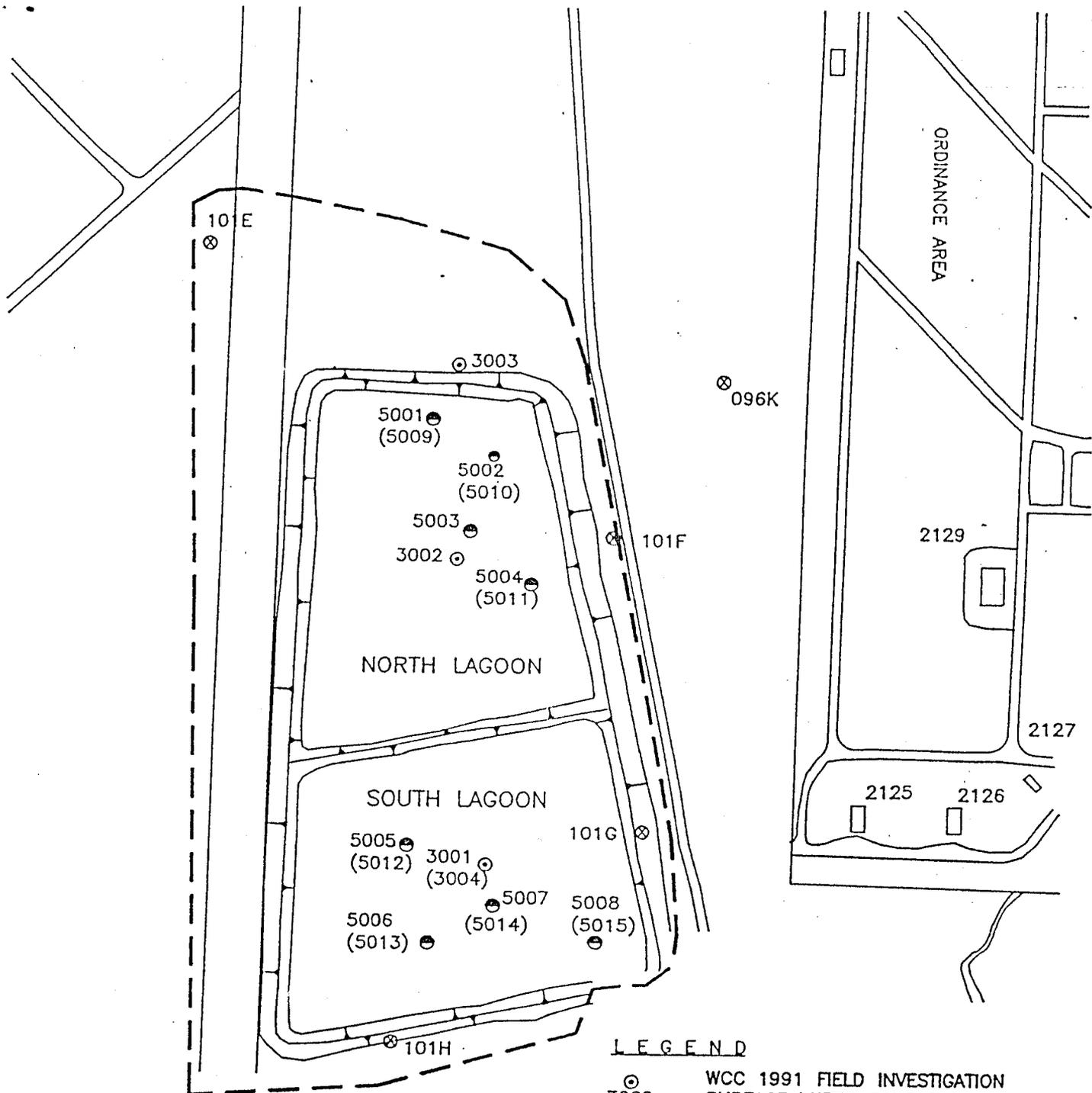
The following wells 101 E, 101 F, 101 G, and 101 H will be monitored on an annual basis.

Analyses to be performed on the water samples:

Volatile Organic Compounds	EPA SW-846, method 8240
Pesticides / PCBs	EPA SW-846, method 8080
Metals	EPA SW-846, method 6010 & AA
Nitrates	EPA SW-846, method 353.2
Sulfates	EPA SW-846, method 300
Total dissolved solids	EPA SW-846, method 160.1

Schedule for accomplishing this task

Results of annual groundwater monitoring will be submitted to EPA, Region VI within 90 days of the sampling event.



**LEGEND**

- ⊙ 3002 WCC 1991 FIELD INVESTIGATION SURFACE WATER SAMPLE LOCATION
- 5005 WCC 1991 FIELD INVESTIGATION SLUDGE SAMPLE LOCATION
- ⊗ 101G MONITORING WELL LOCATION
- SWMU BOUNDARY
- 2129 BUILDING NUMBER

NOTE: THE NUMBERS IN PARENTHESES CORRESPOND TO REDRILLS/RESAMPLES OF THE ORIGINAL BORING/SAMPLE

**LOCATION OF SLUDGE/SURFACE WATER SAMPLES AND MONITORING WELLS AT WASTEWATER LAGOONS SWMU NOS. 101, 102 CANNON AFB, NEW MEXICO**

SWMU # 109 Fire Training Area # 4

Requirement is for lateral & vertical extent of contamination.

Fire Training Area # 4 is currently used an average of 10 to 12 times per year for aircraft/vehicle fire and rescue training purposes by both Air Force and regional Fire Department (career and volunteer) personnel having aviation fire and rescue responsibility. It is of vital importance to not only the mission of Cannon Air Force Base, but to the well-being of the surrounding local communities.

The larger surface area that comprises the training area is unlined and ringed with a small berm and security fence. Immediately below a mock airplane is a concrete "pan" which has internal drainage features such that excess fuel/water is drained to an oil/water separator and subsequently released into a leach field immediately north of the SWMU. Normally, approximately 600 gallons of reclaimed JP-4 fuel and 10,000 gallons of water are used during each training event.

The recently complete RFI for SWMU # 109 used 11 previous borings and 4 new borings to determine the spread of potential contamination. Contamination of various chemicals was detected at various depths down to approximately 22' below ground surface. Elevated levels of TPH were detected at two locations within boring 1093. This contamination also appeared at depths of 50'-52' and 60'-62'. No additional soils contamination was not found at depths below 62'.

A new Fire Training Area project (CZQZ 94 3002) is being designed at Cannon Air Force Base. Currently at the 35 % design stage, the design is expected to be at 100 % by July 1993, with a subsequent construction start date of early 1994. A new location on the base has been sited and approved in preparation for this construction. This project is unique in that it represents the collective efforts and technical expertise of the various Air Force Commands, has been site adapted to the Cannon locale, and provided the greatest amount of protection to the environment. When complete, this new training area will replace the current area, Fire Training Area # 4.

Until the new fire training area is activated, Cannon Air Force Base and the local community will be required to continue utilizing Fire Training Area # 4 for a period of up to possibly late-1994. Since continued use will no doubt further influence the contamination of underlying soils, Cannon Air Force Base is reluctant to immediately enact further investigation activities. Also of concern is the risk of increased contamination migration due to potential pathways created during boring operations while the site remains under full operation. It is therefore recommended that no further investigation be conducted at SWMU # 109 until the new fire training area is activated.

Upon activation of the new fire training area, Fire Training Area # 4 will be deactivated. Once deactivated, SWMU # 109 will undergo extensive remedial investigation. The investigation to further define contaminants at Fire Training Area # 4 will be as follows:

Four borings to 100' around mock airplane to evaluate lateral and vertical extent of TPH in underlying soils.

Two borings to 75' at the "tree" area to evaluate lateral and vertical extent of TPH in underlying soils.

Two borings to 75' at the "vehicle burn" area to evaluate lateral and vertical extent of TPH in underlying soils.

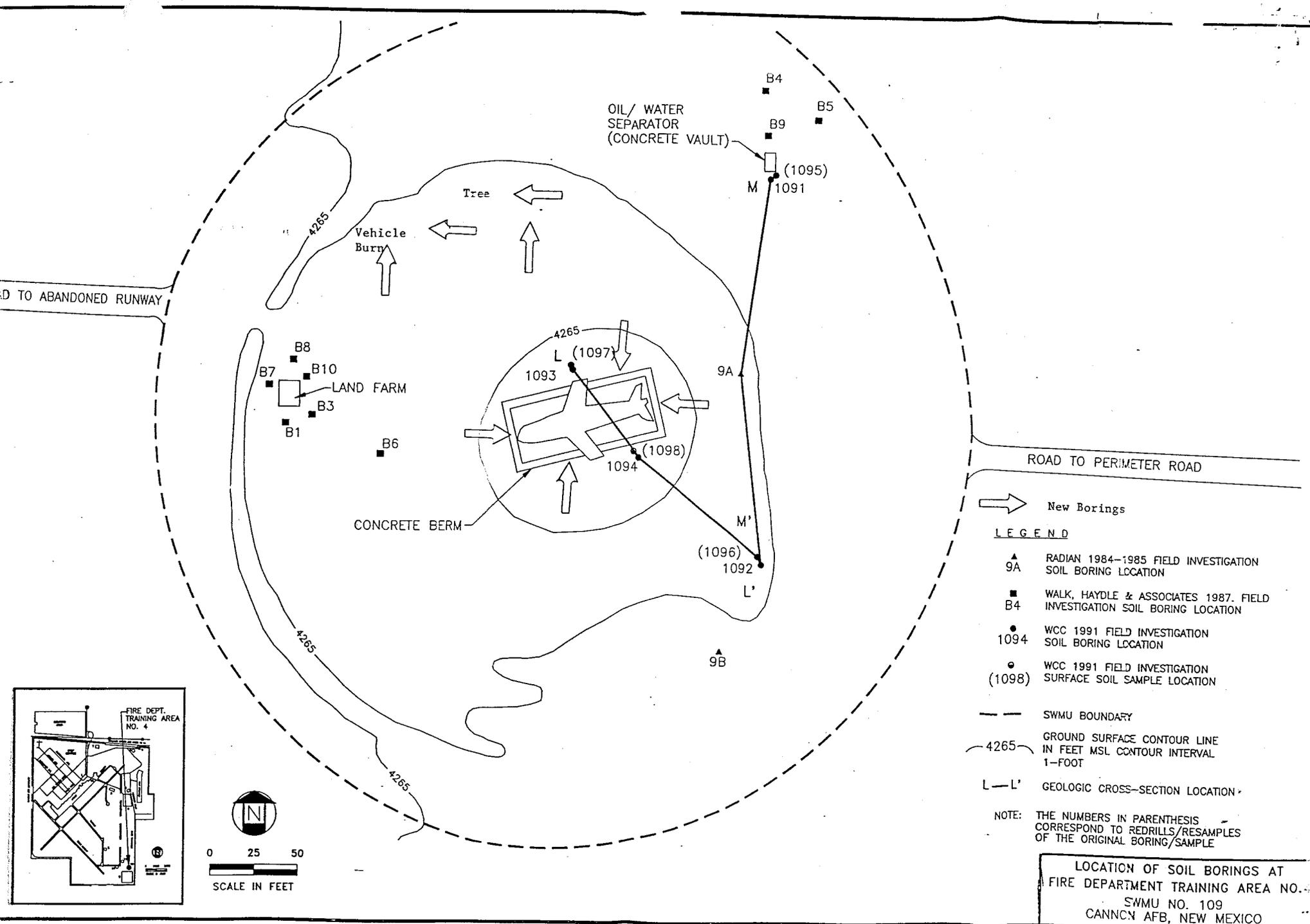
Three borings to 100' spaced toward the outer perimeter of the Area to confirm any spread of petroleum products from past activities. Their exact location will be based upon the findings of the preceding eight borings.

The soil samples will be analyzed for:

Volatile Organic Compounds	EPA SW-846, method 8240
Semi-Volatiles	EPA sw 846, method 8270
Total Petroleum Hydrocarbons	EPA SW-846, method 8015 modified
Metals - Lead, Chromium	EPA SW 846, method 6010

Schedule for accomplishing this task

See ¶ 5, page 12.



➔ New Borings

**LEGEND**

- ▲ 9A RADIAN 1984-1985 FIELD INVESTIGATION SOIL BORING LOCATION
- B4 WALK, HAYDLE & ASSOCIATES 1987. FIELD INVESTIGATION SOIL BORING LOCATION
- 1094 WCC 1991 FIELD INVESTIGATION SOIL BORING LOCATION
- (1098) WCC 1991 FIELD INVESTIGATION SURFACE SOIL SAMPLE LOCATION
- SWMU BOUNDARY
- 4265- GROUND SURFACE CONTOUR LINE IN FEET MSL CONTOUR INTERVAL 1-FOOT
- L-L' GEOLOGIC CROSS-SECTION LOCATION

NOTE: THE NUMBERS IN PARENTHESIS CORRESPOND TO REDRILLS/RESAMPLES OF THE ORIGINAL BORING/SAMPLE

LOCATION OF SOIL BORINGS AT  
FIRE DEPARTMENT TRAINING AREA NO. 4  
SWMU NO. 109  
CANNON AFB, NEW MEXICO

