CAFB 87

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
ALLIED BANK TOWER AT FOUNTAIN PLACE
1445 ROSS AVENUE
DALLAS, TEXAS 75202

1987
AUG 12 ~~1987~~

ENTERED

Mr. Jack Ellvinger, Program Manager
Hazardous Waste Section
Environmental Improvement Division
New Mexico Health and Environment Department
P.O. Box 968
Santa Fe, New Mexico 87504-0968

I

Dear Mr. Ellvinger:

Enclosed for your files is the RCRA Facility Assessment for the following facility:

Cannon Air Force Base NM7572124454

This document may be helpful to your staff members currently working on this facility.

If you have any questions, please contact Marc Sides at (214) 655-6785.

Sincerely yours,

Rob Fish

for William K. Honker, Chief
Permits Section

Enclosure

in magazine file

A.T. Kearney, Inc.
222 South Riverside Plaza
Chicago, Illinois 60606
312 648 0111

Management
Consultants

RECEIVED
JUL 30 1987
HAZARDOUS WASTE COMPLIANCE
TECHNICAL SECTION

July 29, 1987

Mr. Tom Clark
Regional Project Officer
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue
Dallas, Texas 75202-2733

Reference: EPA Contract No. 68-01-7374; Work Assignment No. R26-01-11; Cannon AFB, Clovis, New Mexico; EPA ID No. NM 7572124454; Preliminary Review/Visual Site Inspection Report

Dear Mr. Clark:

Enclosed is the Preliminary Review/Visual Site Inspection Report for the Cannon AFB located in Clovis, New Mexico. This report presents the results of the Preliminary Review (PR) and Visual Site Inspection (VSI) portions of the RCRA Facility Assessment for this facility. The VSI Trip Report, VSI Field Notes, and VSI Photo Log are included as attachments to this report.

Based on a review of the available information and observations made during the VSI, 128 Solid Waste Management Units (SWMUs) and 51 Other Areas of Concern were identified at the Cannon AFB facility.

A number of units have undergone soil surface sampling. Where sampling has been performed and sufficient data is available for evaluation, additional sampling is desirable but not essential. However, during the PR and VSI, several (unsampled to date) units appear to warrant surface soil sampling to determine if there has been a release of hazardous wastes or constituents to the environment. These are:

SWMU NO.	UNIT NAME
31	AGE Maintenance Shop Pad
73	Storm Water Drainage and Retention Pond Area
81	Solvent Disposal Site
111	Unlined Pit
118	Melrose Bombing Range Unexploded Ordnance Open Burn Treatment Pit

It is recommended that in areas where prior sampling has been performed and release evident, deeper sampling be undertaken by the facility to ascertain whether hazardous constituents have breached the upper caliche zone.

Groundwater data was minimal and should be provided by the facility, particularly in the vicinity of areas with higher potential for release such as areas where a hydraulic head is placed on underlying stratum. The following areas are of particular concern:

SWMU NO.	UNIT NAME
73	Storm Water Drainage and Retention Pond
85	Storm Water Collection Point
89	Engine Test Cell Evaporation Pond
101	Wastewater Treatment Lagoons
103	Wastewater Playa Lake

The largest Playa Lake (SWMU No. 103) receives wastewater from the Wastewater Treatment Lagoons (SWMU No. 101). Effluent from this unit is being sold to the neighboring farmer for irrigation purposes. This transfer of water off-base could potentially be a release pathway, and the practice should be reconsidered.

Sincerely,

Bernadette Freeman
for Lee Deets
Technical Director

Pratap N. Singh
for Don R. Beasley
Program Director

Enclosure

cc: A. Pearce, EPA OSW
T. O'Connell, EPA Contracts
W. Luthans, EPA Region VI
L. Boda, EPA Region VI
B. Morson, SAIC
J. Darabaris
B. Freeman
V. Harris
A. Strahan

0110E-CH

PRELIMINARY REVIEW/VSI REPORT
RCRA FACILITY ASSESSMENT

Cannon Air Force Base
Clovis, New Mexico
EPA ID No. NM 7572124454

Prepared for:

U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue
Dallas, TX 75202-2733

Prepared by:

A. T. Kearney, Inc.
222 South Riverside Plaza
Chicago, Illinois 60606

Contract No. 68-01-7374
Work Assignment No. R26-01-11

July, 1987

0110E-CH

LIBRARY COPY

CANNON AIR FORCE BASE

+

MELROSE AIR FORCE RANGE

RFA

JULY 29, 1987

Cannon Air Force Base
New Mexico

PRELIMINARY REVIEW/VSI REPORT
RCRA FACILITY ASSESSMENT

TABLE OF CONTENTS

SECTION	TITLE	PAGE
I.	EXECUTIVE SUMMARY	1-1
II.	INTRODUCTION	2-1
III.	FACILITY AND PROCESS DESCRIPTION	3-1
IV.	ENVIRONMENTAL SETTING	4-1
V.	RELEASE PATHWAYS	5-1
VI.	SOLID WASTE MANAGEMENT UNITS	6-1
VII.	OTHER AREAS OF CONCERN	7-1
VIII.	SUMMARY OF SUGGESTED FURTHER ACTIONS	8-1
IX.	REFERENCES	9-1
	ATTACHMENTS	
	A. VISUAL SITE INSPECTION (VSI) SUMMARY	
	B. SITE VISIT LOG	
	C. SWMU LOCATION MAP	

I. EXECUTIVE SUMMARY

A Preliminary Review (PR) and Visual Site Inspection (VSI) were performed at the Cannon Air Force Base in Clovis, New Mexico, to identify and evaluate Solid Waste Management Units (SWMUs) and Other Areas of Concern. The potential for releases to the environment of hazardous wastes or constituents was assessed, and where appropriate, the need for further actions was identified.

The Cannon Air Force Base (AFB) consists of three non-contiguous portions which are located in three counties in east central New Mexico. The three sites are: Cannon AFB, Melrose Bombing Range, and the Conchas Lake Recreation Annex. Although the bombing range and recreation annex are located some distance from the air force base (25 and 80 miles, respectively), all three locations share the same EPA ID Number (NM7572124454) and are considered as one site.

The main facility, Cannon AFB, is located in Curry County, New Mexico, seven miles west of the City of Clovis. The base is a large facility, situated on approximately 4,320 acres of land. The base was first used as a passenger air terminal in 1929. The Army Air Corps took control of the airfield in 1942 and used it as a training base for flying, bombing, and gunnery exercises during World War II. Since 1971, the primary mission of Cannon AFB has been to develop and maintain an F-111D tactical fighter wing,

capable of day, night, and all-weather combat operations and to provide replacement training of combat aircrews for tactical organizations worldwide.

Melrose Bombing Range is located in Roosevelt County, New Mexico, approximately 25 miles west of Cannon AFB. The range has been used since 1952 as a bombing and air-to-ground gunnery range. The range consists of a composite day and night simulated special and conventional weapon delivery range and day-only tactical range. Live ordnance has not been used on the range since approximately 1969. The range is comprised of 22,140 acres, of which approximately 5,120 are maintained for exclusive Air Force use. The remaining 17,020 acres serve as a safety zone and are out-leased to local ranchers for grazing.

The Conchas Lake Recreation Annex is located in Miguel County, approximately 80 miles northwest of Cannon AFB. The recreation annex has been in operation since the 1960s. The recreation annex is located on approximately 27 acres of land.

The environmental setting section focuses on the Cannon AFB and the Melrose Bombing Range Area. Due to the proximity of these two areas and their common environmental features, these two sites are addressed jointly in the environmental setting section. The Lake Conchas Recreational Annex is likewise in a similar environmental setting and is not addressed separately.

Furthermore, no hazardous waste facilities are managed in the Lake Conchas Recreational Annex and downstream hazardous waste facilities at the Cannon AFB and the Melrose Bombing Range Area are not likely to affect it.

The prominent issues addressed in the environmental setting section are as follows:

- Groundwater is primarily derived from the Ogallala formation and occurs in a semiconfined state. Water well levels rise to as high as 240 feet bls but commonly saturated conditions do not occur till 320 feet bls. Due to heavy irrigation usage and minimal recharge capability, the aquifer has been lowering over the years.

- The geologic column includes several zones of caliche, which are layers of calcium carbonate cemented sediments. The caliche act as an aquitard and effectively isolate the aquifer from surface conditions.

- The local surface drainage is poorly developed and consists mainly of "playas," which are small lakes derived from wind erosion and/or subsidence. Regional surface drainage consists of "playas" and long shallow-river valleys with almost no tributaries. Regional drainage is probably controlled by pre-Ogallala topographic features and geologic structure.

A total of 128 SWMUs and 51 Other Areas of Concern have been identified at Cannon AFB, Melrose Bombing Range, and Conchas Lake Recreation Annex. Five of the SWMUs are RCRA-regulated: Landfill No. 5 (SWMU No. 113), Hazardous Waste Storage Facility (SWMU Nos. 65 and 66), Sewage Lagoons (SWMU No. 101) and Melrose Bombing Range Unexploded Ordnance Open Burn Treatment Pit (SWMU No. 118).

The Department of Defense (DOD) is conducting a nation-wide program to identify and evaluate past hazardous material disposal and spill sites on DOD property, and to control the migration of hazardous constituents resulting from these sites. This program, the Installation Restoration Program (IRP), has been initiated at Cannon AFB by the United States Air Force. Twenty-two sites located at the main Air Force base facility are being investigated. These are SWMUs 34, 74, 75, 76, 78, 81, 82, 85, 87, 88, 95, 96, 104, 105, 106, 107, 109, 111, 113, and Areas of Concern A-C.

II. INTRODUCTION

The RCRA Hazardous and Solid Waste Amendments of 1984 granted the U.S. Environmental Protection Agency (EPA), and authorized states, the authority to require remedial action for past and/or continuing releases of hazardous constituents from all Solid Waste Management Units (SWMUs) at RCRA-regulated facilities. A SWMU is defined as a unit (tank, surface impoundment, etc.) or area where solid wastes have been managed, are managed, or are deliberately, routinely, and systematically placed or allowed to leak onto the land. In order to determine the need for remedial action, a RCRA Facility Assessment (RFA) is performed. The RFA consists of a preliminary data review/evaluation, a visual site inspection, and when warranted, sampling and analysis.

This report summarizes the results of a file review, visual site inspection, and data evaluation of Cannon Air Force Base near Clovis, New Mexico. Primary sources of information utilized in the file review include material from the files of the New Mexico Department of Health and Environment and U.S. EPA, Region VI (see References, Section IX).

As a result of this Preliminary Review, 128 potential Solid Waste Management Units and 51 other areas of concern have been identified at U.S. Cannon AFB. The Solid Waste Management Units and Areas of Concern are located in Tables II-1 and II-2 respectively.

TABLE II-1

SOLID WASTE MANAGEMENT UNITS

SWMU NO.	UNIT NAME
1.	Oil/Water Separator No. 119
2.	Recovered Diesel Tank No. 108
3.	Oil/Water Separator No. 108
4.	Recovered Diesel Tank No. 121
5.	Oil/Water Separator No. 121
6.	POL Tank No. 129
7.	Oil/Water Separator No. 129
8.	Oil/Water Separator No. 165
9.	Aircraft Washrack
10.	POL Tank No. 170
11.	Oil/Water Separator No. 170
12.	Jet Engine Shop Dip Tank
13.	Jet Engine Shop Indoor Washrack
14.	Pneudraulics Shop PD-680 Dip Tank
15.	Pneudraulics Shop Former Drum Storage
16.	Oil/Water Separator No. 680
17.	Bearing Cleaner Tank
18.	Bearing Cleaner and Carbon Remover
19.	Container Accumulation Area No. 681
20.	Armament Recording Lab Floor Drains
21.	NDI Lab Dip Tank
22a,b.	NDI Lab Developer Tank
23a,b.	NDI Lab Emulsifier Processing Tank
24a,b.	NDI Lab Silver Recovery Tank
25.	NDI Lab Drum Storage Area
26.	NDI Lab Fixer Processing Tank
27.	Lead Acid Battery Shop Neutralization Tank
28.	Used Battery Casings Storage Area
29.	NiCad Battery Rinse Sink
30.	AGE Maintenance Shop Washrack
31.	AGE Maintenance Shop Pad
32.	Oil/Water Separator No. 186 (#1)
33.	Oil/Water Separator No. 186 (#2)
34.	AGE Drainage Ditch
35.	Aircraft Drip Pans
36.	Wheel and Tire Shop PD-680 Cleaning Dip Tank
37.	Wheel and Tire Shop Cold Stripper Dip Tank
38.	Oil/Water Separator No. 194
39.	Oil/Water Separator No. 195
40.	Corrosion Control Shop Drum Storage Area
41.	Corrosion Control Shop Dumpster
42.	Corrosion Control Shop Water Holding Tank
43.	Fuel Systems Repair Shop Bowser
44.	Corrosion Control Shop Parts Stripper -- Building 196
45.	Paint Spray Booth Air Purifiers

TABLE II-1 (Cont'd.)

SOLID WASTE MANAGEMENT UNITS

SWMU NO.	UNIT NAME
46.	Oil/Water Separator No. 196
47.	Oil/Water Separator No. 494
48a,b.	Underground Waste Oil Tank (48-A) and Aboveground Overflow Capacity Tank (48-B)
49.	Inactive POL Storage Tank No. 4028a
50.	Inactive POL Storage Tank No. 4028b
51.	Oil/Water Separator No. 375
52.	Waste Oil and Hydraulic Fluid Bowser
53.	Special Purpose Vehicle Maintenance Shop Floor Drains
54.	Special Purpose Vehicle Maintenance Shop Drum Storage Area
55.	Lead Acid Battery Accumulation Point
56.	Lead Acid Battery Storage Area
57.	Oil/Water Separator No. 379
58.	Special Purpose Vehicle Maintenance Shop PD-680 Dip Tank
59.	Civil Engineering Paint Shop
60.	Civil Engineering Paint Shop Waste Container Accumulation Area
61.	Oil/Water Separator No. 5077a
62.	Oil/Water Separator No. 5077b
63.	Oil/Water Separator No. 5077c
64.	Civil Engineering Open Yard PCB Storage
65.	Former Interim Status Hazardous Waste Storage Facility
66.	Hazardous Waste Storage Facility
67.	DPDO PCB Storage Facility
68.	Civil Engineering Department PCB Storage Facility
69.	New Entomology Mixing Room, Sink and Floor Drains
70.	Oil/Water Separator No. 326
71.	Recovered JP-4 Fuel Tank No. 390
72.	Oil/Water Separator No. 390
73.	Storm Water Drainage and Retention Pond
74.	Landfill No. 1
75.	Sanitary Sewage Lift Station Overflow Pit
76.	Sludge Weathering Pit
77.	Civil Engineering Container Storage Area
78.	Fire Department Training Area No. 1
79.	Underground Tank
80.	Drum Storage Area
81.	Solvent Disposal Site
82.	Landfill No. 2
83.	Sump
84.	Waste Oil and Product Storage Area
85.	Storm Water Collection Point
86.	Engine Test Cell
87.	Former Overflow Pit
88.	Former Leaching Field
89.	Evaporation Pond

TABLE II-1 (Cont'd.)

SOLID WASTE MANAGEMENT UNITS

SWMU NO.	UNIT NAME
90.	Oil/Water Separator No. 5114
91.	Recovered Fuel Tank No. 5114
92.	Oil/Water Separator No. 5120
93.	Oil/Water Separator No. 5121
94.	Oil/Water Separator No. 5144
95.	Northeast Storm Water Drainage Area
96.	Old Entomology Rinse Area
97.	Concrete Rubble Pile
98.	Sanitary Sewerage Line
99.	Wastewater Treatment System Bar Screen
100.	Wastewater Treatment System Parshall Flume
101.	Wastewater Treatment System - Lagoons
102.	Wastewater Treatment Effluent Discharge
103.	Wastewater Playa Lake
104.	Landfill No. 4
105.	Landfill No. 3
106.	Fire Department Training Area No. 2
107.	Fire Department Training Area No. 3
108.	Explosive Ordinance Disposal Activities Area
109.	Fire Department Training Area No. 4
110.	Underground Waste Oil Tank No. 2336
111.	Unlined Pit
112.	Oil/Water Separator No. 2336
113.	Landfill No. 5
114.	Melrose Bombing Range Expended Ordinance Burial Site
115.	Melrose Bombing Range Explosives Contaminated Burial Site
116.	Melrose Bombing Range Roads
117.	Melrose Bombing Range Domestic Waste Pile
118.	Melrose Bombing Range Unexploded Ordinance Open Burn Treatment Pit
119.	Melrose Bombing Range Unexploded Ordinance Holding Area
120.	Melrose Bombing Range Expended Target Area
121.	Containers for Clean and Dirty Speedydry
122.	Sanitary Dumpsters
123.	Dirty Rag Disposal Cans
124.	Inactive Underground Tank 1
125.	Inactive Underground Tank 2
126.	Inactive Underground Tank 3
127.	Oil/Water Separator Near Tank 4095 (#1)
128.	Oil/Water Separator Near Tank 4095 (#2)

TABLE II-2

AREAS OF CONCERN

LETTER	UNIT NAME/DESCRIPTION
A	MOGAS Spill
B	JP-4 Fuel Spill
C	Blown Capacitors Site
D	Aircraft Washrack Holding Tank
E	POL Storage Tank No. 140
F	POL Storage Tank No. 163
G	POL Storage Tank No. 181
H	POL Storage Tank No. 182-A
I	POL Storage Tank No. 182-B
J	POL Storage Tank No. 184
K	POL Storage Tank No. 185
L	POL Storage Tank No. 187
M	New Entomology Building Product Storage Area
N	POL Storage Tank No. 368a
O	POL Storage Tank No. 368b
P	POL Storage Tank No. 368c
Q	POL Storage Tank No. 368d
R	POL Storage Tank No. 374
S	POL Storage Tank No. 376
T	POL Storage Tank No. 377
U	POL Storage Tank No. 378
V	POL Storage Tank No. 392a
W	POL Storage Tank No. 392b
X	POL Storage Tank No. 392c
Y	POL Storage Tank No. 392d
Z	POL Storage Tank No. 394
AA	POL Storage Tank No. 395
BB	POL Storage Tank No. 396
CC	POL Storage Tank No. 420
DD	Inactive POL Storage Tank No. 443
EE	POL Storage Tank No. 444
FF	POL Storage Tank No. 728
GG	POL Storage Tank No. 1400
HH	POL Storage Tank No. 2110
II	POL Storage Tank No. 2160
JJ	POL Storage Tank No. 2276
KK	POL Storage Tank No. 2280
LL	POL Storage Tank No. 2285
MM	POL Storage Tank No. 2300
NN	POL Storage Tank No. 2302
OO	POL Storage Tank No. 2307
PP	POL Storage Tank No. 2309
QQ	POL Storage Tank No. 2313
RR	POL Storage Tank No. 2321
SS	POL Storage Tank No. 2327
TT	POL Storage Tank No. 2328
UU	POL Storage Tank No. 2330

TABLE II-2 (Cont'd.)

AREAS OF CONCERN

LETTER	UNIT NAME/DESCRIPTION
VV	POL Storage Tank No. 3117
WW	POL Storage Tank No. 3118
XX	POL Storage Tank No. 3121a
YY	POL Storage Tank No. 3121b

Some SWMU units have been moved during the course of operation. They are designated with one number plus "a" or "b" to denote their previous and current locations. The shift in locations is detailed in Table II-3.

TABLE II-3

SWMU LOCATIONS THAT HAVE SHIFTED

SWMU No.	SWMU Description	Old Location	New Location
22a,b.	NDI Lab Developer Tank	Bldg. 185	Bldg. 593
23a,b.	NDI Lab Emulsifier Processing Tank	Bldg. 185	Bldg. 593
24a,b.	NDI Lab Silver Receiving Tank	Bldg. 185	Bldg. 593
25.	NDI Drum Storage Area	Bldg. 185	*
26.	NDI Lab Fixer Processing Tank	Bldg. 185	**

* NDI Drum Storage now takes place in the Corrosion Control Shop Drum Storage Area.

** A new process tank is on order and will be installed in Bldg. 593.

In addition, 11 aboveground product storage tanks were reviewed but found to be neither a SWMU nor an Area of Concern. These are listed in Table II-4. Given their accessibility, it was felt that the potential for tank deterioration and subsequent accidental release was slight.

On the other hand, underground product storage tanks were listed as an Area of Concern in Table II-2. Due to their inaccessibility, they have a potential for release to occur without immediate knowledge and response.

TABLE II-4

ABOVEGROUND PRODUCT STORAGE TANKS[1]

TANK NO.	UNIT DESCRIPTION	DATE OF START-UP	PRODUCT MANAGED	REFERENCE
136	Aboveground 300-gallon capacity Located north of flight apron Active	1977	Solvent	6, 47
241	Aboveground 8,400-gallon capacity Located at north-central boundary Active	1961	Asphalt	6, 47
243	Aboveground 600-gallon capacity Located at north-central boundary Active	1954	Diesel Fuel	6, 47
398	Aboveground 10,000-gallon capacity Located at Bulk Storage Area Active	1972	Gasoline	6, 47
399	Aboveground 20,000-gallon capacity Located at Bulk Storage Area Active	1971	Diesel Fuel	6, 47
2319	Aboveground 3,000-gallon capacity Located at Small Arms Range Active	1974	Diesel Fuel	6, 47
2331	Aboveground 2,500-gallon capacity Location not known Active	1976	JP-4 (Jet Petroleum Fuel)	6, 47
2332	Aboveground 5,000-gallon capacity Location not known Active	1969	JP-4 (Jet Petroleum Fuel)	6, 47

TABLE II-4 (Cont'd.)

ABOVEGROUND PRODUCT STORAGE TANKS[1]

TANK NO.	UNIT DESCRIPTION	DATE OF START-UP	PRODUCT MANAGED	REFERENCE
5113	Aboveground 2,500-gallon capacity Located south of Combat Parking Area Active	1967	JP-4 (Jet Petroleum Fuel)	6, 47
Conchas Lake-A	Aboveground 1,000-gallon capacity Located at Conchas Lake Recreation Annex Active	1960s	Propane	6
Conchas Lake-A	Aboveground 300-gallon capacity Located at Conchas Lake Recreation Annex Active	1960s	Gasoline	6

[1] These tanks have no known release controls. No releases from these tanks have been documented.

III. FACILITY AND PROCESS DESCRIPTION

OVERVIEW

The Cannon Air Force Base (AFB) sites are located in three counties in east central New Mexico. The sites include Cannon AFB, the Melrose Bombing Range and the Conchas Lake Recreation Annex (Figure III-1). Although the bombing range and the recreation annex are located some distance from the Air Force Base (25 and 80 miles, respectively), all three locations share the same EPA ID number (NM 7572124454) and are considered as one site. However, for purposes of clarity, the three locations will be discussed separately in this section.

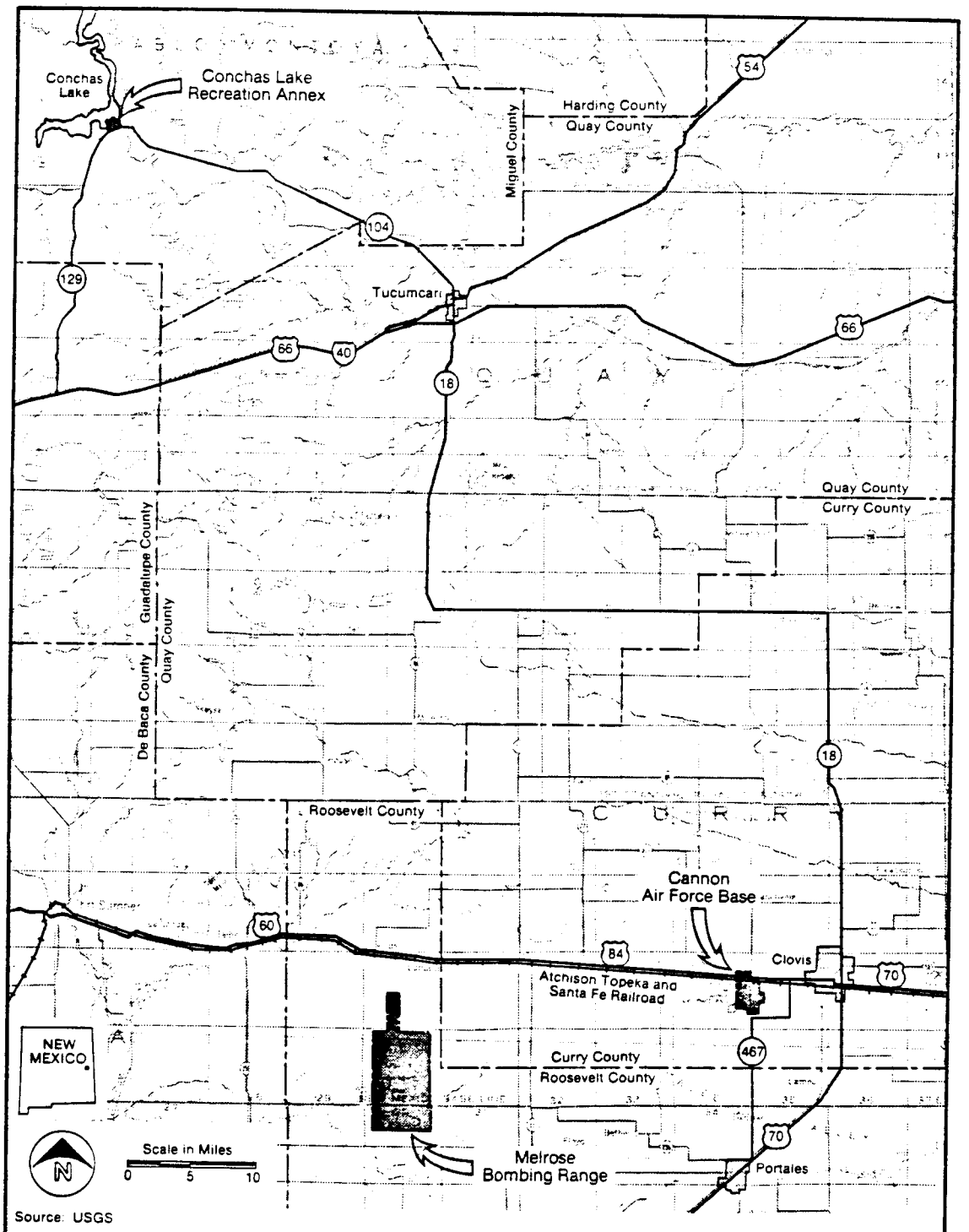
A. CANNON AIR FORCE BASE

Description

Cannon Air Force Base is located in Curry County, New Mexico, approximately 7 miles west of the City of Clovis. The base is situated on approximately 4,320 acres of land. (Figure III-2) In 1929, Portair Field was established on the site as a passenger terminal for early transcontinental flights. In 1942, the Army Air Corps took control of the airfield and used it as a training base for flying, bombing, and gunnery exercises during World War II. The types of aircraft stationed at Cannon AFB during this time included B-17, B-24, and B-29 heavy bombers. The base was deactivated in 1947.

Figure III-1

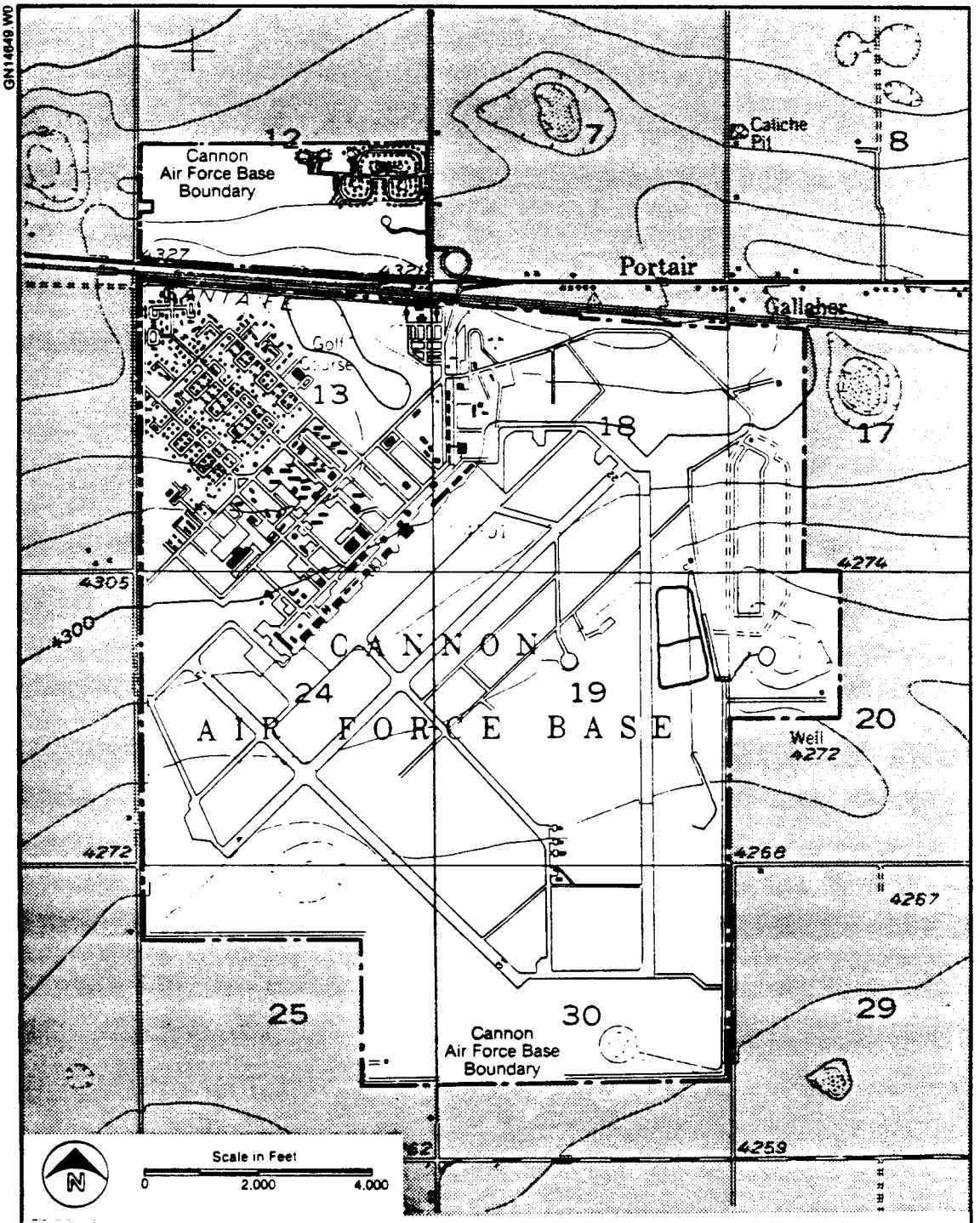
Location Map of Cannon AFB, Melrose Bombing Range, and Conchas Lake Recreation Annex



Source: Reference 6

Figure III-2

Location Map of Cannon AFB



Source: Reference 6

The base was reassigned to the Tactical Air Command in 1951 and formally reactivated. In December 1965, the mission of base changed to that of a replacement training unit. Since 1971, the primary mission of Cannon AFB has been to develop and maintain an F-111D tactical fighter wing, capable of day, night, and all-weather combat operations and to provide replacement training of combat aircrews for tactical organizations worldwide. Currently, approximately 70 F-111D aircraft are assigned to Cannon AFB and the total work force on base numbers 4,780 (Reference 1).

Permitting History

In November 1986, Cannon AFB submitted a RCRA Part B Permit Application for four site, including one at the Melrose Bombing Range which will be discussed later in this section. The three RCRA sites located on the Air Force Base itself are (Reference 6):

1. Landfill No. 5 (SWMU No. 113)
2. Drum Storage Area (SWMU Nos. 65 and 66)
3. Sewage Lagoons (SWMU No. 101)

The facility has submitted a Closure Plan and Post Closure Plan for the landfill. The landfill is currently inactive and closure is expected to begin with the EPA approval of the plan (Reference 6).

The sewage lagoons discharge to a playa lake (SWMU No. 103). The agency waived the requirement for an NPDES Permit (Reference 6).

Wastes

Wastes have been generated and disposed of at Cannon AFB since the beginning of industrial operations in 1942. The major industrial operations which have occurred at the base include jet engine repair, pneumatic and hydraulic systems maintenance, aerospace ground equipment (AGE) maintenance, corrosion control, vehicle maintenance shops, and the non-destructive inspection (NDI) lab. These industrial operations generate varying quantities of waste oils, recoverable fuels, and spent solvents and cleaners (Reference 6).

The total quantity of waste oils, recovered fuels, and spent solvents and cleaners generated ranges from 10,000 to 20,000 gallons per year. The above range of total waste quantities is believed to be representative for the period from the mid-1960s, when the mission changed to that of a replacement training unit, to the present (Reference 1).

Waste Management

Past and present industrial waste disposal practices are summarized below:

- 1943 to 1947 and 1952 to 1965: The majority of waste oils, spent solvents, and recovered fuels were burned during fire department training exercises or burned/buried at one of the base landfills. Since no program of waste segregation existed, most spent solvents and paint thinners were commingled with waste engine oils, lube oils, and hydraulic fluids.

The waste oils, spent solvents, and recovered fuels were collected in 55-gallon drums and bowsers and transported by shop personnel to either Fire Department Training Area No. 1 (SWMU No. 78) or the landfill (SWMU Nos. 74, 82 and 105) in use at the time. Waste materials brought to the fire department training area in 55-gallon drums were stored at the area until needed to ignite a practice burn during training exercises. Waste materials brought to the landfills were burned prior to burial in trenches (Reference 6).

- 1965 to 1975: The majority of waste oils, spent solvents, and recovered fuels were collected in 55-gallon drums and bowsers and transported to either a fire department training area (SWMU Nos. 78 and 109), a landfill (SWMU Nos. 104, 105 and 113), or the 20,000- gallon underground waste oil tank No. 4028 (SWMU No. 49). Since no program of waste segregation existed, most spent solvents and paint thinners were commingled with waste oils. From approximately 1968 to 1974, waste materials were not burned at the fire department training areas, although burning of waste materials at the fire department training areas resumed between 1974 and 1975. Burning operations at the landfill ceased in 1972, after which materials were placed directly into landfill trenches. Waste

materials brought to Waste Oil Tank No. 4028 (SWMU No. 49) were removed by a contractor. Some waste oils collected in the underground waste oil tank were transported by base personnel to the Melrose Bombing Range and used for road oiling to control dust on unimproved roads. Some recovered fuels generated during the cleaning of refueling trucks were drained onto the ground at SWMU No. 109 (Reference 6).

- 1975 to 1982: The practice of burning waste oils and spent solvents during fire department training exercises was stopped in 1975. The majority of waste oils were collected in 55-gallon drums and bowsers and transported to Waste Oil Tank No. 4028 (SWMU No. 49). Waste oils were removed by a contractor. The Defense Property Disposal Office (DPDO) assumed accountability and contracting responsibility for the contractor removal of waste oils in 1978. Some waste oils were disposed of in the base landfill (SWMU No. 113) during this period (Reference 6).

  The majority of spent solvents and paint thinners were collected in 55-gallon drums and stored at the individual shops until contractor removal. DPDO arranged for contractor removal of spent solvents and paint thinners. Some waste paints and paint thinners were disposed of in the base landfill (SWMU No. 113) (Reference 6).

The majority of recovered JP-4 fuel was burned during fire department training exercises or placed in the Waste Oil Tank No. 4028 (SWMU No. 49) and removed by a contractor. Recovered JP-4 destined for the fire training area was collected in 55-gallon drums and bowsers and was placed on arrival in a 2,000-gallon Underground Waste Oil Tank (SWMU No. 110) constructed in 1975. The fuel was then pumped from the storage tank to the simulated aircraft when needed to ignite a burn. Some recovered fuels were disposed of in Landfill No. 5 (SWMU No. 113) (Reference 1).

- 1982 to present: Currently, waste materials are segregated and then accumulated and temporarily stored in marked 55-gallon drums and bowsers at designated waste accumulation points. Waste oils collected at the waste accumulation points are transported to the Underground Waste Oil Tank (SWMU No. 48) and are then removed by a contractor. Spent solvents and paint thinners collected at the waste accumulation points are turned over to DPDO for contractor removal and are stored at the base Hazardous Waste Storage Facility (SWMU No. 66). Recovered JP-4 fuel is transported to Fire Department Training Area No. 4 (SWMU No. 109) and placed in Underground Waste Oil Tank (SWMU No. 110) or is collected in marked 55-gallon drums and turned over to DPDO for contractor removal (Reference 1).

Cannon AFB operates two wastewater stabilization lagoons (SWMU No. 101) for the treatment of mixed sanitary and industrial wastewater. The lagoons have a combined surface area of 32 acres and are operated in series. The lagoons, constructed in 1966, have unlined earth bottoms and concrete-lined banks and operate at an average depth of approximately 3 feet, with a maximum depth of 4.5 feet. The average daily flow to the lagoons is 566,000 gallons. The influent to the lagoons is monitored on a daily basis for flow and temperature and on at least a monthly basis for pH, settleable solids, and dissolved oxygen (DO) (Reference 6). The wastewater treatment system does not have a National Pollutant Discharge Elimination System (NPDES) permit. The requirement for an NPDES permit was waived by the Agency in 1975 because the lagoons do not discharge into navigable waters (Reference 6).

Prior to the construction of the two lagoons in 1966, the base sanitary and industrial wastewater was treated by an Imhoff tank treatment system (SWMU No. 96) that discharged to Playa Lake (SWMU No. 103).

The treated effluent from the lagoons is channeled to Playa Lake (SWMU No. 103), a natural land depression, which is confined entirely within the base perimeter. Effluent disposal is by a combination of evaporation and infiltration. Playa Lake has been sampled since 1981 on an annual basis; the samples were analyzed for nitrate, chloride, sulfate, total phosphorus, chemical oxygen demand, oil and grease, and metals. Analytical results have been below drinking water standard limits (Reference 6).

The Department of Defense (DOD) is conducting a nationwide program to identify and evaluate past hazardous material disposal and spill sites on DOD property and control the migration of hazardous contaminants resulting from these sites. This program, the Installation Restoration Program (IRP), consists of four phases: Phase I, Initial Assessment/Record Search; Phase II, Problem Confirmation/Quantification; Phase III, Technology Base Development; and Phase IV, Remedial Actions. The United States Air Force (USAF) has initiated an IRP investigation at Cannon Air Force Base. Phase I was conducted from 1982 through 1983; Phase II (Stage 1) was conducted in 1984-85.

The purpose of the Phase II (Stage 1) investigation was to determine if environmental contamination has resulted from waste disposal practices, fuel spills/leaks and fire training activities at Cannon AFB. In addition, the investigation included an estimate of the magnitude and extent of contamination, should contamination be found; the identification of potential environmental consequences of migrating pollutants; and the recommendation for any additional investigation necessary to identify the magnitude, extent and direction of movement of discovered contaminants (Reference 1).

The Phase II, Stage 1 work at Cannon AFB focused on 15 sites, including landfills, fire training areas, spill sites and solvent disposal sites (Reference 46). Soil boring sites and analyses from samples collected in 1985 are shown in figures that follow

descriptions of the individual IRP sites in Section VI. The field activities were conducted from November 1984 through April 1985. Four groundwater monitoring wells were installed and sampled, and forty-one soil borings were completed (Reference 6).

B. MELROSE BOMBING RANGE

Description

Melrose Bombing Range is located in Roosevelt County, New Mexico, approximately 8 miles southwest of the Village of Melrose, New Mexico, and 25 miles west of Cannon AFB. The location of Melrose Bombing Range is shown on Figure III-2. The range is 4.25 miles wide by 7.25 miles long with a run-in corridor 1 mile wide by 3 miles long on the north end of the range. The range comprises 22,140 acres of land, of which approximately 5,120 acres are contained in the impact area and are maintained for exclusive Air Force use. The remaining 17,020 acres serve as a safety zone and are out-leased to local ranchers for grazing (Reference 6).

The Air Force originally leased 7,771 acres of grassland in early 1952 for use as a bombing and air-to-ground gunnery range. From 1968 to 1972, the Melrose Bombing Range was expanded when the Air Force purchased 22,043 acres of land, including the 7,771 acres held under lease. The range consists of a composite day and night simulated special and conventional weapon delivery range and a day-only tactical range. Live ordnance have not been used at the range since approximately 1969. Ordnance currently used at the range is limited to practice bombs, inert full-scale bombs,

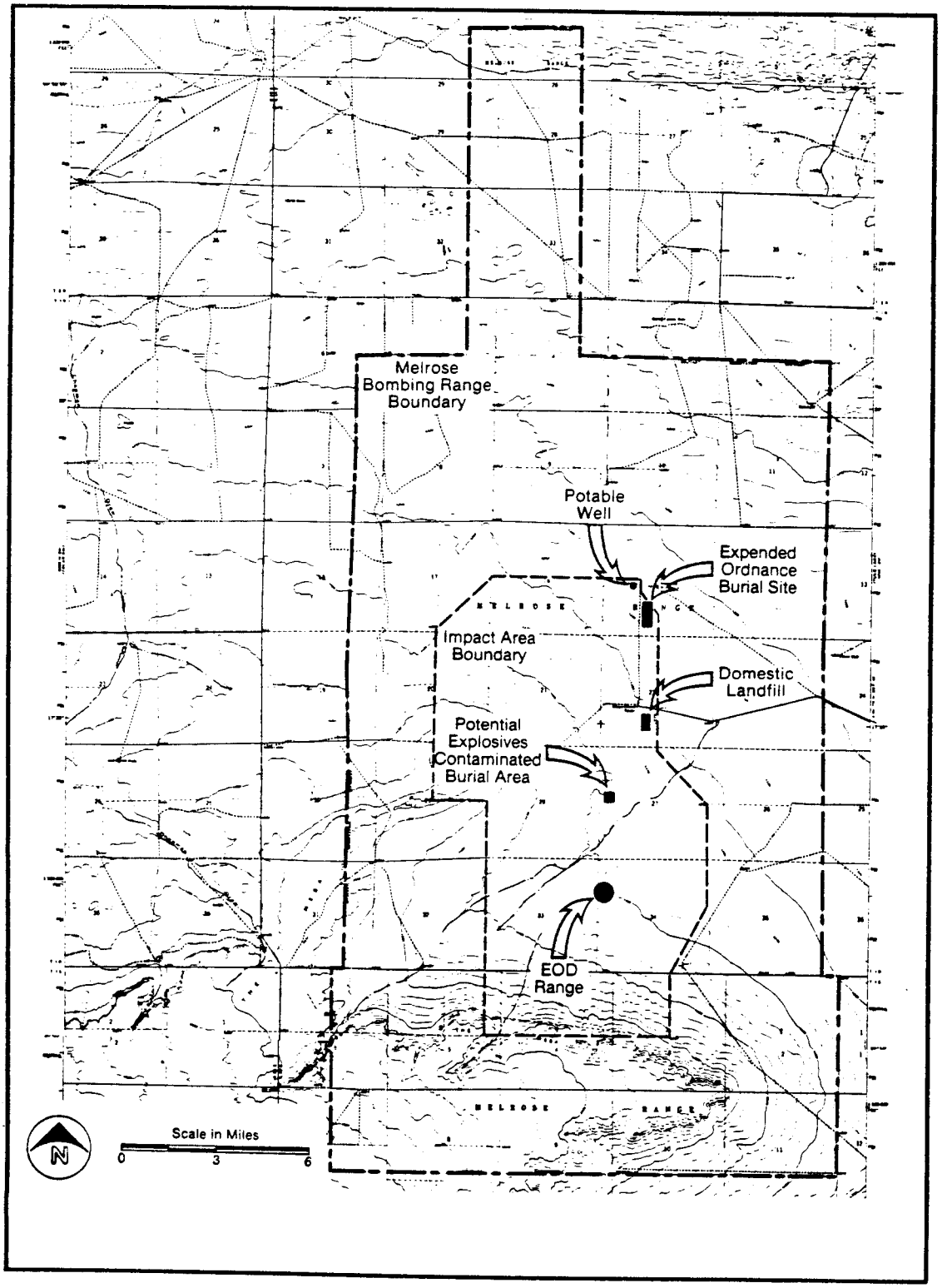
and target practice gun ammunition. The range is used primarily by F-111D and A-7D aircraft. The range is also used occasionally by other Air Force, Air Force Reserve, Air National Guard, Navy, and Marine units (Reference 6).

Permitting History

In November 1986, Cannon AFB submitted a RCRA Part B Permit Application for four sites, including the Melrose Bombing Range Unexploded Ordnance Open Burn Treatment Pit (SWMU 118) (Reference 45). The site is used to burn unserviceable munitions. A burn permit is obtained annually from the State of New Mexico, Region IV (Reference 47).

Figure III-3

Location Map of Melrose Bombing Range



Source: Reference 6

Wastes

The ordnance activities of the Melrose Bombing Range generate scrap metal from exploded practice bombs and munitions, and residue from the detonation of unexploded practice munitions. Until 1969, live ammunition was also generated as waste. Domestic garbage and solid waste from range support activities are also generated on the bombing range (Reference 6).

Waste Management

Eight expended ordnance burial pits comprise the Expended Ordnance Burial Site (SWMU No. 114). The Expended Ordnance Burial Site receives primarily scrap metal from practice bombs and munitions picked up during range clean-ups and residue from EOD detonation and burning operations. Approximately 12,000 to 15,000 pounds of scrap metal are collected and disposed of at the burial site on a monthly basis. EOD activities, which include detonation and burning of any unexploded practice munitions, are conducted on a monthly basis. Twenty to thirty pounds are detonated on a routine monthly basis. The residue from the EOD activities is collected and disposed of at the Expended Ordnance Burial Site. Live ammunition was probably buried in one of the burial pits (SWMU No. 115). Another site that may contain unexploded ordnance is an old expended ordnance burial pit (SWMU No 115) which has been closed for a long period, in the center of the range (Reference 6).

Domestic garbage and solid waste are disposed of in an on-site landfill (SWMU No. 117).

On "at least one" occasion, waste oils collected in the Waste Oil Tank No. 4028 (SWMU No. 49) at Cannon AFB were transported to Melrose Bombing Range and used for road oiling to control dust on unimproved roads (Reference 6). The quantities of waste oils used and the location of the road oiling operation are unknown. Approximately 120 miles of unimproved roads, many of which were constructed to serve as fire-breaks, are in use at the range. Road oiling for dust control on unimproved roads at the Melrose Bombing Range is not known to have been a common disposal method for waste oils generated by Cannon AFB (Reference 6).

C. CONCHAS LAKE RECREATION ANNEX

Description

The Conchas Lake Recreation Annex, leased by the Air Force from the Army Corps of Engineers, is located about 80 air miles northwest of Cannon AFB on the Conchas Lake Reservoir, an impoundment of the Canadian and Conchas Rivers in Miguel County. The recreation annex has been in operation since the 1960s; however, a major expansion of the facilities occurred in 1980. The recreational facilities are located on approximately 27 acres of land and include 18 trailers, picnic shelters, and a bath house. Potable water is obtained by water main from the Conchas Lake State Park (Reference 6).

Wastes

The majority of wastes generated at the site are domestic sewage and domestic garbage.

Waste Management

Domestic sewage is pumped to a sewage lagoon located in and operated by the Conchas Lake State Park. All domestic garbage is collected and transported off-site to a private landfill located in the vicinity. Other facilities of interest include a 1,000-gallon aboveground propane storage tank and a 300-gallon aboveground MOGAS storage tank (Reference 6). The records search revealed no evidence of the use or disposal of any hazardous materials at the recreation annex. Therefore, the recreation annex does not have any SWMUs or Areas of Concern.

IV. ENVIRONMENTAL SETTING

LOCATION AND SURROUNDING LAND USE

Cannon AFB is located about 7 miles west of Clovis in Curry County New Mexico. The northern perimeter is bounded by U.S. Highway 60/84 and the A.T. & S.F. Railroad. The major land use in this part of northeastern New Mexico is ranching and agriculture. The land surrounding Cannon AFB consists of irrigated crops and pasture land used in the cattle ranching and dairy business (Reference 6).

Cattle stock yards are located one-half mile to the northwest of the base across U.S. Highway 60/84. Married Air Force personnel are housed on base and directly north of the base across the highway (Reference 47).

Melrose Bombing Range is located 25 miles west of Cannon AFB, and the land around is similar to the Air Force Base area. The surrounding land is used for cattle grazing (Reference 45).

Conchas Lake Recreation Annex, 80 miles northwest of Cannon AFB, is located on the Conchas Lake Reservoir, an impoundment of the Canadian and Conchas Rivers. The recreation annex is near the Conchas Lake State Park, a 25-mile recreational area specializing in water sports, winter sports, hunting and fishing (Reference 6).

TOPOGRAPHY

Cannon AFB and the Melrose Bombing Range are located on an isolated plateau in the Southern High Plains section of the Great Plains physiographic province (Reference 6).

Cannon AFB is located near the center of this plateau. The terrain is flat and featureless with almost no relief. Elevations at the base range from 4,327 feet above mean sea level (ft - MSL) at the northwest corner to approximately 4,260 ft - MSL at the southwest corner. Like the plateau, the base slopes gently towards the southeast (Reference 6).

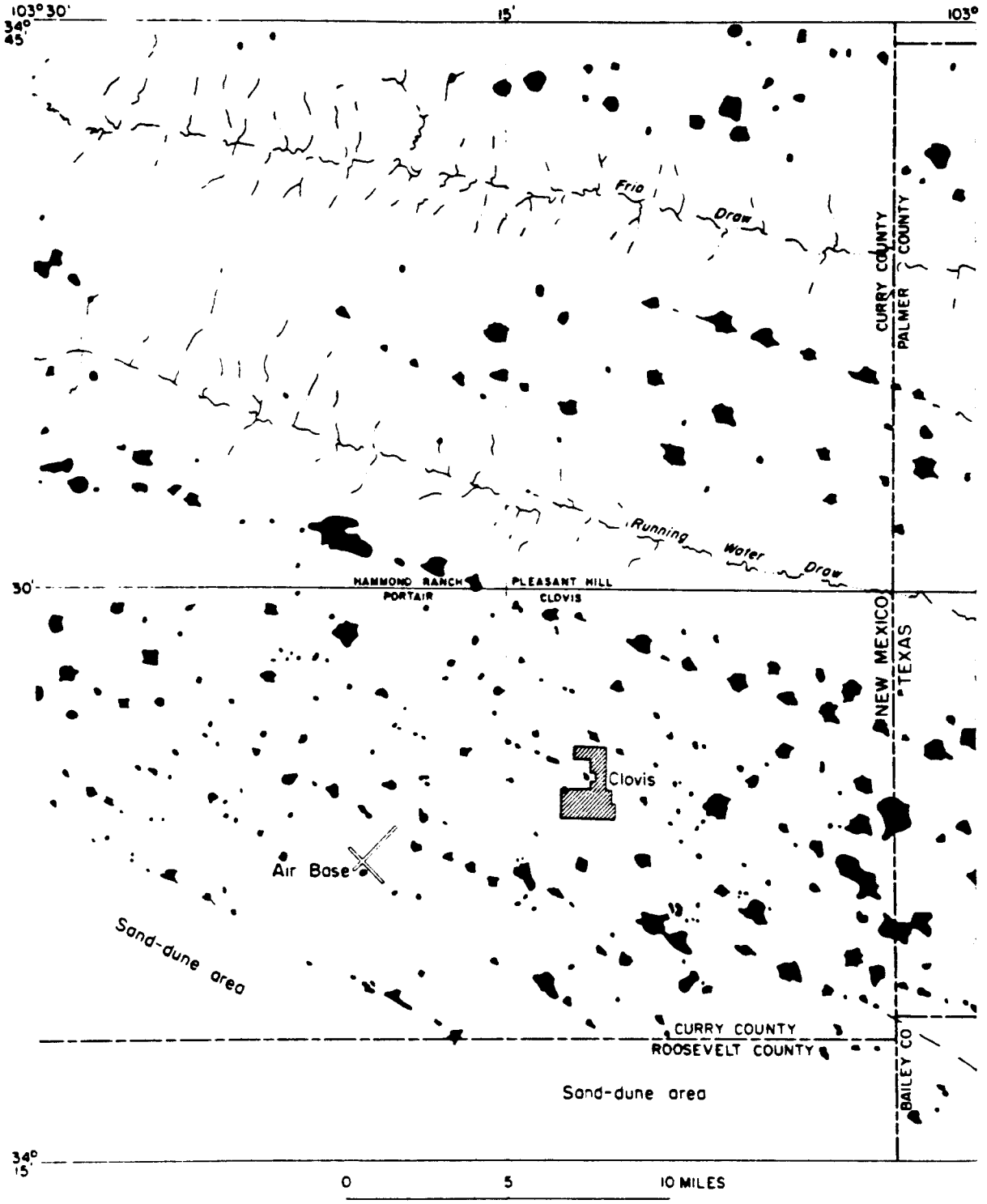
The only features of relief occurring on the otherwise flat plateau are shallow depressions called "playas," sand dunes, and small stream valleys. Of these, only playas are evident on the Cannon AFB.

Theories on the origin of the playas fall into two categories: (1) an origin by action of leaching and wind deflation and (2) an origin by collapse of the surface due to differential solution of Permian rocks. The linear distribution of many depressions suggest structural control of their location as indicated in Figure IV-1 (Reference 50).

The playas are low points for particular drainage areas. They collect storm water run-off from rainfall or snow melt and can be up to 50 feet deep and a mile or more in diameter. Drainage areas

Figure IV-1

Distribution of Depressions in East Central New Mexico



Source: Reference 50

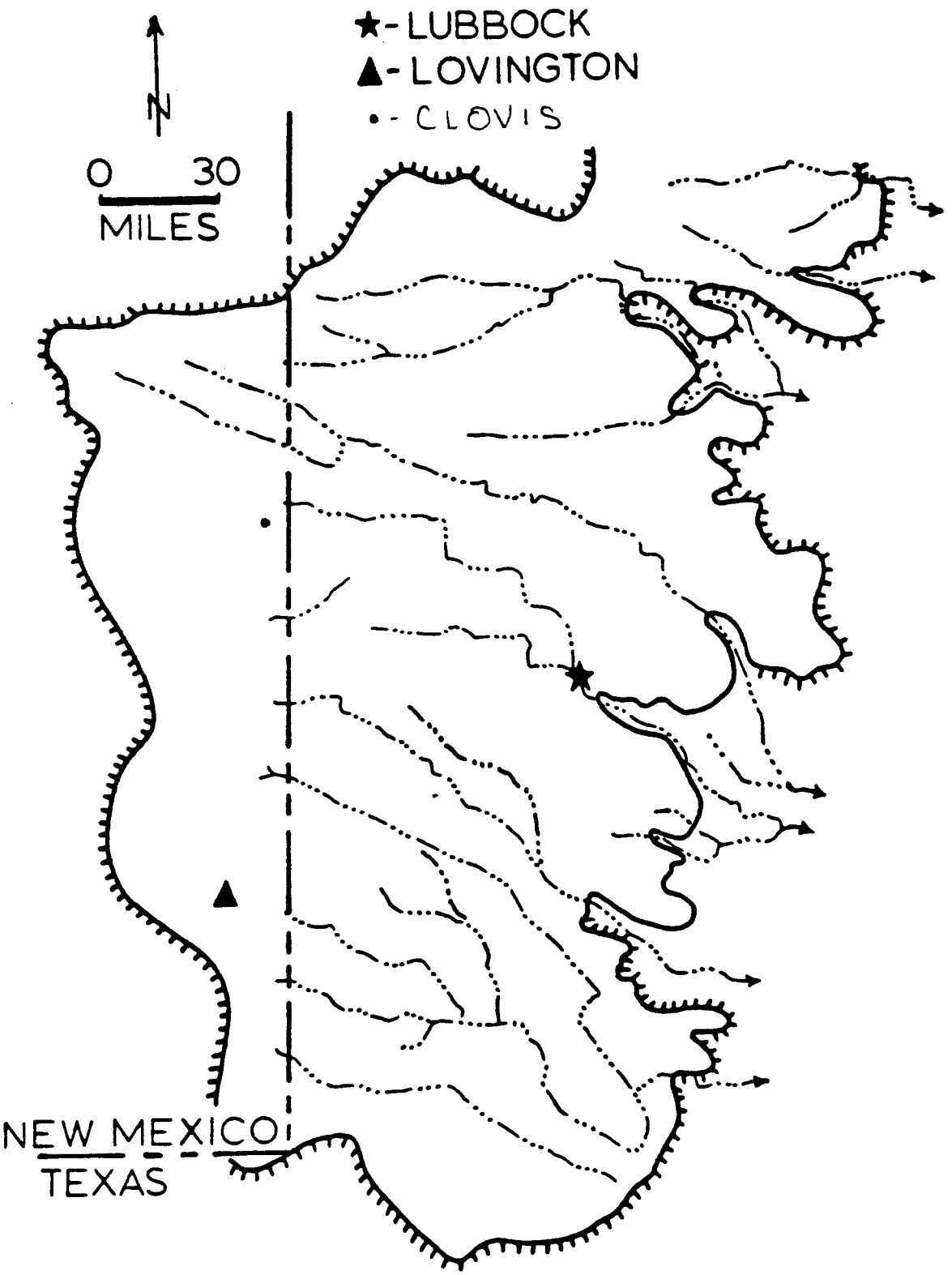
for these "lakes" range from 1 square mile to as much as 50 square miles. The playa has no surface discharge and water is lost by evapotranspiration and infiltration. Some of the larger and deeper playas may become saline lakes, with salts being concentrated by evaporation (Reference 6).

The Melrose Bombing Range is also located within the South High Plains. The area is characterized by a flat, featureless terrain with little or no relief excepting the escarpment and mesa occurring in the southwest corner of the range. Elevations range from approximately 4,200 ft - MSL to approximately 4,600 ft - MSL. Surface drainage is poorly developed, a situation typical of the South High Plains (Reference 6).

Stream drainage on the plateau is very poorly developed due to the low annual rainfall and the lack of topographic relief (Reference 1). The regional drainage pattern is subparallel to modified dendritic (Figure IV-2) which is indicative of structural control (Reference 52). Drainage patterns generally consist of long, shallow valleys with almost no tributaries. Regionally, the valleys slope downward to the east and southeast, eventually entering the valley of one of the three major rivers: the Red, the Brazos, and the Colorado. However, the Southern High Plains area generally does not contribute to streamflow except during rare periods of excessive rainfall. Water is lost to evapotranspiration and shallow infiltration before it has a chance to run off (Reference 6).

Figure IV-2

Major Intermittant Drainage Channels of Southern High Plains



Source: Reference 52

METEOROLOGY

The area around Cannon AFB, the Melrose Bombing Range and the Conchas Lake Recreation Annex is semiarid with a pronounced drop in soil moisture content with depth from surface. The mean annual precipitation at Cannon AFB is about 14 inches while Clovis, approximately 7 miles east, receives nearly twice as much precipitation. Per Reference 6, "The annual net precipitation for the Cannon AFB area is approximately -55 inches per year. The wettest months are during the summer, with virtually all of the precipitation due to thunderstorms. Winters in the Cannon AFB area are relatively dry, with about 12 inches of snow occurring. Due to the relatively warm temperatures (average daily maximum at least 51°F), snow usually melts within 24 hours of occurrence."

Also, per Reference 6, "Temperatures are cooler during the summer than in the lower elevations to the east. Additionally, the air is drier than in the lower elevations (maximum relative humidity is less than 40 percent during the summer). This summer dryness is due to the "Marfa" or "dewpoint" front which usually lies to the east. Whenever this "front" moves to the west of Cannon AFB, the relative humidity rises dramatically."

Frontal passages throughout the year are generally dry and are characterized by gusty winds and little if any rain. The wind usually blows from the west during the winter and gradually shifts to the south as the temperatures rise in the spring and summer. In the spring, the wind is generally very gusty, with an average daily peak wind of about 25 knots from the west-southwest (Reference 6).

SURFICIAL SOILS

Site-specific soils information for the Cannon AFB and surrounding area has been well documented in reports prepared for the Installation Restoration Program (References 1 through 6).

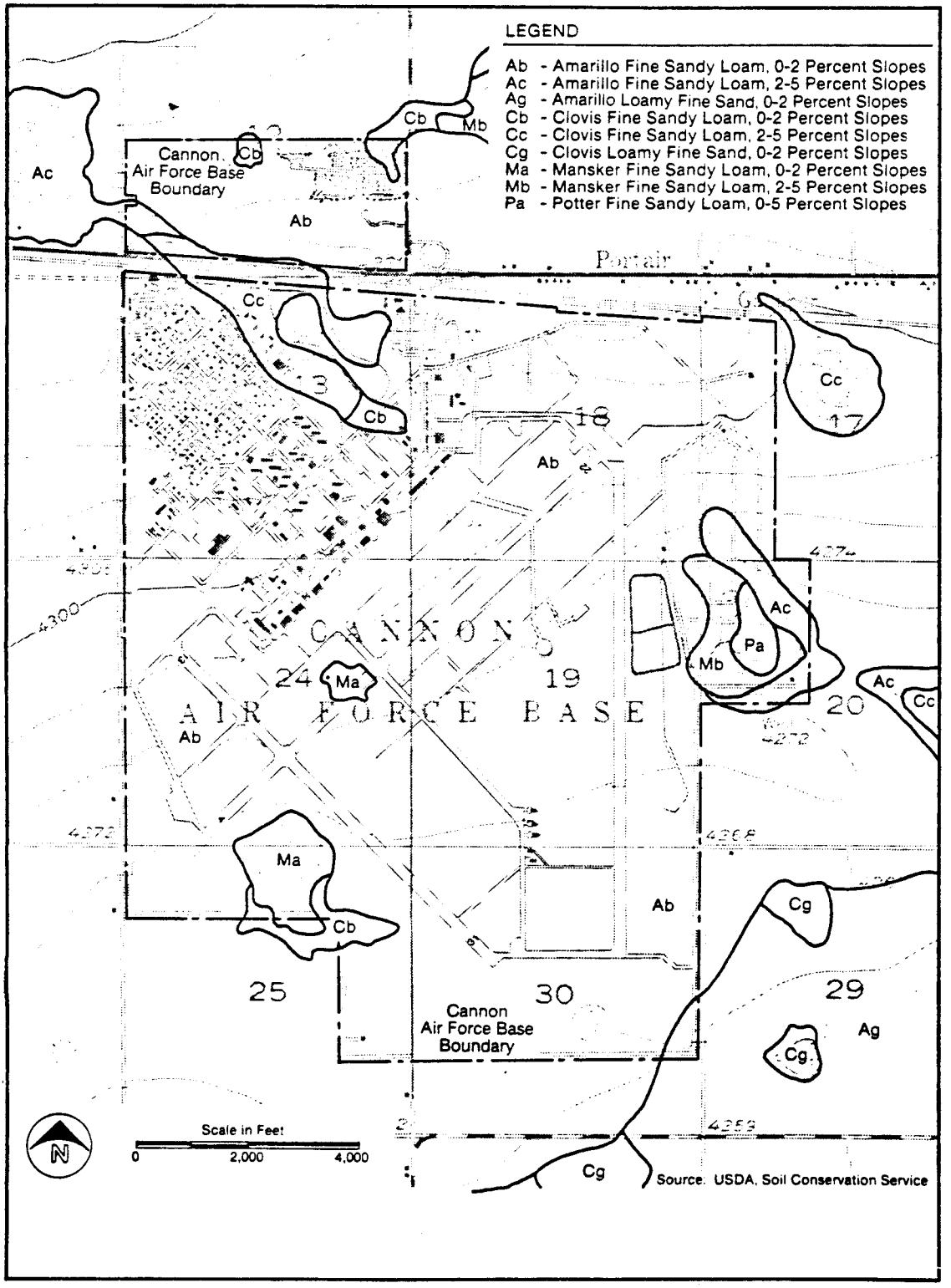
Several soil types underlie the base and the surrounding area; however, the most common soil association is the Amarillo series (Figure IV-3) which includes the Amarillo Fine Sandy Loam (AB) and the Amarillo Loamy Fine Sand (AC). The Amarillo soils tend to be well sorted and contain primarily sand and silty sands with minor amounts of clay. The color of the surface soil ranges from brown to reddish brown for the loams and yellowish red for the loamy fine sands. At depth, the color ranges from dark reddish brown (brick red) for loams to yellowish red for the loamy fine sands. The red coloring is due to the high iron content in the soil.

The Amarillo soils are derived from the action of stream erosion and reworking by the wind. The site soil column generally consists of a loamy sand overlying a hard, calcareous caliche layer. The U.S. Department of Agriculture, Soil Conservation Service (SCS) has described Amarillo soils as follows:

> The Amarillo soils are the most extensive in Curry County and are among the best for agriculture. They have formed on medium textured to moderately coarse textured calcareous materials, probably alluvium reworked by wind. These soils have well-developed profiles (Reference 53).

Figure IV-3

Soils Map of Cannon AFB



Source: Reference 6

The Amarillo soils overlie a white chalky zone that begins at depths of 3 to 6 or more feet but generally is at a depth of about 4 feet. This chalky zone is 40% to 70% lime, although the amount of lime in the profile above the chalky zone varies. The Amarillo fine sandy loams and loamy fine sands are deeper than the Amarillo loams.

Amarillo soils cover over 90% of Cannon AFB. Permeabilities typical of Amarillo soils are moderate and range from 1×10^{-3} to 4×10^{-4} cm/sec.

Other soil associations occurring at Cannon AFB, primarily in the vicinity of playa lakes include: Clovis soils, Mansker soils, and Potter soils. These soil types together account for less than 10 percent of the area at Cannon AFB. The SCS describes these soils as follows:

> Clovis soils -- These soils generally occur in small areas within broader areas of Amarillo soils. They occupy the upper margins of many of the draws and playas. The Clovis soils are similar to the Amarillo, but the chalky zone occurs at shallower depths (16 to 36 inches), and in many places the profile is not so well developed. In Curry County, the Clovis series is represented by three soil types -- Clovis loam(Cb), Clovis fine sandy loam(Cc), and Clovis loamy fine sand(Cg).
>
> Mansker soils -- Mansker soils (Ma, Mb) are strongly calcareous fine sandy loams. They normally occupy the slopes of draws and playas. Small, nearly level to gently sloping areas comprised of Mansker soils occur within larger areas of Amarillo and Clovis soils. The Mansker soils are extensive throughout Curry County. They have formed where the upper part of some other soil has been lost through erosion and the strongly calcareous substratum has been exposed. These soils show very little profile development.

Potter soils -- The Potter soils(Pa) are shallow and strongly calcareous fine sandy loams. They overlie hard, consolidated caliche. The degree of cementation in the caliche varies. In some places the caliche resembles limestone; in others, it consists of lime-cemented pebbles and nodules. The material from which these soils developed was mainly weathered caliche, but it was intermixed with wind-deposited materials. The Potter soils occur throughout the county, normally in areas of less than 100 acres. In many places they are closely associated with the Mansker soils.

Permeabilities of all three soil types would be more towards the lower end of the range typical for the Amarillo soils. This range would be in the order of 1×10^{-4} to 4×10^{-4} cm/sec or moderate permeability.

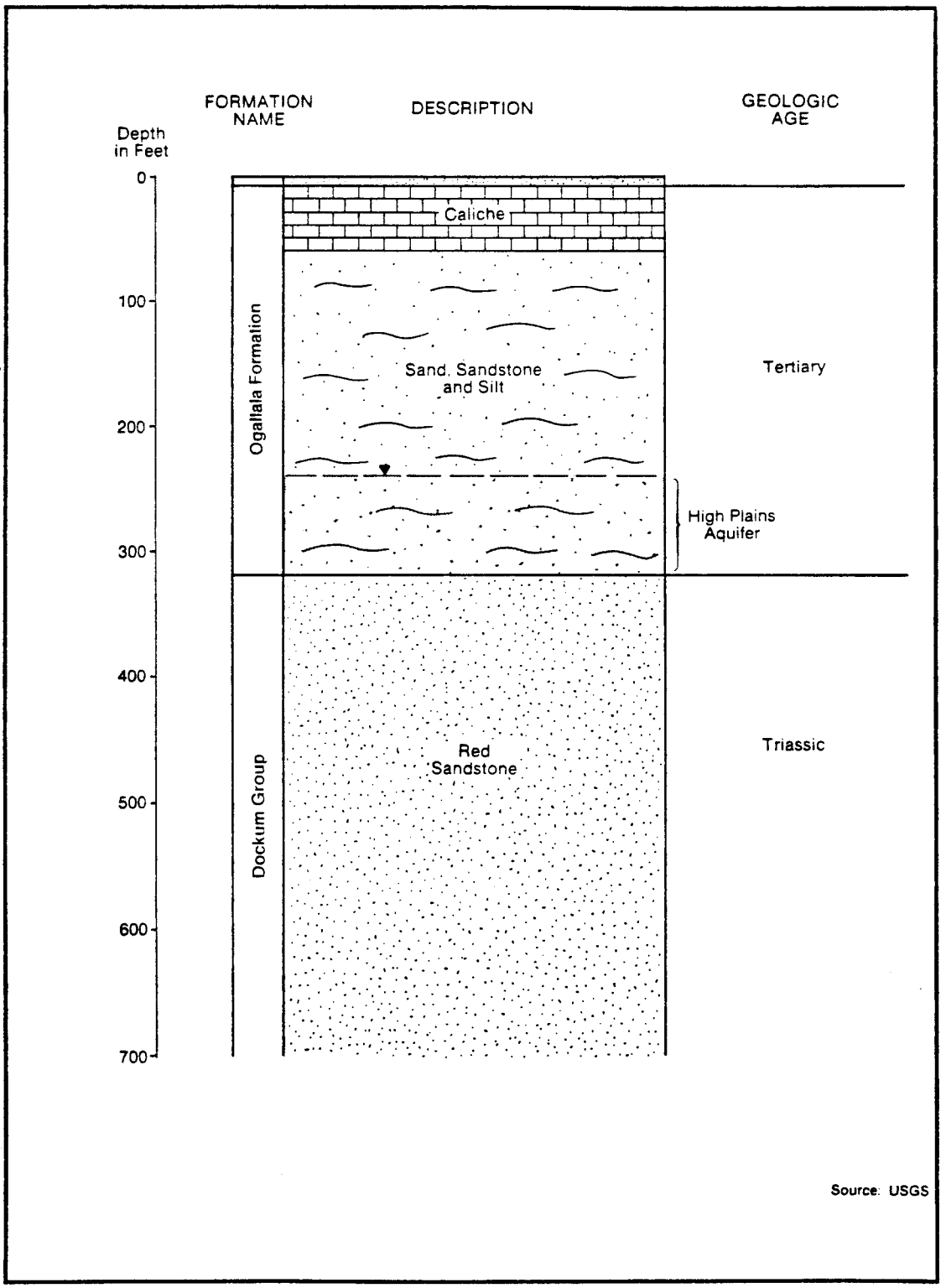
Typically the soils at Melrose Bombing Range are similar to those on Cannon Air Force Base. Soils consist primarily of sandy loam overlying a hard, low-permeability caliche layer occurring at various depths. Soil permeabilities range from 1×10^{-4} to 3.5×10^{-3} cm/sec (moderately permeable) (Reference 6).

GEOLOGY

A Stratigraphic Geologic Column is presented in Figure IV-4 depicting the geologic units that underlie the Cannon AFB area. The aerial distribution of these units is shown in Figure IV-5. In addition, a brief summary description of these units is provided in Table IV-1, a more detailed description follows.

Figure IV-4

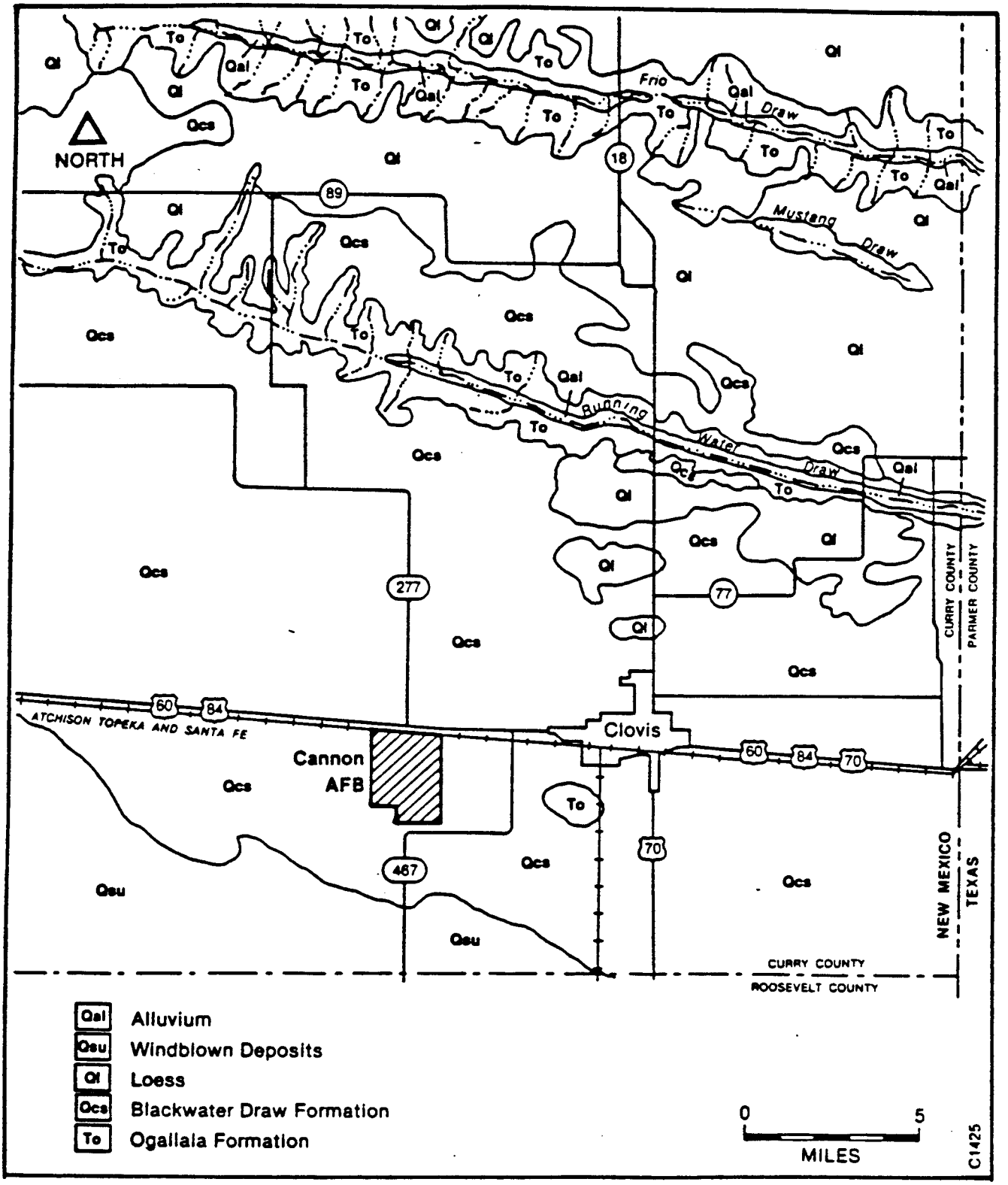
Geologic Column at Cannon AFB



Source: Reference 6

Figure IV-5

Geology of Cannon AFB



Source: Reference 1

Table IV-1

GENERALIZED DESCRIPTION OF GEOLOGIC UNITS

SYSTEMS	SERIES	GEOLOGIC UNIT	APPX DEPTH OF STRATA IN FT.	PHYSICAL CHARACTER
Quaternary	Pleistocene	Amarillo, Clovis Mansker and Potter Soils (1)	0 to 5	Stream-laid deposits of silt and sand, thinly bedded playa lake sediments, silt with lesser amounts of very fine sand and clay deposited as wind blown dust
Tertiary	Miocene-Pliocene	Ogallala Formation	5 to 400	Sand, silt, clay, gravel and caliche; sand, fine to coarse grained quartz, silty in part, caliche nodules locally, cemented locally by calcite and silica
Triassic	Upper Triassic	Dockum Group	400+	Shale, siltstone and sandstone, predominantly red sandstone in upper section

Source: Reference 1
(revised by A.T. Kearney)

Note (1) Also referred to as the Blackwater Drain Formation

The Ogallala formation underlies the soil associations described earlier. The Ogallala is of late Miocene into Pleistocene Age (10 million to 2 million years ago) and consists of clay, silt, fine to coarse grained sand, gravel and caliche. Most of the Ogallala is unconsolidated, although near the top, and within the formation, cementation of the sediments by calcium has formed beds of caliche (Reference 1). The upper caliche zone will be discussed in detail later in the text.

The Ogallala formation color varies from white to light gray to tan, olive gray and red brown (Reference 1).

Lateral correlation within the Ogallala is inconsistent with silt and gravel layers typically pinching out laterally, This is to be expected, given the Ogallala's depositional history as an alluvial fan flowing east and southeast at the base of the Rocky Mountains (Reference 1).

During and after deposition, the sediments were extensively reworked by wind action. Periodically the sediment deposition was interrupted and soil formation processes occurred. This alternating pattern of deposition and erosion is what gave rise to the cemented layers that occur at intervals throughout the formation column.

In the Cannon AFB area, the Ogallala lower contact is approximately 390 feet (BSL) with significant induration occurring at approximately 320 feet (BSL). The thickness of the Ogallala disposition was controlled mostly by the irregular pre-Ogallala erosion surface. The thickest accumulation of Ogallala sediments occurred along the axes of pre-Ogallala stream valleys. These valleys were oriented in a northwest to southeast direction that corresponds to the Ogallala aquifer's present day regional gradient in the Southern High Plains (Reference 1). The Ogallala thins to the south and southeast of the Air Force Base and structurally pinches out against the underlying Triassic "redbeds" (to be discussed later in the text) to the north and west of the site area (Reference 48).

As described earlier, an upper caliche zone occurs within and near the top of the Ogallala formation. The upper caliche zone is locally referred to as the "caprock" because it is resistant to erosion and forms prominent benches when exposed in otherwise featureless terrain (Reference 51). The caliche consists of friable to well indurated calcium carbonate layers. Regionally, the total thickness of the upper caliche zone varies from a few feet to more than 50 feet thick (Reference 1). Typically, in the Cannon AFB area, the caliche is approximately 4 feet thick (Reference 6). The caliche probably began to form at the end of the period of deposition of the Ogallala formation and continues to the present time (Reference 1).

The Ogallala formation of Tertiary age lies as an unconformity over the Dockum Group "red beds" of Triassic age. In the site area, the depth to the Tertiary/Triassic interface is estimated to be at approximately 390 feet (Reference 48).

The Triassic age Dockum Group is referred to as "red beds" because of its red to reddish brown color. Per Reference 1, "The sediments that compose the Dockum Group represent clastic deposits that range in deposition from mudstone to conglomerate. These Triassic beds were deposited between 138 and 240 million years ago and were later eroded, establishing a base upon which the overlying unconsolidated sediments (of the Ogallala formation) were deposited. The erosional surface that formed on the Triassic age Dockum Group sediments represented extensively dissected plains. Stream valleys and river channels developed as the erosion continued. The erosional processes created a highly irregular surface upon which the younger sediments (Ogallala) were later deposited. The variability of this surface and the relationship of the younger sediments occurring in the abandoned valleys plays an important role in the hydrogeology of the High Plans Aquifer."

HYDROGEOLOGY

The High Plains Aquifer is the primary source of potable water in the regional area, and supplies the water requirements of Cannon AFB and vicinity. The High Plains Aquifer is mostly contained in the Ogallala formation which extends from New Mexico to South Dakota (Reference 48).

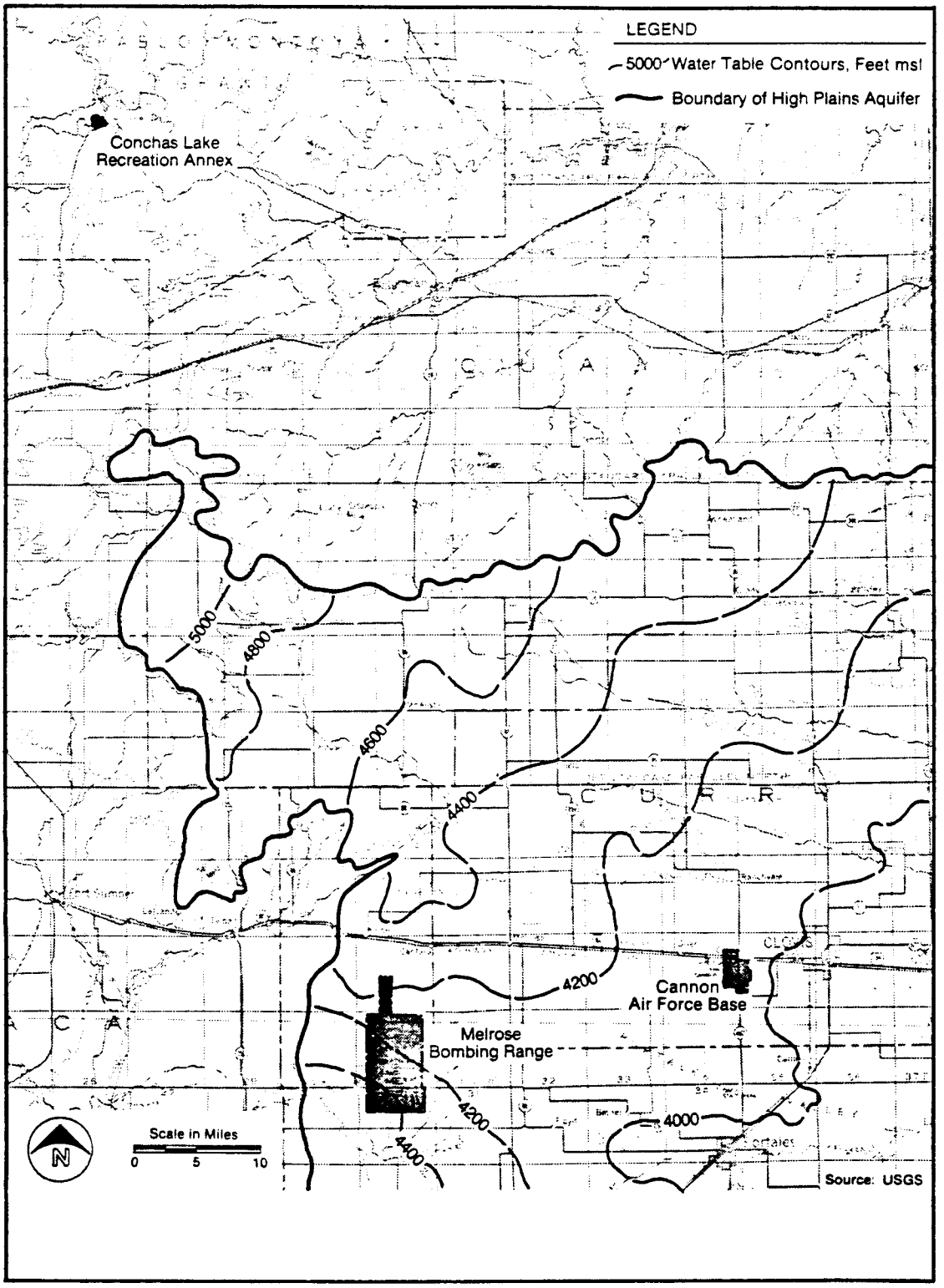
The hydrogeologic properties of the Ogallala aquifer are controlled by three major factors: (1) the pre-Ogallala depositional topography, particularly the alignment of the infilled former stream valleys (Reference 4), (2) lineaments that correspond to structural geology features (Reference 50 and 52) and (3) the hydrogeologic barriers, particularly the caliche soils that occur in the upper part of the Ogallala formation. The latter limits the amount of recharge that enters the aquifer (Reference 1).

The Ogallala formation is saturated at approximately 320 feet (bls) at the Cannon AFB area (Reference 4). However, static water levels in the Cannon AFB area rise from 240 to 270 feet (bls). This indicates that the aquifer exists under semi-confining hydrostatic conditions due to overlying sediments that act as an aquitard.

Figure IV-6 depicts the lower boundary of the High Plains Aquifer (Ogallala/Tertiary red beds contact). It approximates the configuration of the Water Table. The figure suggests that

Figure IV-6

Altitude and Configuration of the Water Table



Source: Reference 6

regional flow is to the southwest and that the aquifer is tightly bounded to the north and east. This supports the conclusion in Reference 1 that "The Ogallala formation is isolated hydrologically by the boundary escarpments that lie to the east, west, and southwest, (and that) the Canadian River valley acts to isolate the Ogallala aquifer to the north in the Southern High Plains."

The principal source of recharge to the Ogallala formation is precipitation falling on the High Plains land surface itself. Some small but unknown amount of aquifer recharge occurs from irrigation return flow and from areas where water is continuously ponded (Reference 6).

The amount of water which actually reaches the aquifer as recharge is dependent on the amount, distribution, and intensity of the precipitation, the amount of moisture in the soil, the temperature, vegetative cover, and permeability of the sediments at the site of the precipitation event (Reference 6).

The caliche layer, described above, impedes the recharge process considerably in many places. Estimates of recharge rate to the aquifer range from less than 0.5 inch to 0.8 inch per year which is extremely low (Reference 6).

The rate at which groundwater will move laterally is controlled by the water table gradient and the permeability of the sediments. In the Cannon AFB area, lateral groundwater velocity is reported to be 150 feet per year (Reference 4).

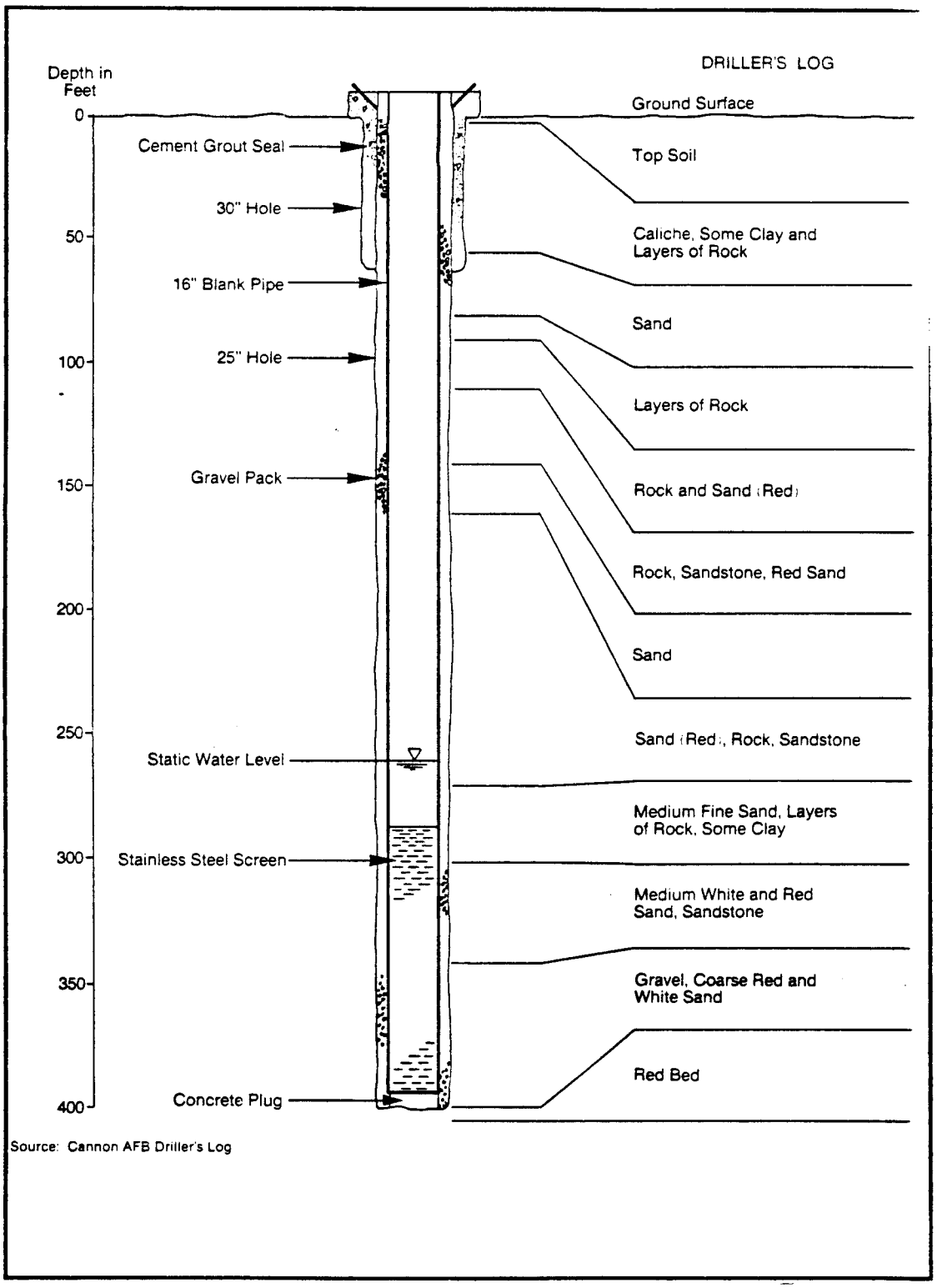
Natural discharge from the aquifer occurs through seeps and springs along the downgradient southeast, bounding escarpment and locally around the margins of some of the larger playas. Natural discharge also occurs by evapotranspiration.

Well yields from the Ogallala aquifer are reported to vary from less than 100 gallons per minute to more than 1,000 gallons per minute. In the Cannon AFB area, well yields average about 2 million gallons per day from nine wells on base. The specific yields for wells in the area are estimated to be 15% (Reference 1). Typical geologic log and well construction details for Cannon AFB wells are presented in Figure IV-7.

The most significant discharge from the aquifer is from wells withdrawing water for irrigation. Agricultural irrigation began to develop on a significant scale in Curry County in 1947. As a result of irrigation withdrawals, the aquifer is currently being depleted faster than it can be replenished by recharge. During the period from 1937 to 1967, water levels in the vicinity of Cannon AFB declined 20 feet. From 1967 to 1978, water levels declined another 3 to 4 feet. If irrigation increases, the rate

Figure IV-7

Typical Geologic Log and Well Construction Detail



Source: Reference 6

of decline will also increase since recharge is limited due to low rainfall and the occurrence of the low-permeability caliche layer (Reference 6).

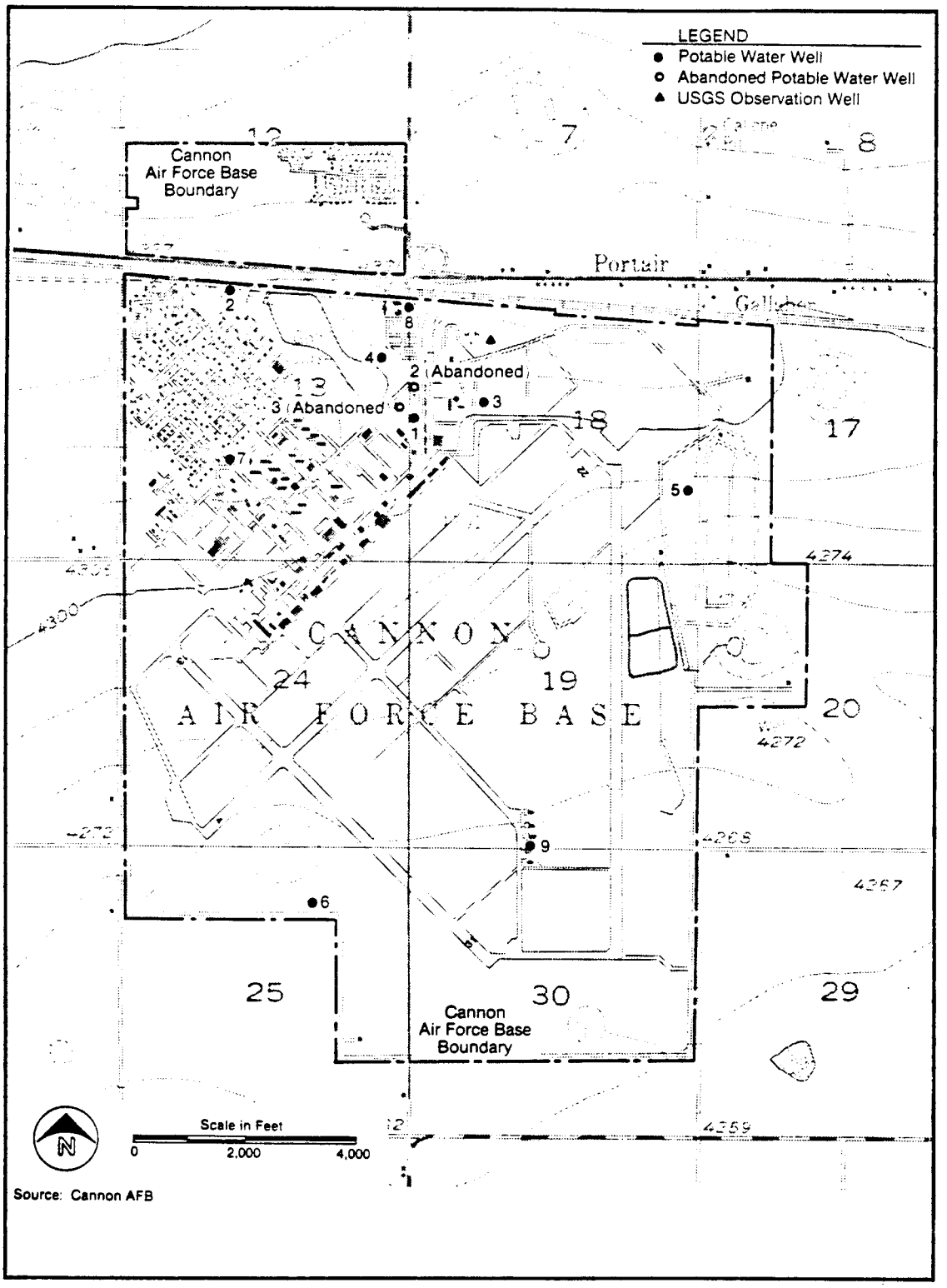
Groundwater quality within the Ogallala is acceptable for most uses. Water is typically hard and high in silica and flouride. The Ogallala formation is the only reliable source of water in the vicinity. Figure IV-8, from Reference 6, shows the locations of the base water supply wells including the USGS observation well (Reference 6).

We concur with the assessment in Reference 6 that the potential for contamination of the High Plains Aquifer at Cannon AFB is low, primarily due to low rainfall, depth of water table, and the occurrence of a caliche layer of low permeability.

There are three cases in which the potential for contaminating the High Plains Aquifer would be greatly increased, (1) where there is a constant driving force such as an impoundment, pond, or disposal pit; (2) where the caliche layer has been breached, since sediments which directly underlie this stratum are quite permeable; and (3) where wells have not been properly sealed, thereby creating a direct pathway to the aquifer.

Figure IV-8

Location Map of Water Wells



Source: Reference 6

In an area overlying the Ogallala Aquifer in northern Texas near the New Mexico border, it has been documented recently that groundwater at depths of approximately 300 feet can become contaminated from surface waste disposal. A 48-acre unlined surface impoundment containing hazardous constituents remained in operation for 20 years until a mounding of contaminated water was discovered at a depth of at least 100 feet. The hydraulic head of liquid in the impoundment had driven contaminants through the stratum over a period of 20 years (Reference 49).

SURFACE WATER

As stated in the Topography section, surface water streams are nonexistent in the Cannon Air Force Base vicinity. Low precipitation (13.7 inches/year), high evapotranspiration, and low relief typical of the Southern High Plains have resulted in a poorly developed surface drainage system. Cannon AFB lies in the headwaters of the Brazos River; however, little if any water that falls as rain or snow at Cannon AFB ever reaches the Brazos River. Most is lost to evapotranspiration and shallow infiltration (Reference 6).

The most prominent surface water features are Playa Lakes. Playas comprise low points of drainage areas and collect stormwater runoff from rainfall or snow melt. The playas may be up to 50 feet deep and a mile or more in diameter (Reference 6).

Most of the surface drainage from Cannon AFB is directed through a series of ditches to a large playa located near the intersection of the primary runway and the NW-SE runway (SWMU No. 18). Except under the most severe conditions, surface drainage does not leave the base.

The regional drainage pattern is subparallel to modified dendritic (see Figure IV-2, page 4-5). This type of drainage pattern is typical in areas controlled by structural geology features, such as fractures, faults and other lineations. These drainage patterns generally consist of long, shallow valleys with almost no tributaries which is an accurate description of the Brazos River valley.

Another surface drainage feature is the discharge from the Ogallala aquifer which occurs naturally through seeps and springs along the southeast, downgradient bounding escarpment and locally around the margins of some of the larger playas (Reference 6).

Also, the Conchas Lake Reservoir is located up slope from the Cannon AFB and the Melrose Bombing Range Facilities, This lake is an impoundment of the Canadian and Conchas Rivers (Reference 6). Since the lake is up-slope of the site of the major hazardous waste facilities, there is little potential for adverse environmental effect on the lake.

V. RELEASE PATHWAYS

A. SOIL/GROUNDWATER

It has been documented throughout the Installation Restoration Program reports that due to the depth of groundwater (less than 300 feet) and the presence of the caliche which inhibits documented irrigation, the potential for release or contamination of this media is low (References 6, 46). However, it has also been documented that groundwater has been contaminated by a 48-acre surface impoundment overlying the same formation in northern Texas. While the Ogallala aquifer remained pristine for a period of 20 years during operation of the surface impoundment, the hydraulic head forced contaminants to a depth of at least 100 feet to the saturated zone, resulting in a multi-million dollar ground water clean-up (Reference 49). Contaminant transport is a function of the strength of the polluting source, adsorption capacity of the soil, the hydraulic head, and type of compounds moving in the wetting front. It has been documented that the Ogallala aquifer is recharged through precipitation.

The high intensity short duration rainfall events of this climate provide the potential for rapid infiltration through the surficial soils. Soils on the base are predominately coarse in texture of the surface for approximately 4 feet in depth. Below this depth, impervious caliche layers exists throughout the soil profile. However, the caliche layers may not be continuous. Also, some areas of the caliche are interbedded with sand lenses that could provide a conduit for infiltrating water to the subsoil

beneath this zone. Due to the hydraulic head placed on the underlying stratum, the potential for groundwater contamination of the Ogallala aquifer would be greater in the areas of the Wastewater Playa Lake (SWMU No. 103), Wastewater Treatment Lagoons (SWMU No. 101), Storm Water Drainage and Retention Pond (SWMU No. 73), Storm Water Collection Point (SWMU No. 85) and the Evaporation Pond (SWMU No. 89).

B. SURFACE WATER

Potential for releases to surface water from solid waste management units is minimal. There are no navigable rivers or lakes within the immediate vicinity. Furthermore, the base is not located within a floodplain of any river (Reference 45) and drainage from Cannon AFB is generally retained in playa lakes or low areas on the base.

C. AIR EMISSIONS

Air releases occur from several units on the base and from the Unexploded Ordnance Open Burn Treatment Area at Melrose Bombing Range (SWMU No. 118).

On the base air releases occur during cleaning of the oil/water separators (SWMU Nos. 1, 3, 5, 7, 8, 11, 16, 32, 33, 38, 39, 46, 47, 51, 57, 61, 62, 63, 70, 72, 90, 92, 93, 94, 112, 127, and 128). Air releases from the Wastewater Treatment Lagoons (SWMU No. 101), the Wastewater Playa Lake (SWMU No. 103), the Evaporation Pond (SWMU No. 89) are minor yet continuous and should be evaluated with regard to impact on human health and the environment. Air releases may also have occured during fire training exercises at the Fire Department Training Area No. 4 (SWMU No. 109).

A high potential for air releases exists at Melrose Bombing Range from the Unexploded Ordnance Open Burn Treatment Area (SWMU No. 118).

With prevailing winds from the west during the winter and from the south in the summer, air emissions from Melrose and the base would have to travel 32 and 7 miles respectively before reaching nearby residences.

D. SUBSURFACE GAS

Due to the past use of landfills and disposal of volatile chemicals such as solvents, cleaning fluids, and hydrocarbons, the presence of soil gas is likely. Due to the shallow burial of wastes in landfills, surface disposal of jet fuel during fire fighting training operations (SWMU Nos. 79, 106, 107 and 109), the weathering of tank bottom sludges (SWMU No. 76), and use of

oil/water separators (SWMU Nos. 1, 3, 5, 7, 8, 11, 16, 32, 33, 38, 39, 46, 47, 51, 57, 61, 62, 63, 70, 72, 90, 92, 93, 94, 112, 127, and 128), the potential for subsurface gas generation is moderate to high.

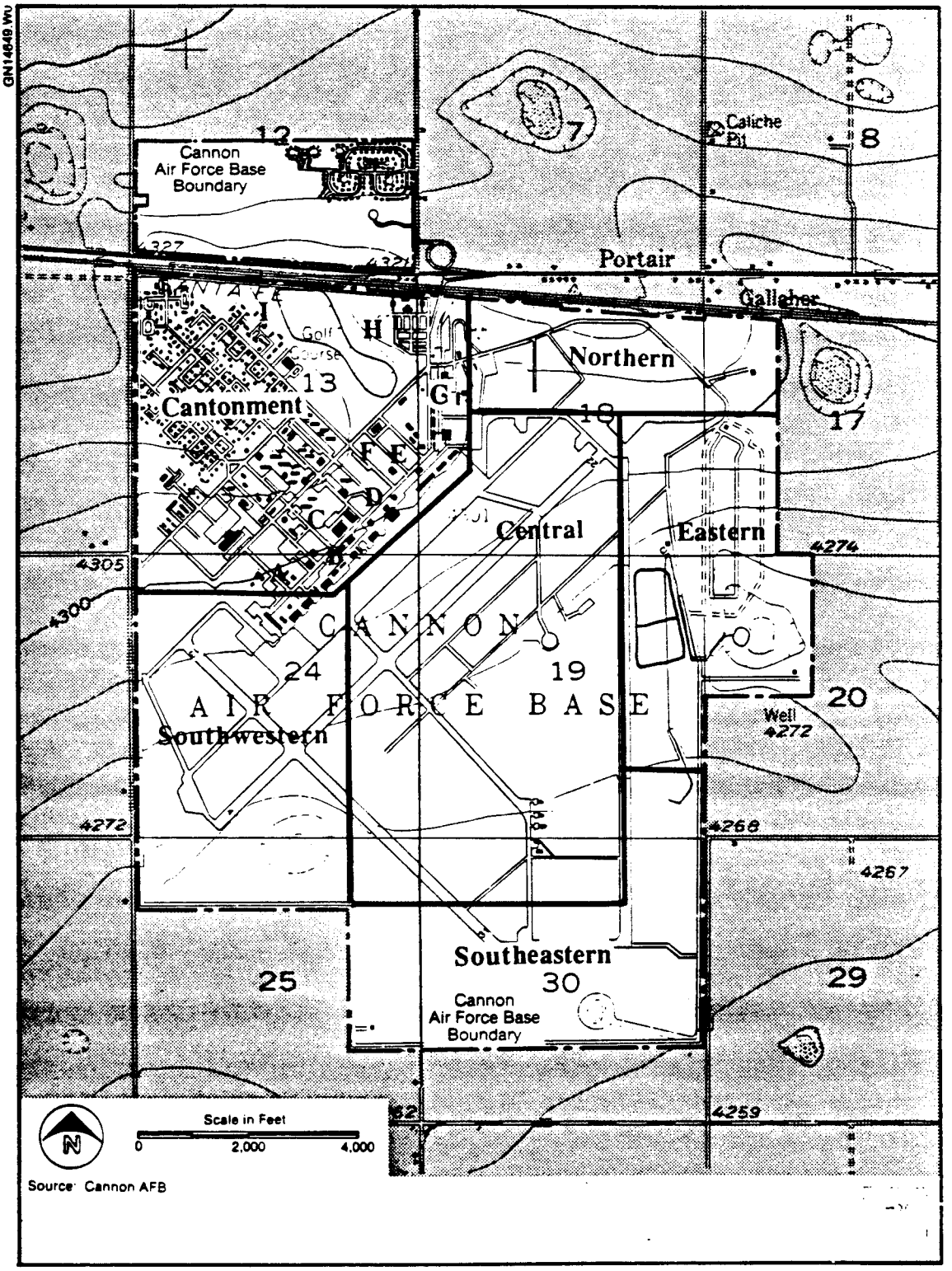
VI. SOLID WASTE MANAGEMENT UNITS

Figure VI-1 breaks down the Cannon AFB site into geographic zones for ease of location. All SWMU descriptions for the Cannon AFB area refer to these geographic units. The Cantonment Site area is further broken down into subunits A through I. The breakdown is as follows:

- Cantonment Sites (SWMU Nos. 1 thru 75)
- Northern Sites (SWMU Nos. 76 thru 82)
- Southwestern Sites (SWMU Nos. 83 thru 85)
- Central Sites (SWMU No. 86 thru 94)
- Eastern Site (SWMU Nos. 95 thru 105)
- Southeastern Site (SWMU Nos. 106 thru 113)
- Dispersed and Nonplaceable Sites (SWMU Nos. 121 thru 128)
- Melrose Sites (SWMU Nos. 114 thru 120)

Figure VI-1

Cannon AFB Geographic Units



1. UNIT NAME: Oil/Water Separator No. 119

Unit Description: This unit is an underground 375-gallon tank, located near Building 119, an aircraft maintenance hanger, in the Cantonment Area, Cluster A. The unit recovers an oily wash generated by aircraft maintenance operations. The effluent is discharged to the Storm Drainage System, which flows to the Storm Water Collection Point (SWMU No. 85). The method of collecting and storing and the ultimate disposition of the recovered oily material are not known. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1963

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound, containing 5% by weight ethylene glycol n-mono butyl ether. The oily material is an unknown substance (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

2. <u>UNIT NAME</u>: Recovered Diesel Tank No. 108

Unit Description: This unit is an underground storage tank with a capacity of 2,000 gallons. The tank is located in the Cantonment Area, Cluster A. The tank collects recovered diesel fuel from the Oil/Water Separator No. 108 (SWMU No. 3). The construction materials of this tank are unknown. The frequency and methods used in cleaning the tank are not known (Ref. 6 and 47).

Date of Start-Up: 1943.

Date of Closure: The tank is currently active.

Wastes Managed: The tank collects recovered diesel fuel from the Oil/Water Separator No. 108 (SWMU No. 3), which receives washdown from aircraft maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known internal or external protection (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

3. UNIT NAME: Oil/Water Separator No. 108

Unit Description: This unit is an underground 500-gallon tank, located near Building 108, an aircraft maintenance hanger, in the Cantonment Area, Cluster A. The unit recovers diesel fuel from washdown generated by aircraft maintenance operations. The recovered diesel fuel is conducted to POL Tank No. 108 (SWMU No. 2); the effluent containing waste aircraft cleaning compound is discharged to the Sanitary Sewerage Line (SWMU No. 98). The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1943

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers diesel fuel from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound, containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

4. UNIT NAME: Recovered Diesel Tank No. 121

Unit Description: This unit is an underground storage tank with a capacity of 2,000 gallons. The tank is located in the Cantonment Area, Cluster A. The tank collects recovered diesel fuel from the Oil/Water Separator No. 121 (SWMU No. 5). The design construction of this tank is not known. The frequency and methods used in cleaning the unit are not known (Ref. 6 and 47).

Date of Start-Up: 1943.

Date of Closure: The unit is currently active.

Wastes Managed: The tank collects recovered diesel fuel from the Oil/Water Separator No. 121 (SWMU No. 5), which receives washdown from aircraft maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known internal or external release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented.

5. **UNIT NAME**: Oil/Water Separator No. 121

Unit Description: This unit is an underground 500-gallon tank, located near Building 121, an aircraft maintenance hanger, in the Cantonment Area, Cluster A. The unit recovers diesel fuel from washdown generated by aircraft maintenance operations. The recovered diesel fuel is conducted to POL Tank No. 121 (SWMU No. 4); the effluent containing waste aircraft cleaning compound is discharged to the Sanitary Sewerage Line (SWMU No. 98). The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1943

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers diesel fuel from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

6. UNIT NAME: POL Tank No. 129

Unit Description: This unit is an underground 2,000-gallon storage tank. The tank is located in the Cantonment Area, Cluster B. The tank collects recovered diesel fuel from the Oil/Water Separator No. 129 (SWMU No. 7). The design construction of this tank is not known. The frequency and methods used in cleaning the unit are not known (Ref. 6 and 47).

Date of Start-Up: 1943.

Date of Closure: The unit is currently active.

Wastes Managed: The tank collects recovered diesel fuel from the Oil/Water Separator No. 129 (SWMU No. 7), which receives washdown from aircraft maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known internal or external release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented.

7. <u>UNIT NAME</u>: Oil/Water Separator No. 129

Unit Description: This unit is an underground 500-gallon tank, located near Building 129, an aircraft maintenance hanger, in the Cantonment Area, Cluster B. The unit recovers diesel fuel from washdown generated by aircraft maintenance operations. The recovered diesel fuel is conducted to POL Tank No. 129 (SWMU No. 6); the effluent containing waste aircraft cleaning compound is discharged to the Sanitary Sewerage Line (SWMU No. 98). The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1943

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers diesel fuel from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

8. **UNIT NAME:** Oil/Water Separator No. 165

Unit Description: This unit is a 600-gallon underground tank, located near Building 166 and the Aircraft Washrack in the Cantonment Area, Cluster B. The unit recovers expended Mirachem from the aircraft cleaning operation. The effluent is discharged to the Storm Drainage System, which flows to the Storm Water Collection Point (SWMU No. 85). The method of collecting and storing, and the ultimate disposition of the recovered material are not known. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1963

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers Mirachem from aircraft cleaning operations (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from the unit have been documented.

9. UNIT NAME: Aircraft Washrack

Unit Description: This unit is a concrete washrack used in the aircraft cleaning operation. The unit is located adjacent to the flight apron near Building 166 in the Cantonment Area, Cluster B. The unit is a concrete pad approximately 200 feet by 140 feet. The pad slopes to a drain which discharges to an Oil/Water Separator in Building No. 165 (SWMU No. 8) (Ref. 6 and 47).

Date of Start-Up: It is presumed that use of this unit began in 1966 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: THe IRP Phase I Study (Ref. 6) reported in 1983 that about 3,600 gallons of waste PD-680 (Type II) and 1,700 gallons of aircraft cleaning compound were generated annually. However, according to facility representatives, PD-680 cleaning solvent has not been used for approximately 3 years. Only aircraft cleaning compound, described as biodegradable and non-hazardous by facility representatives, is used. The compound is alkaline and water based, containing 5% by weight ethylene glycol n-mono butyl ether. During the winter months, deicer (trichloromono-fluoromethane or antifreeze) is sprayed on the aircraft (Ref. 47).

Release Controls: A six-inch curb surrounds the concrete pad to control runoff. The washrack drain discharges to an Oil/Water Separator No. 165 (SWMU No. 8) which discharges to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

10. UNIT NAME: POL Tank No. 170

Unit Description: This unit is an underground 2,000-gallon storage tank. The tank is located in the Cantonment Area, Cluster B. The tank collects recovered diesel fuel from the Oil/Water Separator No. 170 (SWMU No. 11). The design construction of this tank is not known. The frequency and methods used in cleaning the unit are not known (Ref. 6 and 47).

Date of Start-Up: 1943.

Date of Closure: The unit is currently active.

Wastes Managed: The tank collects recovered diesel fuel from the Oil/Water Separator No. 170 (SWMU No. 11), which receives washdown from aircraft maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known internal or external release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented.

11. **UNIT NAME**: Oil/Water Separator No. 170

Unit Description: This unit is an underground 500-gallon tank, located near Building 170, an aircraft maintenance hanger, in the Cantonment Area, Cluster B. The unit recovers diesel fuel from washdown generated by aircraft maintenance operations. The recovered diesel fuel is conducted to POL Tank No. 170 (SWMU No. 10); the effluent containing waste aircraft cleaning compound is discharged to the Sanitary Sewerage Line (SWMU No. 180). The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: Unknown

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers diesel fuel from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

12. <u>UNIT NAME</u>: Jet Engine Shop Dip Tank

Unit Description: This unit is a 30-gallon tank located in the Jet Engine Shop (Building No. 680) in the Cantonment Area, Cluster C. The stainless steel tank with dimensions 4 feet by 4 feet by 4.5 feet deep is elevated one foot above the concrete floor. Although the tank contained PD-680 in the past, as of November 1986 Mirachem a 100 has been used as the degreasing agent to clean bearings. The tank is cleaned using a hand pump to remove waste solvent every six months (Ref. 6 and 47).

Date of Start-Up: The date of initial operation is unclear, although the unit may have been used as early as 1965 (Ref. 6).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: Waste PD-680, prior to 1975, was removed to SWMU No. 48, the fire department training areas, landfills, or turned over for a contractor removal. Between 1975 and 1982, waste was removed to a landfill or turned over for contractor removal. Since 1982, the waste was turned over to DPDO for contractor removal (Ref. 6). Recently (November 1986) a new degreaser Mirachem a 100 has replaced PD-680.

Release Controls: The unit is self-contained with a hinged cover (Ref. 47).

Release History: No releases have been reported (Ref. 47)

13. **UNIT NAME:** Jet Engine Shop Indoor Washrack

Unit Description: This unit is an indoor washrack used for cleaning aircraft engines, located in the Jet Engine Shop in Building No. 680 in the Cantonment Area, Cluster C. The washrack is a concrete slab, 30 feet by 40 feet, with a floor drain which discharges to an Oil/Water Separator No. 680 (SWMU No. 16) (Ref. 6).

Date of Start-Up: This unit was built in 1965 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The aircraft cleaning compound, Mirachem 100, (5% by weight ethylene glycol n-mono butyl ether) is an alkaline water-based compound, described by facility representatives as 90% biodegradable. The washrack drains to an Oil/Water Separator (SWMU No. 16) which discharges to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 6 and 47).

Release Controls: Although the washrack is located within a cinderblock building, the concrete slab is not provided with curbing or any other sort of containment (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

14. UNIT NAME: Pneudraulics Shop PD-680 Dip Tank

Unit Description: This unit is a 100-gallon PD-680 dip tank in the Pneudraulics Shop in Building No. 680 in the Cantonment Area, Cluster C. The tank is steel, approximately 4 feet by 2 feet by 3 feet, and elevated on legs about 6 inches above a concrete floor. The tank is used in the maintenance and repair of aircraft pneumatic and hydraulic systems (Ref. 6 and 47).

Date of Start-Up: It is presumed that this unit has been in operation since 1965 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: Waste PD-680 (Type II) is generated as a result of cleaning the dip tank every three months. About 400 gallons of waste are produced each year. Prior to 1979, the waste was discharged to the Sanitary Sewerage Line (SWMU No. 98). Between 1979 and 1982, the waste PD-680 was landfilled or removed by a contractor through DPDO. Since 1982, the waste PD-680 was turned over to DPDO for contractor removal (Ref. 6).

Release Controls: This tank is self-contained and elevated 6 inches above a concrete floor inside a cinderblock building (Ref. 47).

Release History: No releases have been reported, although stains on the floor were noted during the VSI (Ref. 47).

15. UNIT NAME: Pneudraulics Shop Former Drum Storage

Unit Description: This unit was described in the IRP Phase I report as a drum storage area in the Pneudraulics Shop in Building 680 in the Cantonment Area, Cluster C. According to facility representatives this unit no longer exists. Drums are now removed and placed in the Container Accumulation Area No. 681 (SWMU No. 19) until final disposition by DPDO (Ref. 47).

The dimensions and capacity of this former drum storage area are not known. The drums contained waste hydraulic fluid generated during the maintenance and repair of aircraft hydraulic systems (Ref. 6).

Date of Start-Up: Unknown, but prior to 1965 (Ref. 6).

Date of Closure: The unit is inactive (Ref. 47).

Wastes Managed: Waste hydraulic fluid was placed in 55-gallon drums. About 330 gallons of waste are generated each year. Prior to 1965, the waste was sent to the fire training areas or landfilled. Between 1965 and 1975, the waste was placed in SWMU No. 26, an underground tank. Between 1975 and 1982, the waste was sent to SWMU No. 48 or a landfill. Since 1982, the drum waste was turned over to DPDO for contractor removal (Ref. 6).

Release Controls: The facility representatives could not provide information of the conditions maintained for the drum storage when it was active (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

16. <u>UNIT NAME</u>: Oil/Water Separator No. 680

Unit Description: This unit is an underground 500-gallon tank, located near the Jet Propulsion Shop in Building 680 in the Cantonment Area, Cluster C. The unit recovers an oily wash generated by aircraft maintenance operations. The effluent containing waste aircraft cleaning compound is discharged to the Sanitary Sewerage Line (SWMU No. 98). The method of collecting and storing and the ultimate disposition of the recovered material are not known. The unit is self-contained with a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: 1965

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

17. UNIT NAME: Bearing Cleaner Tank

Unit Description: This unit is an aboveground tank located in the Jet Propulsion Shop in Building No. 680 in the Cantonment Area, Cluster C. The 3 feet by 2 feet by 2 feet deep metal tank is elevated on legs approximately 3 inches above a concrete floor. The tank contains PD-680 (Type II) cleaning solvent and is used for cleaning bearings. The solvent is replaced biannually (Ref. 47).

Date of Start-Up: This unit has been in operation since 1965 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: PD-680 (Type II) cleaning solvent.

Release Controls: This unit is self-contained with a hinged cover, located inside a building on a concrete floor. The unit is elevated 3 inches above the floor (Ref. 47).

Release History: Stains on the outside of the tank and on the floor were observed during the VSI (Ref. 47).

18. UNIT NAME: Bearing Cleaner and Carbon Remover

Unit Description: These units are located in a small (5 feet by 8 feet) room of the Jet Propulsion Shop in Building No. 680 in the Cantonment Area, Cluster C. The stainless steel one-gallon containers contain bearing cleaner and carbon remover compound. Final cleaning of bearings from the Bearing Cleaner Tank (SWMU No. 17) is achieved in these containers. The wastes are disposed in 55-gallon containers and held in the Container Accumulation Area (SWMU No. 19) until disposed by DPDO (Ref. 47).

Date of Start-Up: This unit has been in operation since 1965 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The bearing cleaner contains PD-680 (Type II). The carbon remover is a synthetic cleaner (7808). No other information regarding the analysis of 7808 was made available by the facility (Ref. 47).

Release Controls: This unit is self-contained, inside a building on a table (Ref. 47).

Release History: No releases from these units have been reported (Ref. 47).

19. UNIT NAME: Container Accumulation Area No. 681

Unit Description: This unit is a waste and product storage area located north of the Jet Propulsion Shop near Building 680 in the Cantonment Area, Cluster C. The concrete slab is approximately 400 square feet with a six-inch concrete curb. A 6-foot high chainlink fence and concrete ramp were observed at this unit. A 750-gallon tank labeled "Used 7808" was elevated on a platform. Five 55-gallon drums of used oil resting on wooden pallets were noted during the VSI (Ref. 47).

Date of Start-Up: This area was built in 1986 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Waste materials generated in Building 680 the Jet Propulsion Shop such as waste oil, waste PD 680 and used 7808 (carbon remover) are accumulated here for removal by DPDO (Ref. 47).

Release Controls: This unit is constructed of concrete with a 6-inch curb. The chainlink fence was locked and posted with bilingual warning signs. No other release controls were observed during the VSI (Ref. 47).

Release History: No releases from this unit have been reported; however, stains on the ramp leading to a small patch of discolored soil were noted during the VSI (Ref. 47).

20. UNIT NAME: Armament Recording Lab Floor Drains

Unit Description: This unit consists of the floor drains in the photo labs of the Armament Recording Lab in Building 600 in the Cantonment Area, Cluster C. Two work areas are provided for film development and color print processing, a darkroom for black and white print development, an automatic print processor and electrolytic silver recovery unit. The floor drains discharge to the Sanitary Sewerage Line (SWMU No. 98) in batches (Ref. 47).

Date of Start-Up: This unit became active in January 1987. The previous location of the Armament Recording Labs was Building 327 (Ref. 47).

Date of Closure: This unit is currently active.

Waste Managed: In the event of a spill in the Armament Recording Labs, the following chemicals may be released to the floor drains: developer, stop bath, fixer, photo flo, and solutions containing silver (Ref. 47). Film processing wastes may be classified as hazardous primarily because of the presence of silver (EPA hazardous waste No. D011) in spent fixer. The spent fixer is passed through a silver recovery unit with recovered silver sent to the DPDO (Ref. 45). Approximately 20 gallons of spent fixer are discharged to the Sanitary Sewerage Line (SWMU No. 98) every 6 weeks (Ref. 45).

Release Controls: The floor drains flow directly to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Release History: No releases from this unit have been documented.

21. UNIT NAME: NDI Lab Dip Tank

Unit Description: This unit is a 25-gallon dip tank in the Non-Destructive Inspection (NDI) Lab in Building No. 593 in the Cantonment Area, Cluster D. During the VSI, this 3 foot by 2 foot by 3 foot high tank was observed to be constructed of stainless steel of adequate integrity and elevated on legs about 6 inches above a concrete floor. The tank contains fluorescent dye into which aircraft parts are submerged to check for cracks and defects. The level of dye was approximately 1.5 feet from the top. The unit is not covered (Ref. 47). The waste is removed annually. Prior to December 1986, this unit was located in Building 185, also in the Cantonment Area, Cluster D. The conditions maintained for this unit in that building are unknown (Ref. 6).

Date of Start-Up: Use of this unit began in 1967 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The Dip Tank holds fluorescent dye which is used to check for cracks in aircraft parts. Once a year waste dye is removed from the tank and sent to DPDO.

Release Controls: This unit is elevated approximately 6 inches above a concrete floor (Ref. 47). Floor drains discharge to the Sanitary Sewerage Line (SWMU No. 98).

Release History: No releases have been reported (Ref. 47).

22 a,b. **UNIT NAME**: NDI Lab Developer Tank

Unit Description: This unit is a 50-gallon tank in the NDI Lab in Building No. 593 in the Cantonment Area, Cluster D. During the VSI, this 3 feet by 4 feet by 5 feet deep stainless steel tank was observed to be of adequate integrity and elevated approximately 3 inches from a tile covered floor. The tank is used to hold photographic developing solutions (Ref. 47). Prior to December 1986 this unit was located in Building 185, also in the Cantonment Area, Cluster D. The conditions maintained for this unit in Building 185 are unknown (Ref. 6).

Date of Start-Up: Use of this unit began in 1967 (Ref. 47).

Date of Closure: The unit is still active (Ref. 47).

Wastes Managed: Wastes are generated when the tank is cleaned out every 3 months. About 220 gallons per year of waste materials are discharged to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 6).

Release Controls: This unit is self-contained and elevated approximately 3 inches above a tile covered concrete floor (Ref. 47).

Release History: No releases have been reported (Ref. 47).

23a,b. UNIT NAME: NDI Lab Emulsifier Processing Tank

Unit Description: This unit is a 100-gallon stainless steel tank in the NDI Lab in Building No. 593 in the Cantonment Area, Cluster D. During the VSI, this tank was observed to be 3 feet by 4 feet by 4 feet high and elevated approximately 3 inches from the tile covered concrete floor (Ref. 47). The tank is used to hold photographic emulsifier solution (Ref. 6). Prior to December 1986, this unit was located in Building No. 185, also in the Cantonment Area, Cluster D. The conditions maintained for this unit in Building 185 are unknown. According to the facility representative wastes from this unit are stored in 55-gallon in the Corrosion Control Drum Shop (SWMU 40).

Date of Start-Up: This unit has been in use since 1967 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Emulsifier wastes are generated when the tank is cleaned out every 3 months. The waste materials were discharged to the Sanitary Sewerage Line (SWMU No. 98), about 220 gallons per year, prior to 1986. Currently the wastes are collected and picked up by DPDO for contractor disposal off-site (Ref. 47).

Release Controls: This tank is elevated above a concrete floor (Ref. 47).

Release History: No releases have been reported (Ref. 47).

24a,b. <u>UNIT NAME</u>: NDI Lab Silver Recovery Tank

Unit Description: Unit 24a was described in the IRP Phase I study (Ref. 6) as a tank in the NDI Lab in Building No. 185 in the Cantonment Area, Cluster D. The tank type, dimensions and capacity are unknown. The tank was used to process photographic fixer solution for silver recovery (Ref. 6). During the VSI, a silver recovery unit (SWMU No. 24b) was observed in a 50-square-foot room adjacent to the new NDI Lab processing area in Building No. 593, also in the Cantonment Area, Cluster D. One chemical-resistant 5-gallon tank was observed adjacent to the recovery pump on a wooden board one inch thick. Two chemical-resistant 10-gallon tanks for holding recovered waste fixer were noted on the tiled floor next to the pump.

Date of Start-Up: Use of the first unit (SWMU No. 24a) began in 1965. Use of the current unit (SWMU 24b) began in 1986 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: Waste fixer solution is generated monthly and processed for silver recovery. About 480 gallons of fixer solution are generated per year. The resultant silver sludge is sent to DPDO for final disposition, and the waste solution is discharged to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 6).

Release Controls: Floor drains discharge to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Release History: No releases have been reported (Ref. 47).

25. **UNIT NAME:** NDI Lab Drum Storage Area

Unit Description: This unit was a drum storage area in the NDI Lab when it was located in Building No. 185 in the Cantonment Area, Cluster D. The drums were used to store waste penetrant (Ref. 6). According to facility representatives this unit no longer exists since wastes are picked up on a regular basis, stored in the Corrosion Control Shop Drum Storage Area (SWMU 37) and then transported for contractor disposal (Ref. 47). The conditions maintained in the drum storage area when it was active are unknown.

Date of Start-Up: Use of this unit was from 1967 to 1986.

Date of Closure: The unit is inactive (Ref. 47).

Wastes Managed: Wastes generated when the penetrant processing tank was cleaned out every 3 months are stored in a 55-gallon drum. About 220 gallons of penetrant waste are produced each year. Prior to 1975, the penetrant waste was removed to fire training areas or landfills. From 1975 to 1986, the penetrant waste was removed to an underground tank (SWMU No. 110) (Ref. 6).

Release Controls: The release controls maintained when this unit was active are unknown (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

26. <u>UNIT NAME</u>: NDI Lab Fixer Processing Tank

Unit Description: This unit was described in the IRP Phase I study as a tank in the NDI Lab in Building No. 185. The tank was used to process photographic fixer (Ref. 6). During the VSI facility representatives described this unit as no longer in use since the NDI Lab moved to Building No. 593. A new processor is on order for the lab and will be located adjacent to the new Silver Recovery Tank (SWMU No. 24b).

Date of Start-Up: Use of this tank began in 1965 (Ref. 47).

Date of Closure: The unit is inactive.

Wastes Managed: Waste fixer was cleaned out of the fixer processing tank every month and was sent to the Silver Recovery Processor (SWMU No. 24a). The waste solution was discharged to the sanitary sewer, and the silver sludge was sent to DPDO for final disposition. About 480 gallons of waste fixer solution were generated per year (Ref. 6).

Release Controls: The floor drain discharged to the sanitary sewer (Ref. 47).

Release History: No releases have been reported (Ref. 47).

27. UNIT NAME: Lead Acid Battery Shop Neutralization Tank

Unit Description: This unit was identified in 1983 (Ref. 6) as a tank in the Lead Acid Battery Shop in Building No. 185 in the Cantonment Area, Cluster D. The 20-gallon polyethylene tank was used in the neutralizing of lead acid batteries. According to facility representatives, use of the tank ceased in 1986 (Ref. 47).

Date of Start-Up: This tank, or one like it, was used presumably since 1943 (Ref. 47).

Date of Closure: Use of this unit ceased in 1986 (Ref. 47).

Wastes Managed: Sulfuric acid (98% purity) was neutralized in the tank with sodium bicarbonate, and the neutralized acid was discharged "periodically" to the Sanitary Sewerage Line (SWMU No. 98). About 15 to 20 batteries were processed monthly, and 300 gallons of acid were processed annually (Ref. 6).

Release Controls: This unit was self-contained and inside a building (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

28. **UNIT NAME**: Used Battery Casings Storage Area

Unit Description: This unit is a storage area for used battery casings in the Battery Shop in Building No. 185 in the Cantonment Area, Cluster D. The storage area was used in conjunction with the Lead Acid Battery processing operation (Ref. 6), and is currently a NiCad Battery Casings Storage Area. During the VSI, this unit was observed as an approximately 500 square foot area constructed of plywood walls and a concrete floor. Battery casings were situated on a wooden-topped steel-framed table with a 2-foot by 10-foot surface, on 3.5 foot legs (Ref. 47).

Date of Start-Up: Use of the unit for NiCad battery storage began in 1986 (Ref. 47), but it is not known when the Lead Acid Battery storage began.

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: In the lead acid battery servicing operation, about 15 to 20 batteries were processed monthly. The used batteries are stored in this area prior to being sent to DPDO for final disposition (Ref. 6). Presently 30 NiCad batteries are stored until semi-annual pickup by DPDO (Ref. 47).

Release Controls: This unit is inside a building on a concrete floor (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

29. UNIT NAME: NiCad Battery Rinse Sink

Unit Description: This unit is a rinse sink located in the NiCad battery preparation area in Building 185 in the Cantonment Area, Cluster D. The sink, about 2 feet by 2 feet and six inches deep, is elevated on legs about three feet above a cement floor. A preparation area, about 2 feet by 1.5 feet, drains into the sink. . Rinsewater is discharged to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Date of Start-Up: This unit became active in October 1986.

Date of Closure: This unit is curently active.

Wastes Managed: The rinse water contains nickel and cadmium, which are listed EPA hazardous constituents (40 CFR Part 261 App. VIII).

Release Controls: The rinse water discharges into the Sanitary Sewerage Line (SWMU No. 98).

Release History: Unknown

30. UNIT NAME: AGE Maintenance Shop Washrack

Unit Description: This unit is a washrack located adjacent to the AGE Maintenance Shop in Building No. 185 in the Cantonment Area, Cluster D. The washrack is used in the cleaning of Aerospace Ground Equipment (AGE) (Ref. 6). The unit was observed to be a concrete pad measuring 50 feet by 30 feet. The concrete sloped towards two drains which discharge to an Oil/Water Separator in Building No. 119 (SWMU No. 1) in the Cantonment Area, Cluster A.

Date of Start-Up: It is presumed this unit or a similar unit has been in use since 1943 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The washrack reportedly generates approximately 2,640 gallons of aircraft cleaning compound and PD-680 (Type II) annually (Ref. 6).

Release Controls: The drains discharge to an Oil/Water Separator. Water flows to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

31. UNIT NAME: AGE Maintenance Shop Pad

Unit Description: This unit is an open concrete area approximately 25 feet by 500 feet, adjacent to the AGE Maintenance Shop in Building No. 186 in the Cantonment Area, Cluster D (Ref. 6). During the VSI, the concrete pad was observed to slope towards the middle and to a narrow bare soil ditch which drained to the AGE Drainage Ditch (SWMU No. 34) (Ref. 47).

Date of Start-Up: This unit has been in use since 1971 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: Wash-down water and spilled oil and lubricants from vehicle maintenance (Ref. 47).

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: An eroded path, stained black and emitting a petroleum odor led from an oil bowser parked on this pad to the AGE Drainage Ditch (SWMU No. 34) according to the 1983 IRP Phase I study (Ref. 6). No odors were noted during the VSI but discolored gravel was observed adjacent to the concrete pad at the point of runoff. Stains on the concrete indicated spills have occurred in the past (Ref. 47).

32. <u>UNIT NAME</u>: Oil/Water Separator No. 186

Unit Description: This unit is an underground 600-gallon tank, located near Building 186, AGE Maintenance, in the Cantonment Area, Cluster D. The unit recovers oily wash generated by aircraft maintenance operations. The effluent is discharged to the Sanitary Sewerage Line (SWMU No. 98). The method for collecting and storing and the ultimate disposition of the recovered material are unknown. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1971

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from vehicle maintenance operations. The contents of the washdown are not known (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

33. UNIT NAME: Oil/Water Separator No. 186

Unit Description: This unit is an underground 600-gallon tank, located near Building 186, AGE Maintenance, in the Cantonment Area, Cluster D. The unit recovers oily wash generated by aircraft maintenance operations. The effluent is discharged to the Sanitary Sewerage Line (SWMU No. 98). The method for collecting and storing and the ultimate disposition of the recovered material are unknown. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1971

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from vehicle maintenance operations. The contents of the washdown are not known (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

34. **UNIT NAME:** AGE Drainage Ditch

Unit Description: This unit is a man-made, unlined drainage ditch that runs parallel to Buildings No. 191, 192, and 193, and terminates in an open field near Argentia Avenue in the Cantonment Area, Cluster E. The ditch is approximately 1,200 feet by 12 feet by 1 foot deep, reportedly the result of settled soil that followed the removal of railroad tracks in the late 1960s (Ref. 6).

The soil is sandy loam and drainage from this ditch flows northeast (Ref. 47). The unit was identified in the IRP Phase I as Site No. 15 (Ref. 6).

Date of Start-Up: Use of this unit is presumed to have started in the late 1960s (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The ditch receives runoff from the AGE Shop Maintenance Pad (SWMU No. 31). Reportedly, fuel or oil spills and leaks that occur on the pad are often washed into the ditch during rainfall. It is suspected that the wash-off has been occurring for several years (Ref. 6).

Release Controls: No release controls were observed during the VSI (Ref. 47).

34. (Cont'd.) AGE Drainage Ditch

Release History: In 1983, the IRP Phase I study reported that soil in the bottom of the ditch appeared black for a distance of about 50 to 75 feet and emitted a characteristic petroleum odor. A possible source of some of the contamination observed was a synthetic engine oil bowser parked on the ditch side of the AGE Maintenance Shop Pad (SWMU No. 44). At this precise location, an eroded path, also black and with a petroleum odor, led from the pad down to the ditch (Ref. 6). During the VSI, a darker soil color was noted in the lowest point of the ditch. The unit was observed again after a one-inch rain. Standing water was noted, approximately one-half inch deep (Ref. 47). In 1985, two deep soil borings were made along the ditch to define the local hydrogeologic setting and determine the extent of contamination. Results from soil analyses are presented in Table 34 and Figure 34 following this page. No purgeable halocarbons or aromatics were detected. One sample contained elevated oil and grease levels. One shallow soil sample contained elevated levels of lead (Ref. 46). According to facility representatives, remedial action to remove contaminated soil or enhance microbial degradation through soil disking is planned for this unit (Ref. 47).

Table 34

Results of Analysis of Soil Samples
For AGE Drainage Ditch

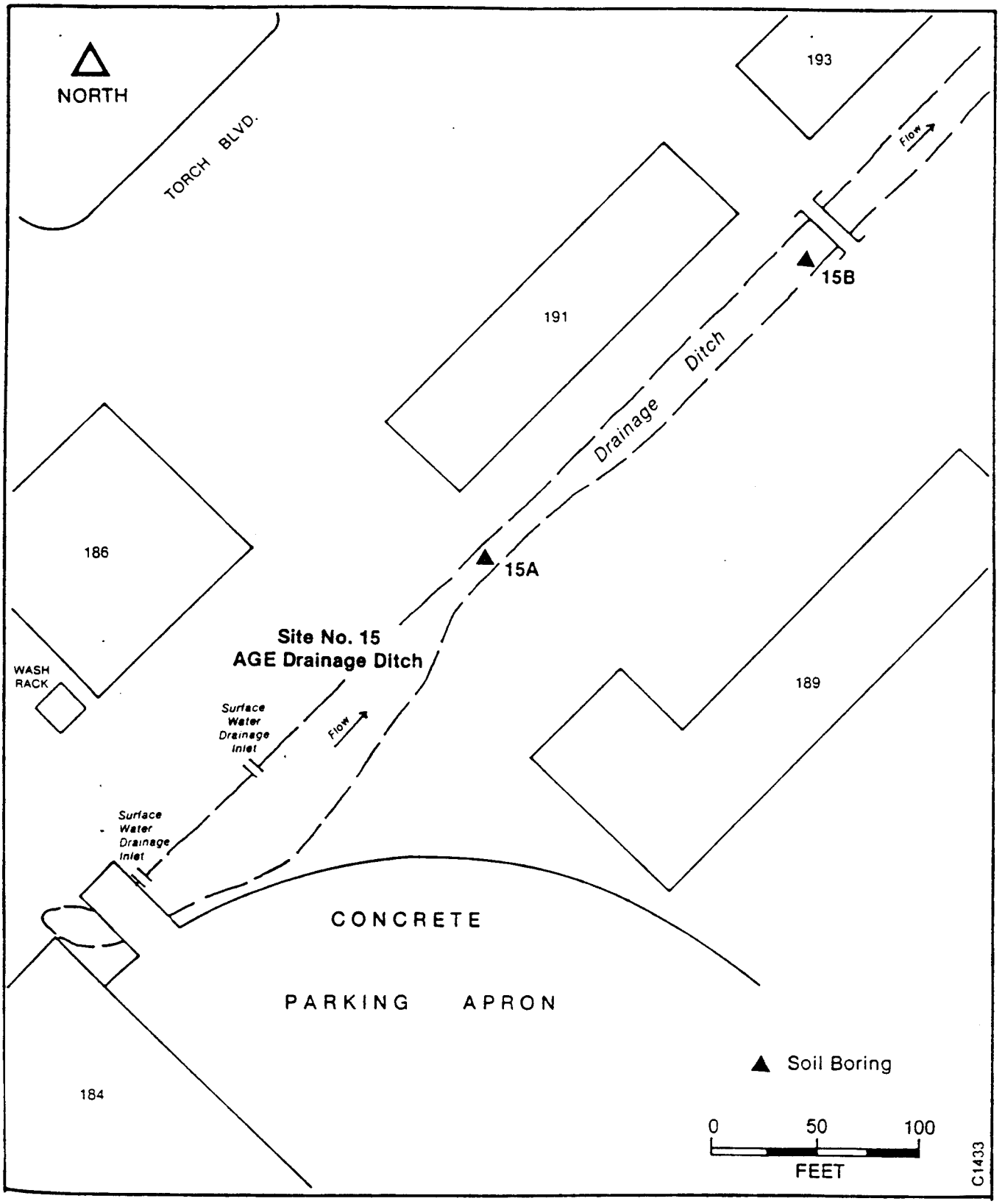
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds (EPA 8010/8020) (ug/kg)
15A-1	3.0-4.1'	<10	5.8	ND
15A-2	8.5-9.5'	<10	2.4	ND
15A-3	47.5-50.0'	<10	0.93	ND
15B-1	4.0-5.5'	99	35	ND
15B-2	9.0-10.5'	<10	2.7	ND
15B-3	52.5-54.0'	<10	1.2	ND
15B-1a**	4.0-5.5'	<10	69	ND

*concentrations in mg/kg, except as indicated
**duplicate analysis
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 34

Soil Boring Locations at AGE Drainage Ditch



Source: Reference 46

35. **UNIT NAME:** Aircraft Drip Pans

Unit Description: These units are fluid drip pans located beneath the aircraft in an aircraft maintenance hanger in Building No. 194 in the Cantonment Area, Cluster E. These aluminum pans are 2 feet by 1 foot and have a one-inch lip. The purpose of these pans is to catch and retain fluid drips from aircraft during maintenance operations. Drippage was noted in the pan during the VSI. It is not known what is done with the waste fluid (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Fluids such as fuel, oil and hydraulic fluid which drip from the aircraft while in the hanger are collected in the drip pans (Ref. 47).

Release Controls: The unit has a one-inch lip around the edge (Ref. 47).

Release History: No releases from these units have been documented (Ref. 47).

36. <u>UNIT NAME</u>: Wheel and Tire Shop PD-680 Cleaning Dip Tank

Unit Description: This unit is a 110-gallon tank in the Wheel and Tire Shop in Building No. 194 in the Cantonment Area, Cluster E. The tank is 8 feet by 3 feet and 3 feet high, located indoors and elevated 4 inches above a concrete floor. The tank contains PD-680 (Type II) and is used in the cleaning of aircraft wheels and bearings (Ref. 47).

Date of Start-Up: Unknown, but prior to 1965.

Date of Closure: The unit is currently active.

Wastes Managed: Waste PD-680 (Type II) is cleaned out of the tank every 45 days. About 850 gallons of waste are generated yearly. Prior to 1965, the waste PD-680 was sent to fire training areas or landfills. Between 1965 and 1975, the waste was additionally sent to an Underground Waste Oil Tank (SWMU No. 26) or turned over to DPDO for contractor removal. Between 1975 and 1982, the waste was removed to landfills or turned over to DPDO. Since 1982, the waste has been turned over to DPDO for removal by a contractor.

Release Controls: This unit is located indoors on a concrete floor and elevated 4 inches above the floor (Ref. 47).

Release History: No releases from this unit have been documented.

37. <u>UNIT NAME</u>: Wheel and Tire Shop Cold Stripper Dip Tank

Unit Description: This unit is a 110-gallon tank in the Wheel and Tire Shop in Building No. 194 in the Cantonment Area, Cluster E. The tank is 8 feet by 3 feet and 3 feet high located indoors, and elevated 4 inches above a concrete floor (Ref. 47). The tank contains Turco Cold Stripper and is used in the cleaning of aircraft wheels and bearings (Ref. 6).

Date of Start-Up: Unknown, but prior to 1965.

Date of Closure: The unit is currently active.

Wastes Managed: Turco Cold Stripper is cleaned out of the tank every 45 days. About 1,320 gallons of waste are generated yearly. Prior to 1965, the waste stripper was sent to fire training areas or landfills. Between 1965 and 1975, the waste was additionally sent to SWMU No. 26 or turned over to DPDO for contractor removal. Between 1975 and 1982, the waste was removed to landfills or turned over to DPDO. Since 1982, the waste has been turned over to DPDO for removal by a contractor (Ref. 6).

Release Controls: This unit is located indoors on a concrete floor and is elevated four inches above the floor (Ref. 47).

Release History: No releases from this unit have been documented.

38. UNIT NAME: Oil/Water Separator No. 194

Unit Description: This unit is an underground 200-gallon tank, located near Building 194, an aircraft maintenance hanger, in the Cantonment Area, Cluster E. The unit recovers oily wash generated by aircraft maintenance operations. The effluent containing waste aircraft cleaning compound is discharged to the Storm Water Drainage System which flows to the Storm Water Drainage Area (SWMU No. 95). It is not known how the oily material is collected or stored or its ultimate disposition. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1971

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily wash from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

39. <u>UNIT NAME</u>: Oil/Water Separator No. 195

Unit Description: This unit is an underground 200-gallon tank, located near Building 195, an aircraft maintenance hanger, in the Cantonment Area, Cluster E. The unit recovers an oily wash generated by aircraft maintenance operations. The effluent containing waste aircraft cleaning compound is discharged to the Storm Water Drainage System which flows to the Storm Water Drainage Area (SWMU No. 95). It is not known how the oily material is collected or stored or its ultimate disposition. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1969

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from aircraft maintenance operations. The washdown contains aircraft cleaning compound, which is an alkaline water-based compound containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

40. UNIT NAME: Corrosion Control Shop Drum Storage Area

Unit Description: This unit is a fenced drum storage area, 60 feet by 40 feet outside the Corrosion Control Shop in Building No. 196 in the Cantonment Area, Cluster E. Wastes from cleaning, stripping, sanding, wiping, priming, repainting and stencilling of aircraft and aerospace ground equipment are stored for less than 90 days in marked 55-gallon drums (Ref. 6). The drums rest on wooden pallets on a concrete floor which is stained with spills and spatters. A sump, 2 feet by 2 feet and 3 feet deep, is located inthe center of the concrete pad. Rainwater is collected in the sump and is allowed to evaporate. A short concrete ramp leading up and over a six-inch curb is also stained on both the ingress and egress sides. The asphalt roadway at the end of the ramp is also stained. The storage area is surrounded by a six-foot chainlink and barbed wire fence (Ref. 47) Approximately two dozen drums were stored at the site during the VSI. Maximum storage capability for this site is approximately 5 dozen drums.

Date of Start-Up: This unit has been active since sometime after 1983 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: The drums in this unit contain wastes generated by corrosion control activities, including waste paints, paint strippers, thinners, methyl ethyl ketone, and toluene, which are placed in 55-gallon drums. During the VSI the labels on the drums indicated xylene, laquer thinner, methyl ethyl ketone, and PD-680 wastes were currently accumulated here (Ref. 47). About 1,600 gallons of waste are produced annually. Prior to 1975, these wastes were disposed in the fire training areas or landfilled. Between 1975 and 1982, the wastes were either turned over to DPDO for removal by a contractor or disposed in a Landfill (SWMU No. 113). Since 1982, the marked drums have been turned over to DPDO for contractor removal (Ref. 6 and 47).

40. (Cont'd.): Corrosion Control Shop Drum Storage Area

Release Controls: The drums rest on pallets on concrete. A 6-inch concrete berm and 3 foot deep sump comprise this unit. Some of the drums were grounded (Ref. 47).

Release History: Rainwater is allowed to evaporate. During the VSI standing water was observed on the pad after a 1-inch rain. The concrete pad, the ramp and the outside roadway all show stains (Ref. 47).

41. **UNIT NAME:** Corrosion Control Shop Dumpster

Unit Description: This unit is a 9 cubic yard dumpster adjacent to the Corrosion Control Shop in Building No. 196 in the Cantonment Area, Cluster E. The spray booth paint filters are disposed in this unit (Ref. 47). Reportedly in 1983 the dumpster contained waste paint (Ref. 6). During the VSI, no residue from paint operations was noted. According to facility representatives paint residues are placed in containers and disposed by DPDO (Ref. 47). The contents of the dumpster are disposed in a sanitary landfill off base (Ref. 47).

Date of Start-Up: Presumably since 1983 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: Thirty-one spray booth paint filters are placed manually in the dumpster twice monthly. In the IRP Phase I study, it was reported that the dumpster contained paint residue which had been skimmed from the waterfall paint spray booth (Ref. 6).

Release Controls: This unit is self-contained (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

42. UNIT NAME: Corrosion Control Shop Water Holding Tank

Unit Description: This unit is a water holding tank for part of the waterfall spray booth operation in the Corrosion Control Shop in Building No. 196 in the Cantonment Area, Cluster E. The dimensions of the tank are approximately 20 feet by 3 feet. The collected paint particles form a scum which floats on the water. The scum is scraped off the surface of the water and placed in the dumpster. Water from the holding tank is periodically flushed to the Sanitary Sewerage Line (SWMU No. 98). During the VSI, the water in the tank was clear with no visual evidence of paint residue (Ref. 47).

Date of Start-Up: The unit rests on a concrete floor inside a building (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47)

Wastes Managed: The water in the tank contains paint residue (Ref. 6).

Release Controls: The unit is underlain by concrete and is situated inside a building (Ref. 47). Paint-contaminated water is "periodically" purged from the holding tank and discharged to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 6).

Release History: No releases from this unit have been reported (Ref. 47).

43. <u>UNIT NAME</u>: Fuel Systems Repair Shop Bowser

Unit Description: This unit is a 300-gallon mobile tank, a bowser, adjacent to the Fuel Systems Repair Shop in Building No. 196 in the Cantonment Area, Cluster E. The bowser holds JP-4 fuel waste generated from the maintenance and repair of aircraft fuel tanks. JP-4 fuel residuals are vacuumed from the aircraft fuel tanks and placed in the bowser (Ref. 6 and 47).

Date of Start-Up: Use of this unit began in 1981.

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: About 660 gallons of waste JP-4 fuel residuals are produced annually. Prior to 1975, the waste was burned in fire training exercises or in landfills, but since 1975, the waste has been removed only to the fire training areas. According to facility representatives, most of the JP-4 fuel tested by the base laboratory is of adequate quality to be reused (Ref. 6).

Release Controls: This unit is self-contained (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

44. UNIT NAME: Corrosion Control Shop Parts Stripper

Unit Description: This unit is a steel tank used to strip oil and grease from aircraft parts in Building 196 in the Cantonment Area, Cluster E. The tank has a capacity of approximately 25 gallons. This unit is located indoors on a covered concrete floor elevated approximately 3 feet above the floor. A daily log is kept of the quantity of solvent used (Ref. 47).

Date of Start-Up: This unit will become active in 1987 (Ref. 47).

Date of Closure: This unit will become active shortly (Ref. 47).

Wastes Managed: Recycled waste solvent (F001) (Ref. 47). The waste left after recycling will be removed to the Corrosion Control Drum Storage Area (SWMU No. 40).

Release Controls: This unit is located indoors on a concrete floor (Ref. 47).

Release History: No releases from this unit have been documented.

45. <u>UNIT NAME</u>: Paint Spray Booth Air Purifier

Unit Description: This unit is the flow-through air purifier used to collect airborne lacquer paint particles from the Paint Spray Booth in the Corrosion Control Shop in Building 196 in the Cantonment Area, Cluster E (Ref. 47). The purifier filters are approximately 2 feet by 2 feet.

Date of Start-Up: Unknown.

Date of Closure: This unit is currently active.

Waste Managed: Air filters containing waste lacquer paint (D001) are changed every 10 days. The filters are placed in the Corrosion Control Shop Dumpster (SWMU No. 41) (Ref. 47).

Release Controls: No release controls were noted during the VSI.

Release History: No releases from this unit have been reported (Ref. 47).

46. UNIT NAME: Oil/Water Separator No. 196

Unit Description: This unit is an underground 200-gallon tank, located near Building 196, the Corrosion Control Shop, in the Cantonment Area, Cluster E. The unit recovers an oily wash generated by painting operations. The effluent containing waste aircraft cleaning compound is discharged to the Storm Water Drainage System which flows to the Storm Water Drainage Area (SWMU No. 95). It is not known how the oily material is collected or stored or its ultimate disposition. The unit is self-contained and has a hinged cover; however, the construction materials and the operating process are not known (Ref. 6 and 47).

Date of Start-Up: 1969

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from painting operations (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

47. **UNIT NAME**: Oil/Water Separator No. 494

Unit Description: This unit is an underground tank of unknown capacity located adjacent to the Auto Hobby Shop in Building No. 494 in the Cantonment Area, Cluster E. The recovered water is not discharged to any system but is pumped out of the tank for an unknown disposition (Ref. 6 and 47).

Date of Start-Up: The date of start-up is unknown (Ref. 6 and 47).

Date of Closure: The unit is presumed to be active (Ref. 6 and 47).

Wastes Managed: It is not known what wastes are placed in the Oil/Water Separator for recovery (Ref. 6 and 47).

Release Controls: This unit has no known controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

48a,b. UNIT NAME: Underground Waste Oil Tank (48-A) and Aboveground Overflow Capacity Tank (48-B)

Unit Description: This unit is composed of two tanks, located in the Cantonment Area, Cluster E. The first is a 20,000-gallon underground storage tank, identified by the Air Force Base as Facility No. 4028. The tank dimensions and construction materials are unknown. Waste materials from various locations were stored in the tank prior to disposal. Operating procedures included periodic removal by a contractor (Ref. 6). Adjacent to the underground tank is an aboveground 2,000 gallon overflow tank. The overflow tank is cylindrical, resting on its side and elevated above the soil surface on legs one foot high. A one-foot concrete berm is constructed on one side. The tank materials of construction are unknown. Both tanks are in a 40-foot by 20 foot area, surrounded by a six-foot chainlink and wood slat fence, which is posted with warning signs. The soil above the underground tank was gravelly with sparse and dead vegetation. The soil around the tank fill pipe was stained (Ref. 47).

Date of Start-Up: The date of installation is not clear; however, the underground tank was in operation in 1965 (Ref. 6). The aboveground tank was installed in 1984 (Ref. 47).

Date of Closure: The tanks have been inactive since 1984. Final closure plans are unknown (Ref. 47).

Wastes Managed: From 1965 to 1975, materials stored in the tank included waste oils, spent solvents, paint thinners, recovered fuels, 7808 engine oil, PD-680 (Type II), hydraulic fluid and Turco cold stripper. From 1975 to the present, the contents included waste oils and hydraulic fluids (Ref. 6).

Release Controls: The aboveground tank provides overflow capacity for the underground tank (Ref. 47).

Release History: The soil around the fill pipe was stained, and the area enclosed by the fence had sparse, dead vegetation (Ref. 47).

49. UNIT NAME: Inactive POL Storage Tank No. 4028a

Unit Description: This unit is an underground 20,000-gallon tank that was used for the storage of used oil. The tank is located near Facility 4028 in the Cantonment Area, Cluster E. The construction of the tank is unknown. The unit is empty and inactive (Ref. 44 and 47).

Date of Start-Up: The date this unit became active is unknown (Ref. 44 and 47).

Date of Closure: The unit became inactive in November 1985 (Ref. 44 and 47).

Wastes Managed: When the tank was active, it held used oil (Ref. 44 and 47).

Release Controls: The tank has no known release controls (Ref. 44 and 47).

Release History: No releases from this unit have been documented (Ref. 44 and 47).

50. **UNIT NAME**: Inactive POL Storage Tank No. 4028b

Unit Description: This unit is an underground 20,000-gallon tank that was used for the storage of used oil. The tank is located near Facility 4028 in the Cantonment Area, Cluster E. The construction of the tank is unknown. The unit is inactive (Ref. 6 and 47).

Date of Start-Up: The date this unit became active is unknown (Ref. 6 and 47).

Date of Closure: It is not known when the unit became inactive (Ref. 6 and 47).

Wastes Managed: When the tank was active, it held used oil (Ref. 6 and 47).

Release Controls: The tank has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

51. **UNIT NAME**: Oil/Water Separator No. 375

Unit Description:	This unit is a tank of unknown capacity, dimension and construction. It is located near Building 375 in the Cantonment Area, Cluster F. The effluent is discharged to a holding sump (Ref. 6 and 47).
Date of Start-Up:	The installation date is unknown (Ref. 6 and 47).
Date of Closure:	The tank is presumed to be active (Ref. 6 and 47).
Wastes Managed:	The wastes recovered in this unit are not known (Ref. 6 and 47).
Release Controls:	The unit has no known release controls (Ref. 6 and 47).
Release History:	No releases from this unit have been documented (Ref. 6 and 47).

52. UNIT NAME: Waste Oil and Hydraulic Fluid Bowser

Unit Description: This unit is a 300-gallon mobile tank, a bowser, located adjacent to the Special Purpose Vehicle Maintenance Shop in Building No. 379 in the Cantonment Area, Cluster F. The bowser contains waste oil and waste hydraulic fluid generated from maintenance operations. The unit is constructed of steel, mounted on a wheeled wooden platform. When full the bowser is transported to DPDO for contractor disposal (Ref. 47).

Date of Start-Up: Use of this unit began in 1987 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Waste engine oil and hydraulic fluid from vehicle maintenance operations (Ref. 47).

Release Controls: This unit is self-contained and elevated approximately one foot above the ground (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

53. <u>UNIT NAME</u>: Special Purpose Vehicle Maintenance Shop Floor Drains

Unit Description: The floor drains are located inside the Special Purpose Vehicle Maintenance Shop in Building 379 in the Cantonment Area, Cluster F. The drains, constructed in the concrete slab, are 100 feet by 1 foot by 6 inches deep with a steel grate cover. The drain discharges to an Oil/Water Separator No. 379 (SWMU No. 57) (Ref. 47).

Date of Start-Up: This unit was built in 1965 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Wash-down water from vehicle maintenance operations is discharged to this unit. Detailed liquid waste composition from this unit is not documented but probably includes watered down solvents and oils (Ref. 47).

Release Controls: This unit is self-contained inside a building (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

54. UNIT NAME: Special Purpose Vehicle Maintenance Shop Drum Storage Area

Unit Description: This unit is a drum storage area located behind the Special Purpose Vehicle Maintenance Shop in Building 379 in the Cantonment Area, Cluster F. The primary storage area is an approximately 15 feet by 40 feet concrete slab bordered by a 6-inch concrete curb. The primary storage area is located within an area of the facility that is completely paved. All barrels of waste oil and hydraulic fluid rest on wooden pallets. Some of the barrels are stored outside the curbed slab area but on pallets on the paved surfaces. Facility representatives stated that final disposition of some of the "unknown" barrels will be determined when analytical results are received from the base lab. During the VSI, approximately two dozen drums were stored in this unit (Ref. 47).

Date of Start-Up: This are was built in 1986 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Some of the drums contain oil from the Oil/Water Separator in Building No. 379 (SWMU No. 57), waste oil and hydraulic fluid, unknown waste solvents and used PD-680 cleaning compound. Some of the drums' contents are unknown (Ref. 47).

Release Controls: Some of the barrels were grounded. A 6-inch concrete curb surrounds the concrete slab, although all drums were not within the curbed area. No other release controls were observed (Ref. 47).

Release History: Three barrels were bulging from apparent overfill (Ref. 47).

55. <u>UNIT NAME</u>: Lead Acid Battery Accumulation Point

Unit Description: This unit is a lead acid battery accumulation point located outside the Special Purpose Vehicle Maintenance Shop in Building 379 in the Cantonment Area, Cluster F. One wooden pallet containing nine lead acid batteries was observed. Batteries from vehicles are brought to this point for removal by a contractor (Ref. 47).

Date of Start-Up: Presumably, this area or one similar has been in use since 1965 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Lead acid batteries are accumulated at this unit.

Release Controls: The batteries are on a wooden pallet. No other release controls were observed.

Release History: No releases from this unit have been reported.

56. UNIT NAME: Lead Acid Battery Storage Area

Unit Description: This unit is a lead acid battery storage area located in a small room within the Special Purpose Vehicle Maintenance Shop in Building 379 in the Cantonment Area, Cluster F. The room is approximately 150 square feet. A rack of steel shelves, 10 feet by 5 feet by 2 feet deep holding 13 batteries was noted on the north wall. A smaller rack containing 14 batteries was observed on the west wall. Six batteries were placed directly on the floor under the rack. A table with two Nalgene (chemical-resistant) 5-gallon containers of sulfuric acid and distilled water, respectively, for servicing batteries is situated on the south wall. Stains have discolored the wall below the shelf where these containers are stored (Ref. 47).

Date of Start-Up: This unit has been in use since 1965.

Date of Closure: This unit is currently active.

Wastes Managed: Lead acid batteries are serviced in this area.

Release Controls: This unit is located inside a building on a concrete floor.

Release History: No releases from this unit have been reported.

57. <u>UNIT NAME</u>: Oil/Water Separator No. 379

Unit Description: This unit is an underground 500-gallon tank, located adjacent to the Vehicle Maintenance Shop in Building 379 in the Cantonment Area, Cluster F. The unit recovers oil from washdown from vehicle maintenance operations. The recovered oil is stored in drums in the Drum Storage Area (SWMU No. 54). The effluent water is discharged to the Sanitary Sewerage Line (SWMU No. 98). The unit is self-contained and has a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: 1965

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers oil from washdown from vehicle maintenance operations (Ref. 6 and 47).

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

58. UNIT NAME: Special Purpose Vehicle Maintenance Shop PD-680 Dip Tank

Unit Description: This unit is a dip tank located in the Special Purpose Vehicle Maintenance Shop in Building No. 379 in the Cantonment Area, Cluster F. The dip tank consists of a cleaning sink, about three feet by two feet and six inches deep, balanced above a 35-gallon drum. The solvent PD-680 is used to clean parts of "special purpose vehicles" in the sink, and the used solvent drains into the drum below. The unit rests on a concrete floor which is stained (Ref. 47).

Date of Start-Up: Unknown, but prior to 1965 (Ref. 6).

Date of Closure: The unit is currently active (Ref. 6).

Wastes Managed: Waste PD-680 is cleaned out of the dip tank every 45 days. Prior to 1965, the waste was sent to fire training areas or landfills. Between 1965 and 1975, the waste was additionally removed to an Underground Waste Oil Tank (SWMU No. 48). Since 1975, the waste has been turned over to DPDO for contractor removal, although between 1975 and 1982, some of the waste was disposed in a landfill (Ref. 6).

Release Controls: This unit is located indoors on a concrete floor. All waste solvent is collected in the drum beneath the cleaning sink (Ref. 47).

Release History: The concrete floor around the unit appeared stained and discolored (Ref. 47).

59. **UNIT NAME:** Civil Engineering Paint Shop

Unit Description:	This unit is a spray booth inside the paint shop in Building 357 in the Cantonment Area, Cluster F.
Date of Start-Up:	This unit became active in 1953.
Date of Closure:	This unit is currently active.
Wastes Managed:	Wastes generated in this unit include: D001-waste paint, laquer thinner (toluene), waste solvent.
Release Controls:	This unit is located indoors. During painting operations, the floor is covered with paper.
Release History:	During the VSI, paint residue was observed on the floor and tables.

60. <u>UNIT NAME</u>: Civil Engineering Paint Shop Waste Container Accumulation Area

Unit Description: This unit is located outdoors adjacent to the Civil Engineering (CE) Paint Shop in Building 357 in the Cantonment Area, Cluster F. The unit is used for temporary storage of paint wastes. The day of the VSI, the unit contained one 55-gallon drum.

Date of Start-Up: Unknown

Date of Closure: This unit is currently active.

Wastes Managed: The wastes accumulated include used latex paint and used lacquer thinner.

Release Controls: One 55-gallon container, used to collect paint waste, sits outdoors on asphalt covered ground on a galvanized containment pad.

Release History: Not known.

61. UNIT NAME: Oil/Water Separator No. 5077a

Unit Description: This unit is an underground 760-gallon tank, located at the intersection of Overlord Boulevard and Argentia Avenue in the Cantonment Area, Cluster F. The unit recovers an oily wash from vehicle maintenance and washrack operations. The effluent water is discharged to the Sanitary Sewerage Line (SWMU No. 98). The ultimate disposition of the recovered material is not known. The unit is self-contained with a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: 1977

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from vehicle maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

62. UNIT NAME: Oil/Water Separator No. 5077b

Unit Description: This unit is an underground 760-gallon tank, located at the intersection of Overlord Boulevard and Argentia Avenue in the Cantonment Area, Cluster F. The unit recovers an oily wash from vehicle maintenance and washrack operations. The effluent water is discharged to the Sanitary Sewerage Line (SWMU No. 98). The ultimate disposition of the recovered material is not known. The unit is self-contained with a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: 1957

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from vehicle maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

63. UNIT NAME: Oil/Water Separator No. 5077c

Unit Description: This unit is an underground 1,675-gallon tank, located at the intersection of Overlord Boulevard and Argentia Avenue in the Cantonment Area, Cluster F. The unit recovers an oily wash from vehicle refueling and maintenance operations. The effluent water is discharged to the Sanitary Sewerage Line (SWMU No. 98). The ultimate disposition of the recovered material is not known. The unit is self-contained with a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: 1957

Date of Closure: The unit is currently active.

Wastes Managed: The Oil/Water Separator recovers an oily material from washdown from vehicle maintenance operations (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

64. UNIT NAME: Civil Engineering Open Yard PCB Storage

Unit Description: This unit is of unknown type, size and construction in the Civil Engineering open storage yard (Area 224) in the Cantonment Area, Cluster G. The area was used to store out-of-service PCB transformers (Ref. 6). Facility representatives were unable to identify the precise location or provide any description of the unit (Ref. 47).

Date of Start-Up: This unit was active prior to 1981 (Ref. 6).

Date of Closure: The site became inactive in 1981 when a building (SWMU No. 174) was constructed specifically to store PCB items and PCB-contaminated items (Ref. 6).

Wastes Managed: The Civil Engineering open storage yard contained storage for an unknown quantity of out-of-service PCB transformers. Prior to 1978, these transformers were turned over to supply for salvage. After 1978, the PCB transformers were turned over to DPDO for appropriate disposition (Ref. 6).

Release Controls: This unit was located on an asphalt pad (Ref. 47).

Release History: No releases from this unit have been documented.

65. UNIT NAME: Former Interim Status Hazardous Waste Storage Facility

Unit Description: This unit is RCRA-regulated. The storage facility was located outdoors in Area 304 in the Cantonment Area, Cluster G. The unit occupied approximately 1,000 square feet, divided into two sections. The unit consisted of a fenced area, on a concrete pad with six-inch berms. During the VSI, ponded water was observed within the secondary containment (Ref. 45 and 47).

Date of Start-Up: This unit became active in 1983 (Ref. 45).

Date of Closure: This unit became inactive in December 1985 (Ref. 45 and 47). No formal closure plans have been developed per facility representatives.

Wastes Managed: The wastes stored here included the following (Ref. 45):

D002 (Corrosive Wastes) 18,000 lb/yr.
D007 (Chromium Wastes) 3,000 lb/yr.
F001 (spent halogenated solvents) 7,700 lb/yr.
F002 (spent halogenated solvents) 5,500 lb/yr.
F005 (spent non-halogenated solvents) 46,000 lb/yr.

Release Controls: This unit was a fenced area, on a concrete pad with six-inch berms used for secondary containment (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 45 and 47).

66. UNIT NAME: Hazardous Waste Storage Facility

Unit Description: This unit is RCRA-regulated. The Hazardous Waste Storage Facility (HWSF), including the loading/unloading area, occupies approximately 4,000 square feet. The building is roofed and enclosed on four sides. The unit is located in the Cantonment Area, Cluster G. The unit has a total capacity of 11,000 gallons. The HWSF consists of 14 storage bays, each equipped with an 8-inch concrete berm on three sides. The concrete floors in each bay slope towards a grated containment trench on the fourth side (150- or 82.5-gallon capacity each) (Ref. 45 and 47).

The loading/unloading area is approximately 600 square feet and is located on the west side of the HWSF. The area slopes to a drainage trench in the center (Ref. 45 and 47).

Containers are segregated by waste type, and stored in appropriate storage bays containing similar waste types. The flammable/combustible storage area is 2,400 square feet, and contains six storage bays (13 feet by 20 feet each) with 10.5-foot aisle space. The storage area for toxic, corrosive and reactive waste is 800 square feet and contains eight bays (6 feet by 9 feet each) with four-foot aisle space. 55-gallon drums are stored on wooden pallets. According to facility representatives, the maximum amount of materials that can be stored in one of the bays is 1,320 gallons in 55-gallon drums and smaller containers (Ref. 45 and 47).

Date of Start-Up: This unit became active in December 1985 (Ref. 45 and 47).

Date of Closure: This unit is currently active (Ref. 45 and 47).

66. (Cont'd.) Hazardous Waste Storage Facility

Wastes Managed: The wastes stored here include the following (Ref. 45 and 47):

D002 (Corrosive Wastes) 18,000 lb/yr.
D007 (Chromium wastes) 3,000 lb/yr.
F001 (Spent halogenated solvents) 7,700 lb/yr.
F002 (Spent halogenated solvents) 5,500 lb/yr.
F005 (Spent non-halogenated solvents) 46,000 lb/yr.

Release Controls: The HWSF is completely enclosed on all four sides and covered with roof. The concrete floors in each storage bay are sealed with a chemical resistant material, and they slope toward drainage trenches in the center of the building. The building is not located in a 100-year floor plain. The HWSF is located 2,000 feet from the closest boundary of Cannon AFB.

A storm sewer runs in front of the HWSF. The headwall is located near the building, and a catch basin is located 225 feet northwest of the HWSF.

Release History: No releases from this unit have been documented.

67. UNIT NAME: DPDO PCB Storage Facility

Unit Description: This unit is a 10-foot long by 4-foot wide and 15-foot high portion of Building 224, which is located in the Cantonment Area, Cluster G. The unit, operated by DPDO, is used to store PCB-contaminated materials. The unit occupies one-half of the concrete block building. The unit is separated from the other half of the building (Civil Engineering Department PCB Storage Facility, SWMU No. 68) by concrete block (Ref. 47).

Date of Start-Up: This unit became active in 1986 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The unit holds transformers, capacitors, and oil switches contaminated with PCBs (Ref. 47).

Release Controls: The storage facility is located at the bottom of a ramp, on a sealed concrete pad with a 6-inch high curb on the other three sides. The curbs and pad were sealed as one unit (Ref. 47). The floor was damp with moisture the day of the VSI.

Release History: No releases from this unit have been documented (Ref. 47).

68. UNIT NAME: Civil Engineering Department PCB Storage Facility

Unit Description: This unit is a 10-foot long by 4-foot wide by 15-foot high portion of a storage building constructed of concrete block.

The unit encompasses one-half of the building which is located in the Cantonment Area, Cluster G. The unit is separated from the other half of the building (SWMU No. 67) by concrete block. The unit, operated by the Civil Engineering Division, is used to store PCB-contaminated materials (Ref. 47).

Date of Start-Up: This unit became active in 1986 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: The unit holds transformers, capacitors, and all switches contaminated with PCBs (Ref. 47).

Release Controls: The building rests on a sealed concrete pad with a 6-inch high curb on all sides. The curbs and pads were sealed as one unit (Ref. 47).

Release History: During the VSI, a wet area covered with plastic and absorbent was observed in the unit.

69. UNIT NAME: New Entomology Mixing Room, Sink and Floor Drains

Unit Description: The New Entomology Mixing Room, located in the new Entomology Building (No. 212) in the Cantonment Area, Cluster G, is used to prepare pesticide and herbicide solutions for use at the Cannon AFB. The waste rinse water will eventually be released to a soon-to-be-operational holding tank. In the interim, wastewater is discharged to the Sanitary Sewerage Line (SWMU No. 98) (Ref. 47).

Date of Start-Up: This unit became active in 1986.

Date of Closure: This unit is currently active.

Wastes Managed: The rinsewater contains waste pesticide and herbicide including Pyrethium, Dursban, Malathion and Insectocid (Ref. 47).

Release Controls: No release controls were noted during the VSI.

Release History: During the VSI, a pesticide odor was noted (Ref. 47).

70. UNIT NAME: Oil/Water Separator No. 326

Unit Description: This unit is an underground 2,000-gallon tank adjacent to the Vehicle Maintenance Shop in the Cantonment Area, Cluster H. The unit recovers an unknown oily material and discharges the effluent to a leaching field. The ultimate disposition of the recovered oil is unknown. The unit construction materials are unknown (Ref. 6 and 47).

Date of Start-Up: Facility representatives were not able to identify the start-up date (Ref. 6 and 47).

Date of Closure: The unit is presumed to be active (Ref. 6 and 47).

Wastes Managed: The waste recovered in this unit is not known (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

71. UNIT NAME: Recovered JP-4 Fuel Tank No. 390

Unit Description: This unit is an underground 2,000-gallon tank located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is of steel construction, and collects recovered JP-4 fuel from Oil/Water Separator No. 390 (SWMU No. 72). The recovered fuel is periodically pumped out by a contractor. Prior to 1980, tank sludges were weathered in a pit (SWMU No. 76) (Ref. 6, 44 and 47).

Date of Start-Up: 1976 (Ref. 6, 44 and 47).

Date of Closure: The unit is currently active (Ref. 6, 44 and 47).

Wastes Managed: The tank collects recovered JP-4 fuel from Oil/Water Separator No. 390 (SWMU No. 72) (Ref. 6, 44 and 47).

Release Controls: The unit has no known release controls (Ref. 6, 44 and 47).

Release History: No releases from this unit have been documented (Ref. 6, 44 and 47).

72. UNIT NAME: Oil/Water Separator No. 390

Unit Description: This unit is an underground 2,000-gallon tank located in the Bulk Storage Area in the Cantonment Area, Cluster H. The unit recovers waste JP-4 fuel. The recovered JP-4 fuel is collected in an Underground Storage Tank (SWMU No. 71). The construction of the Oil/Water Separator is not known (Ref. 6 and 47).

Date of Start-Up: Facility representatives were not able to provide a start-up date; however, the associated Storage Tank (SWMU No. 71) began operation in 1976 (Ref. 6 and 47).

Date of Closure: The unit is presumed to be active (Ref. 6 and 47).

Wastes Managed: The Oil/Water Separator recovers waste JP-4 fuel (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been reported (Ref. 6 and 47).

73. UNIT NAME: Storm Water Drainage and Retention Pond

Unit Description: This unit is a series of storm water drains and culverts which discharge to a retention pond located near No. 5 green of the base golf course in the Cantonment Area, Cluster I. All runoff water from streets and the Cantonment Area of the Air Force Base is channelled to this pond. The depth of water in the culvert beneath Casablanca Avenue was approximately 8 inches deep when observed after a 1-inch rain (Ref. 47).

Date of Start-Up: Presumably this drainage system has been in use since the 1950s (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Runoff water from streets and operations in the Cantonment Area of the Air Force Base.

Release Controls: No release controls were observed during the VSI.

Release History: No releases from this unit have been reported.

74. UNIT NAME: Landfill No. 1

Unit Description: This unit is an unlined, inactive cut-and-fill landfill located near the 6th tee green of the base golf course, 400 feet north of the hospital, in the Cantonment Area Cluster I. The area is estimated to be 4 acres with a 1% to 2% slope towards the southeast. The depth of this landfill is estimated to be 15 to 20 feet. Wastes were burned in place and covered with soil. The nearest potable water well is 800 feet west of the site and the base boundary is 100 feet north (Ref. 6).

During the VSI, facility representatives described the areal extent of this unit as trending in the northeast - southwest direction. This agreed with the description in the Phase II Stage 1 Report (Ref. 46 and 47). Soil borings taken in 1985 indicate the cover material in the landfill ranges from 5 to 10 feet thick and is composed of sand and organic-rich clay. Underlying the landfill is a sandy layer, and then a poorly developed buff-brown caliche profile and silty material containing occasional hard lenses of cemented sand was observed. Below this caliche profile is a red-brown, medium grained unconsolidated sand. The caliche/ unconsolidated sand contact is predicted to occur throughout the landfill area at the 32-foot depth (Ref. 46).

During the VSI, the landfill was observed to have a fair Bermuda grass cover. A water-filled depression, was observed approximately 150 feet from the eastern edge of the landfill. The depth of water was less than 6 inches. The diameter of this low area is estimated to be 100 feet (Ref. 47). This unit was identified as site No. 1 in the IRP Phase I study (Ref. 6).

Date of Start-Up: Use of this unit began in 1943 (Ref. 46).

Date of Closure: Use of this unit ceased in 1946 (Ref. 46).

74. (Cont'd.) Landfill No. 1

Waste Managed: This unit was the original landfill on base. It is reported that, while active, this unit received domestic solid wastes and shop wastes including oils and solvents, paint strippers and thinners, outdated paint, pesticide containers and various empty cans and drums. These wastes were burned in place and covered with soil (Ref. 46).

Release Controls: According to facility representatives, soil covering the landfill has been managed to promote good vegetative cover through annual aeration and fertilization. No other release controls were observed during the VSI (Ref. 47).

Release History: During 1985, five deep soil borings were placed within the landfill site to define the local hydrogeological setting and to evaluate the extent of contamination. Results indicate debris and metal fragments from past disposal activities were encountered in the topsoil and in the caliche profile at depths of 1 and 22 feet, respectively in one soil bore (Ref. 46). Results of analysis of soil samples from this site are summarized in Table 74 and Figure 74 following this page. No purgeable halocarbons or aromatic hydrocarbons were found to be present. No oil or grease were found. Metals concentrations were within the normal soil ranges except for selenium which was moderately elevated. Total oil and grease concentrations are elevated above background values in surface soil samples (Ref. 46).

Table 74

Results of Analysis of Soil Samples for Landfill No. 1

TABLE 4-5. RESULTS OF ANALYSIS OF SOIL SAMPLES, IRP PHASE II STAGE 1, SITE NO. 1, LANDFILL NO. 1, CANNON AFB, NEW MEXICO

Sample Number	Depth	Ag[1]	As	Ba	Cd[1]	Cr	Cu	Fe	Hg	Ni	O/G	Pb	Se	Zn	Purgeable Organics** (EPA 8010/8020)
		Parameter (concentrations in mg/kg)													
1A-1	6.0-7.0'	0.38	1.7	63.0	0.40	7.4	4.6	6400	ND	5.8	ND	5.5	ND	43.0	ND
1A-2	11.5-11.75'	1.4	1.2	99.0	0.39	3.9	2.9	1800	0.06	3.4	ND	1.4	ND	1.4	ND
1A-3	42.5-43.5'	0.22	0.3	30.0	ND	2.0	1.3	2300	0.05	1.3	ND	1.4	ND	ND	ND
1B-1	4.0-6.0'	0.23	1.3	46.0	0.65	7.7	4.1	6500	0.05	6.3	ND	5.6	ND	21.0	ND
1B-2	15.0-16.0'	1.3	1.0	86.0	0.26	3.7	2.5	1800	ND	2.8	ND	1.3	ND	ND	ND
1B-3	42.5-44.5'	0.47	2.0	19.0	0.29	2.0	1.2	1900	0.05	1.3	ND	1.4	ND	1.9	ND
1C-1	4.0-6.0'	0.87	1.9	97.0	0.35	4.9	7.9	3600	0.12	3.9	130	6.2	ND	7.9	ND
1C-1a*	4.0-6.0'	0.71	2.0	110.0	0.44	6.1	5.9	5100	ND	4.6	100	8.2	ND	8.4	ND
1C-2	11.0-12.0'	1.3	1.2	200.0	0.30	3.7	2.1	2100	ND	3.2	ND	1.3	ND	1.6	ND
1C-3	42.5-43.5'	ND	ND	6.4	ND	0.80	0.38	1200	ND	0.61	ND	1.0	ND	ND	ND
1D-1	4.0-5.0'	2.9	3.5	160.0	0.27	4.0	2.9	1410	0.18	4.1	820	2.2	ND	9.2	ND
1D-2	12.0-12.5	1.5	8.2	110.0	0.37	5.0	3.5	3810	0.27	5.9	850	5.4	ND	15.0	ND
1D-3	42.5-43.0'	ND	1.2	7.2	ND	1.1	0.60	820	0.17	1.4	360	1.1	ND	5.4	ND
1E-1	4.0-5.0'	0.50	1.3	110.0	0.42	3.8	2.2	2600	0.14	2.6	50	3.6	2.7	20.0	ND
1E-2	12.0-12.5'	1.5	2.4	390.0	ND	3.1	1.6	840	0.13	2.4	56	0.61	2.1	1.2	ND
1E-3	52.5-53.0'	0.82	0.4	26.0	0.34	3.9	0.96	1500	0.16	0.63	55	1.1	2.3	2.6	ND

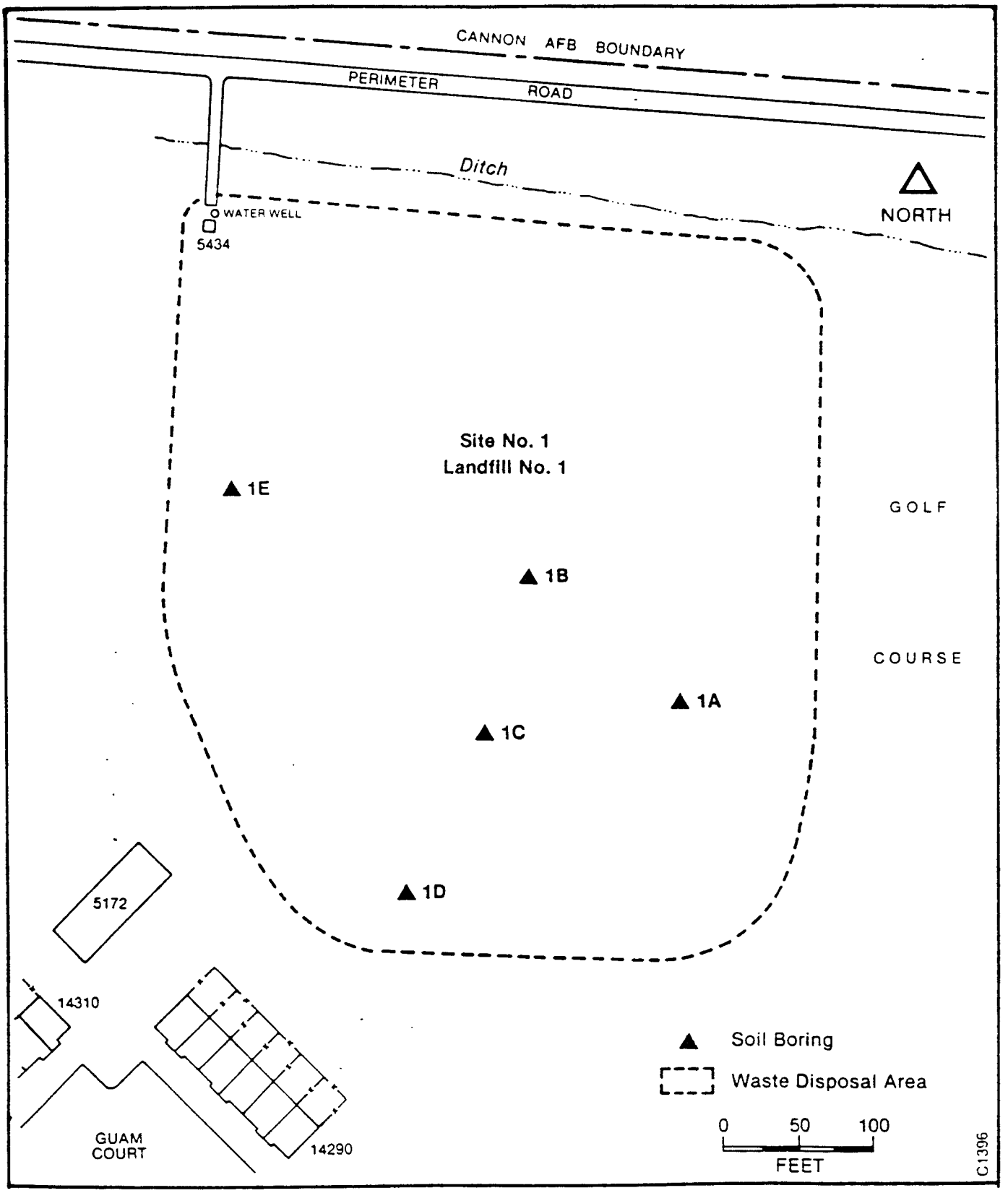
*duplicate analysis
**concentrations in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A.

[1] Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

Source: Reference 46

Figure 74

Soil Boring Locations at Landfill No. 1



Source: Reference 46

75. UNIT NAME: Sanitary Sewage Lift Station Overflow Pit

Unit Description: This unit is an unlined surface impoundment 100 feet wide, 600 feet long, and 2 to 3 feet deep. The pit is a grass-covered depression located in the Cantonment Area, Cluster I, on the golf course, north of the base hospital and a residential area. The unit was identified as Site No. 13 in the IRP Phase I study (Ref. 6). The pit is adjacent to the Sanitary Sewage Lift Station and serves to contain sewage overflow when the lift station pumps do not operate (Ref. 6).

Date of Start-Up: This unit was first used in 1983 (Ref. 47).

Date of Closure: The unit is active, but designed specifically for emergency use (Ref 46).

Wastes Managed: The unit holds sanitary sewage overflow on a contingency basis (Ref. 6).

Release Controls: A 2.5-foot earthen berm surrounds this unit. No other release controls were noted during the VSI (Ref. 47).

Release History: In February 1983, an estimated 100,000 to 150,000 gallons of raw sewage were stored in the pit for a week. A water analysis completed in February 1983 showed the sample to be ignitable at 60°C (140°F) with a hydrocarbon odor. A petroleum, oil, and lubricant (POL) material may have been in the sanitary sewage that was diverted into the overflow pit. It is not known what, if any, quantity might have percolated into the ground; however, it may have been small. A subsequent soil sample, collected after the liquid was pumped back into the lift station, tested negative for ignitability (greater than 60°C) (Ref. 6 and 46). No other releases have been documented (Ref. 47). Results of sampling are presented in Table 75 and Figure 75 following this page.

Table 75

Results of Analysis of Soil Samples for Sanitary Sewage Lift Station

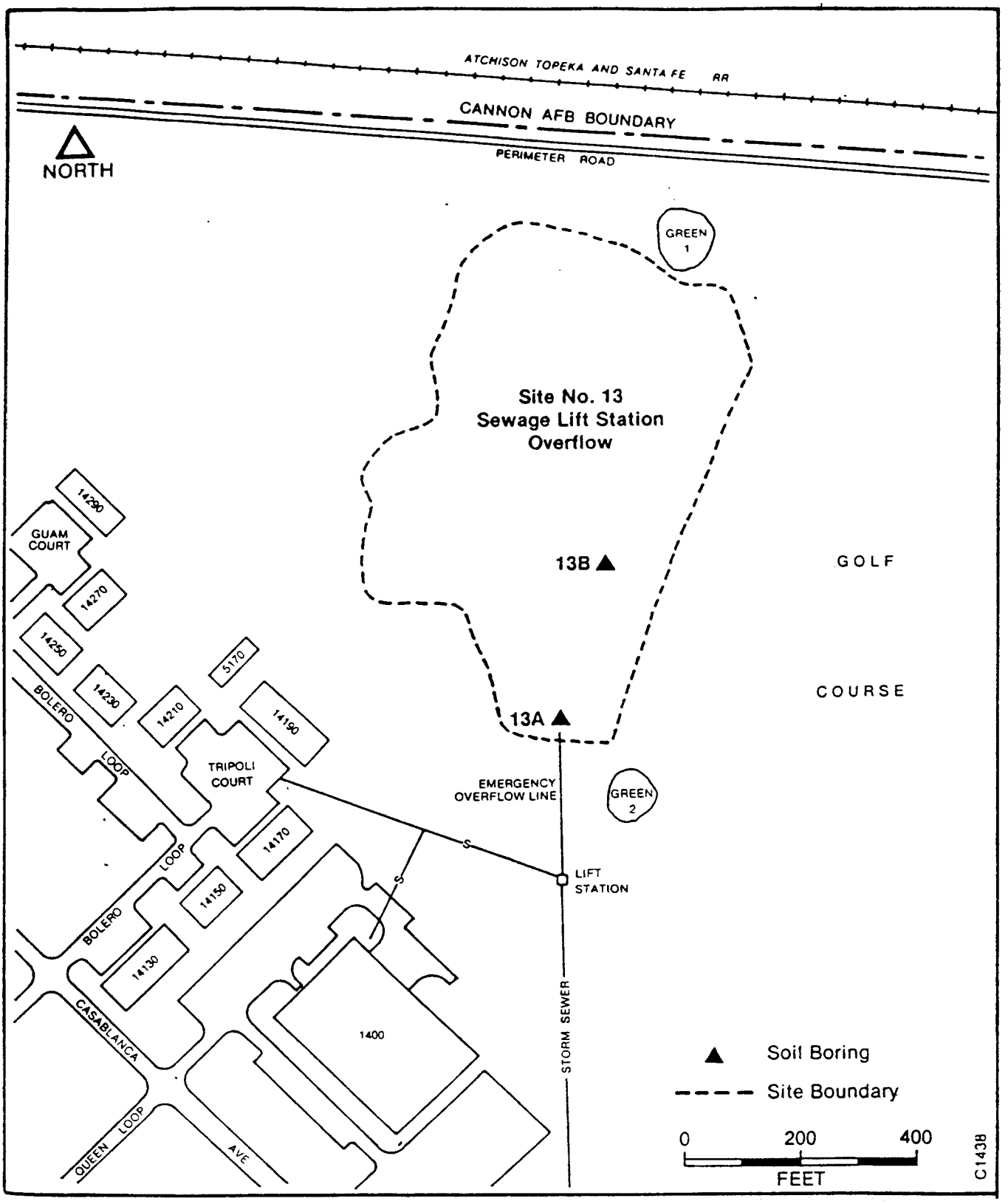
	Parameter												
	Ag	As	Ba	Cd	Cr	Cu	Hg	Mn	O/G	Pb	Se	Zn	Purgeable Organics** EPA(8010/8020)
	(concentrations in ug/g)												
13A-1	1.6	2.6	98	0.20	5.3	9.1	0.38	2.5	65	9.6	1.3	23	ND
13A-2	1.4	1.6	87	ND	5.5	7.1	0.24	120	26	7.6	1.5	24	ND
13B-1	ND	2.6	100	0.22	7.5	7.5	0.14	330	55	9.9	1.3	20	ND
13B-2	0.54	2.1	130	0.34	7.4	7.4	0.12	550	28	2.0	1.2	18	ND
13B-2a*	0.70	3.1	140	0.59	9.7	9.5	0.16	210	67	7.2	2.2	25	NA

*duplicate analysis
**concentrations in ug/kg
ND = not detected
NA = not analyzed, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 75

Soil Boring Locations in Sanitary Sewage Lift Station Area



Source: Reference 46

76. UNIT NAME: Sludge Weathering Pit

Unit Description: This unit is an unlined, shallow surface impoundment about 25 feet by 25 feet, located in the Northern Area of the Air Force Base. The unit consists of native soil with a 10-inch earthen berm. The site is 800 feet from a potable water well. The site was used in the 1960s and 1970s for the weathering of fuel tank sludges. The pit was identified as Site No. 14 in the IRP Phase I study (Ref. 6). During the VSI, a sparse vegetative cover was noted (Ref. 47).

Date of Start-Up: Use of this unit is presumed to have started in 1960 (Ref. 6 and 47).

Date of Closure: Use of this unit ceased in 1980.

Wastes Managed: Reportedly, AVGAS and JP-4 sludges from SWMU No. 71 were weathered and then taken to landfills for final disposition. It was not known what quantities of sludge were weathered at the site nor how often; however, the quantities are considered to have been small. Constituents in these sludges include tetraethyl lead (Ref. 6 and 47).

Release Controls: The unit is not lined (Ref. 47).

Release History: Due to the concern over potential groundwater contamination from the site, a soil sample was analyzed in 1981 for lead and extractable oil and grease. The source of the lead would have been past weathering of AVGAS sludge. The test for lead was negative; however, the test for extractable oil and grease indicated 0.012 gm/kg. The positive oil and grease analysis is considered to represent confirmation that weathering of sludges did occur at this site (Ref. 6).

77. UNIT NAME: Civil Engineering Container Storage Area

Unit Description: This unit is a container storage area for the Civil Engineering group on base. The area is located approximately 300 yards from the northern facility boundary in the Northern Area. The storage area is approximately 100 feet by 200 feet with an 8-foot fence on two sides. Approximately 100 55-gallon drums from different buildings on base were observed during the VSI. Dates on the drums indicate the drums were filled over 5 months ago. Approximately 20 recovery drums used to contain leaking drums were noted. Three drums were observed to be bulging indicated no head space was allowed during filling. Some of the drums were on wooden pallets while some were noted resting on the asphalt pad (Ref. 47). This unit was not identified in the Part B Application (Ref. 45).

Date of Start-Up: It is unknown how long this unit has been in existence (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Some drums were labeled "used oil." Most drums were labeled with only building numbers. The building numbers and affiliations are as follows:

5114	Civil Engineering Washrack
165	Aircraft Washrack
5120	Sound Suppressor Building
680	Jet Propulsion Shop
194 & 195	Aircraft Maintenance Shop

(Ref. 47).

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

78. UNIT NAME: Fire Department Training Area No. 1

Unit Description: This unit was described as an unlined open burning area about 100 feet in diameter in the Northern Area of the Air Force Base near SWMU No. 2. The base boundary is 400 feet from the burning area, which appears as a disturbed area with some vegetative cover (Ref. 6). During the May 1987 VSI the area for this unit identified by facility representatives appeared to be an open field covered with prairie grass. A concrete pad was noted on the edge of the area. Purpose or former use of the pad is unknown (Ref. 47).

This area was included (as Site No. 6) in the IRP Phase I study because of known disposal of hazardous waste and proximity to the installation boundary. A potable water well (No. 5) is located approximately 2,800 feet from the site (Ref. 6).

Date of Start-Up: Use of this unit began in 1959 (Ref. 6).

Date of Closure: Use of this unit ceased in 1968 (Ref. 6).

Wastes Managed: Approximately 300 gallons of waste oils, recovered fuels, and spent solvents were burned at the site during each training exercise, twice per month (Ref. 6).

Release Controls: The unit was not lined. No release controls were observed during the VSI (Ref. 47). Sandy top soil extends four feet from the surface with a caliche layer composed of interbedded calcite nodules and silt layers extending to a depth of 15 feet (Ref. 6).

78. (Cont'd.) Fire Department Training Area No. 1

Release History: Waste was poured directly on the ground. It is possible that some quantity of waste percolated into the subsurface (Ref. 6).

During 1985, two deep soil borings were drilled in the area to evaluate the extent of potential contamination associated with past fire training exercises and to define subsurface conditions. Results of soil sample analysis from this site are summarized in Table 78 and Figure 78 following this page. Sampling at this unit found no purgeable halocarbons or aromatic hydrocarbons. Elevated concentrations of oil and grease ranging from 140 mg/kg to 2800 mg/kg occur in the upper soil horizons. Lead was detected in concentrations between 1.8 mg/kg to 28 mg/kg in the soil borings.

Table 78

Results of Analysis of Soil Samples for Fire Department Training Area No. 1

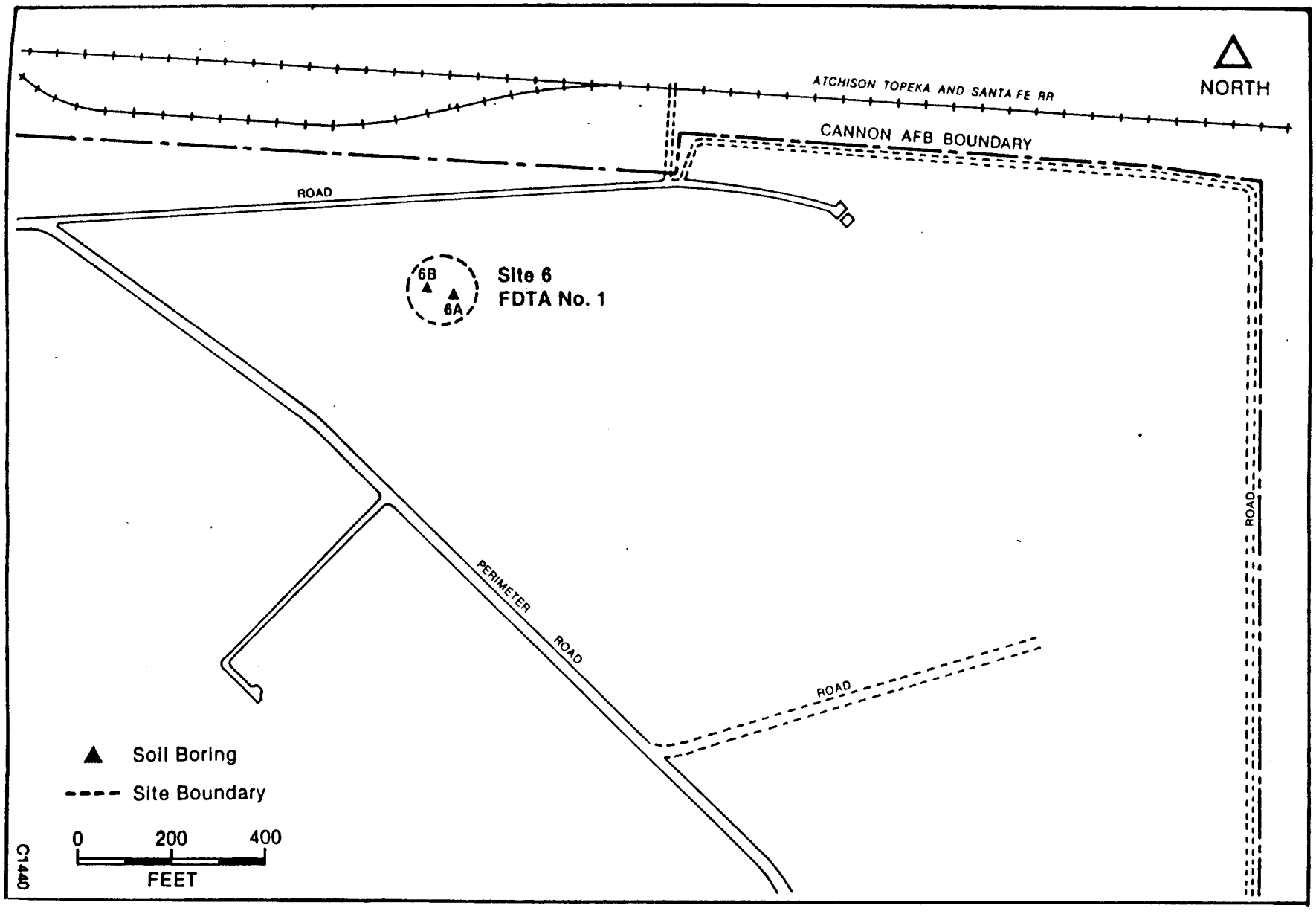
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds** (EPA 8010/8020)
6A-1	3.8-4.8'	2000	4.5	ND
6A-2	9.6-10.6'	2800	3.2	ND
6A-3	47.5-48.6'	1700	28	ND
6B-1	3.5-4.5'	520	3.8	ND
6B-2	9.5-10.5'	140	23	ND
6B-3	47.5-48.0'	310	1.8	ND

*concentrations in mg/kg
**concentrations in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A.

Source: Reference 46

Figure 78

Soil Boring Locations in Fire Department Training Area No. 1



Source: Reference 46

79. UNIT NAME: Underground Tank

Unit Description: This unit was described in the IRP Phase I study as an underground storage tank with a 2,000-gallon capacity located in the Northern Area near the Fire Training Area (SWMU No. 78) for the purpose of collecting and storing recovered jet petroleum fuel (JP-4) prior to burning (Ref. 6). According to facility representatives, the location and the construction details of the tank are unknown. During the VSI, an excavated area was observed adjacent to SWMU No. 78. It is not known if this area was the location for this tank, but obvious excavation or burial had recently taken place due to the bare soil cover and small mound of pea gravel on edge of the circular area (Ref. 47).

Date of Start-Up: Unknown (Ref. 47).

Date of Closure: Unknown (Ref. 47).

Wastes Managed: The tank contained recovered jet petroleum fuel (JP-4) (Ref. 6).

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: No releases from this unit have been documented.

80. UNIT NAME: Drum Storage Area

Unit Description: This unit was described in the IRP Phase I report as a container storage area of unknown dimension where drums and bowsers filled with commingled spent solvents, paint thinners and waste oils were stored prior to burning in the Northern Area of the Fire Department Training open burning area (SWMU No. 78) (Ref. 6). According to facility representatives, the location and history of this unit is unknown. Therefore, this unit was not observed during the VSI (Ref. 47).

Date of Start-Up: Unknown.

Date of Closure: Unknown.

Wastes Managed: The drums and bowsers contained commingled spent solvents, paint thinners, and waste oils (Ref. 6).

Release Controls: It is not known whether the drums were stored on bare soil or on an artificial surface (Ref. 6).

Release History: No releases from this unit have been documented.

81. UNIT NAME: Solvent Disposal Site

Unit Description: This unit is an inactive surface impoundment located in the Northern Area of the Air Force Base, about 100 feet south of the base perimeter road (Ref. 6 and 46). Facility representatives were uncertain of exact location and dimensions of this site. The approximate area was observed during the VSI. No sign of recent or past disposal was noted; however, vegetation appeared stressed (Ref. 47). In 1983, two empty 55-gallon drums labeled "Trichloroethylene" (TCE) were found on the ground, opened and positioned so that they would drain into a shallow surrounding pit. Each drum had rust holes in the top side, suggesting that they had been there for several years. It is not known whether or not the drums were full at the time of disposal. The site was identified as Site No. 16 in the IRP Phase I study (Ref. 6).

Date of Start-Up: This unit was first identified in 1983 (Ref. 6).

Date of Closure: This unit was closed sometime after 1983 (Ref. 46).

Wastes Managed: It is suspected and has been reported that trichloroethylene has been disposed on this site (Ref. 46).

Release Controls: In 1983, a deteriorating black plastic liner was noted at the edge of the shallow pit. Approximately 4 to 6 inches of soil covered the rest of the liner, which had apparently been installed in the pit to prevent the volatile solvent from percolating into the ground (Ref. 6). No release controls were observed during the VSI (Ref. 47).

Release History: An unknown quantity of TCE may have percolated into the ground at this site. Vegetation appeared stressed (Ref. 47).

82. UNIT NAME: Landfill No. 2

Unit Description: This unit is an unlined, inactive cut-and-fill landfill located in the Northern Area of the base. The area of the fill is estimated to be 4 acres. At least 10 cells, 30 feet by 300 feet long, were observed during the VSI. According to facility representatives these cells are approximately 15 feet deep. Wastes were burned before burial (Ref. 46). The topography of this unit is essentially level with the exception of several subsided areas on the cover (Ref. 47).

From reconnaissance boring information (36 to 60 feet deep), the cover material in this unit is composed of sandy clay ranging from 4 to 4.5 feet thick. The landfill material is approximately 15 feet thick and is underlain by caliche subsoil and strata of loose unconsolidated sand (Ref. 46). Animal burrows were noted in the soil cover during the May 1987 VSI (Ref. 47).

This unit was identified as Site No. 2 during the IRP Phase I study based primarily on its proximity to a base drinking water well and to the installation boundary, and an unknown disposal of small quantities of hazardous wastes (Ref. 6).

Date of Start-Up: The landfill was active from 1946 to 1947, then reactivated in 1952 (Ref. 46).

Date of Closure: Use of this unit ceased in 1959 (Ref. 46).

Wastes Managed: While active, the unit received domestic and industrial solid waste, including waste oils and solvents, paints, paint strippers, paint thinners, pesticide containers, and empty cans and drums.

Release Controls: No release controls were observed during the VSI (Ref. 47).

82. (Cont'd.) Landfill No. 2

Release History: During 1985, five deep soil borings were placed within the landfill site to define the local hydrological conditions and to evaluate the extent of soil contamination. Results are presented in Table 82 and Figure 82 following this page. No purgeable halocarbons, or aromatic hydrocarbons or total oil or grease were measured in these borings. The metals concentrations were within the normal range for the native soils except for slightly elevated levels of barium and selenium. Results of the analysis are presented in the attached figure (Ref. 46).

Table 82

Results of Analysis of Soil Samples for Landfill No. 2

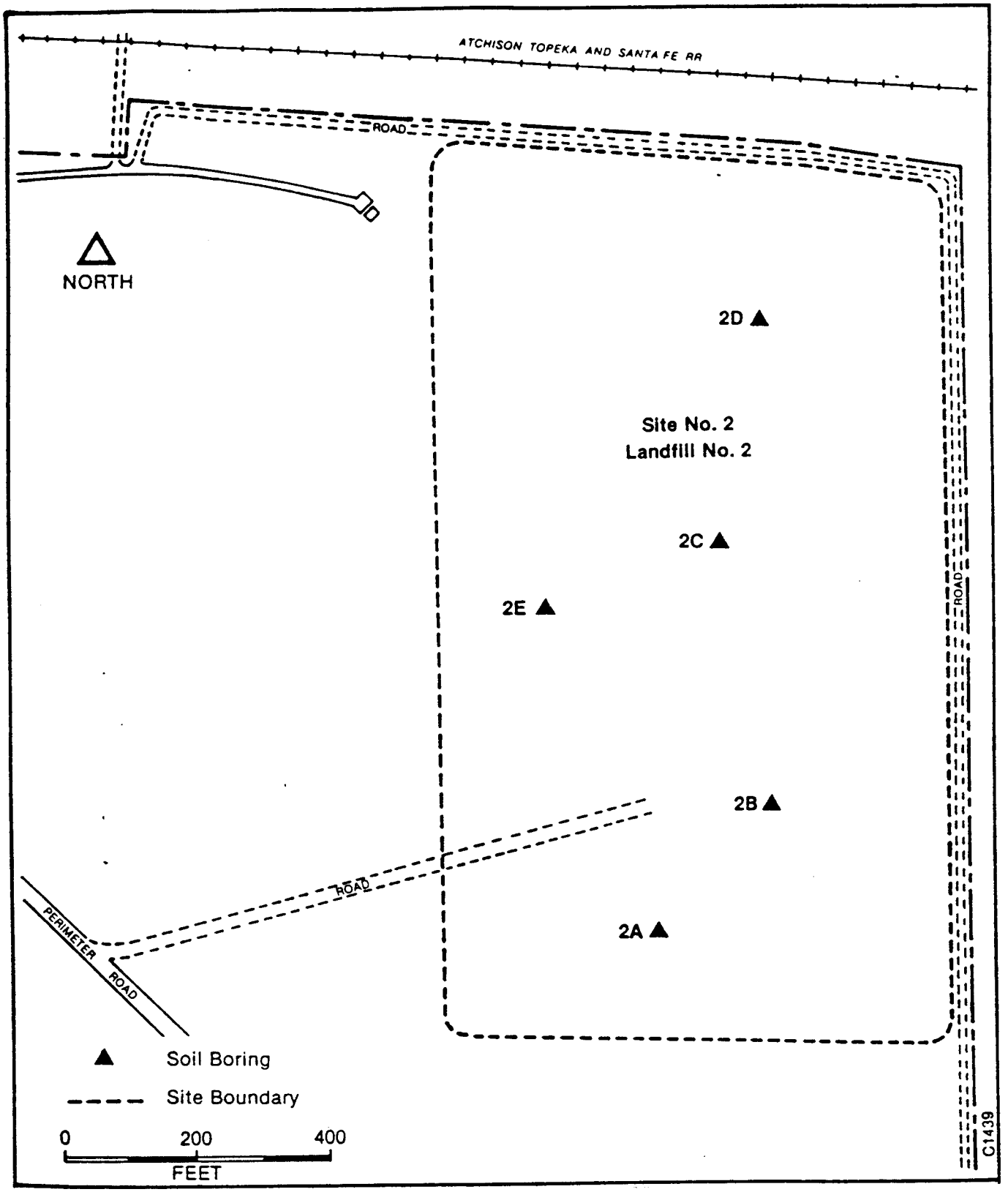
Sample Number	Depth	Ag	As	Ba	Cd	Cr	Cu	Fe	Hg	Ni	O/G	Pb	Se	Zn	Purgeable Organics** (EPA 8010/8020)
		Parameter (concentrations in mg/kg)													
2A-1	4.0-5.0'	1.0	1.6	89	0.50	9.5	5.3	9100	0.13	7.5	ND	7.4	ND	25.0	ND
2A-2	9.0-10.0'	ND	1.3	80	ND	7.1	4.0	6800	ND	4.7	ND	5.2	ND	16.0	ND
2B-1	4.0-5.0'	0.72	1.1	74	0.57	6.4	3.6	4500	0.08	4.1	ND	3.3	ND	38.0	ND
2B-2	9.0-10.0'	0.66	3.7	580	0.43	4.1	5.0	2500	0.21	3.3	ND	1.3	ND	36.0	ND
2C-1	4.0-5.0'	ND	4.0	79	0.27	7.9	5.8	8000	0.10	8.4	ND	6.4	1.6	68.0	ND
2C-2	9.0-10.0'	1.2	1.5	320	ND	5.8	2.4	4500	0.017	3.6	ND	3.7	ND	61.0	ND
2D-1	4.0-5.0'	0.58	1.5	100	0.34	8.3	6.3	7800	0.035	7.7	ND	7.0	ND	61.0	ND
2D-2	9.0-10.0'	.57	11.0	89	ND	3.5	0.79	2100	0.083	1.7	26	1.9	ND	19.0	ND
2E-1	4.0-5.0'	0.38	0.74	110	0.40	7.8	7.5	8700	0.068	5.8	ND	10.0	ND	57.0	ND
2E-2	9.0-10.0'	0.55	0.81	66	0.48	7.4	5.7	6900	0.13	7.7	ND	7.5	ND	190.0	ND
2E-3	52.5-53.5'	0.35	ND	45	0.39	3.1	0.81	2100	0.065	0.96	ND	0.90	ND	5.2	ND
2C-1a*	4.0-5.0'	ND	5.0	57	ND	4.7	4.5	5000	0.09	8.5	ND	2.6	1.8	16.0	ND

*duplicate analysis
**concentrations in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A.

Source: Reference 46

Figure 82

Soil Boring Locations at Landfill No. 2



Source: Reference 46

83. UNIT NAME: Sump

Unit Description	This unit is a sump located in the Southwestern Area near the western edge of the flight apron near Building No. 120, the Power Production Area. The sump is approximately 7 feet by 8 inches by 5 inches deep and constructed in a concrete slab. A metal grate extends the length of the sump. A metal rack, such as to hold 55-gallon drums, was positioned adjacent to the sump; however, no drums were present at the time of the VSI. During the VSI, 3 inches of a dark liquid was noted in the sump. Stains were observed on the concrete surrounding the unit. According to facility representatives the liquid is periodically pumped from the unit and disposed through DPDO (Ref. 47).
Date of Start-Up:	Date of start-up is unknown (Ref. 47).
Date of Closure:	This unit is currently active (Ref. 47).
Wastes Managed:	Facility representatives did not know what material is received by this unit. The appearance resembled dilute waste oil or wash-down water from the flight apron area (Ref. 47).
Release Controls:	This unit is positioned in concrete with a metal grate cover.
Release History:	No releases from this unit have been reported; however, stains were observed on the concrete around the unit (Ref. 47).

84. UNIT NAME: Waste Oil and Product Storage Area

Unit Description: This unit is a container storage area for waste oil and product located in the Southwestern Area near the western edge of the flight apron near Building No. 120, the Power Production Area. The dimensions of the concrete slab are 20 feet by 20 feet. A six-inch concrete curb surrounds the slab with a 6-foot chainlink fence. During the VSI, ten 55-gallon drums containing waste oil and 14 drums of product were noted. Facility representatives stated that waste oil is retained here until analysis determines final disposition (Ref. 47).

Date of Start-Up: Date of start-up is unknown (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Waste oil and various product containers are stored at this unit (Ref. 47).

Release Controls: A six-inch concrete curb surrounds the concrete slab (Ref. 47).

Release History: A drainage outlet was noted in the concrete curb and stains were noted on the concrete and curb (Ref. 47).

85. UNIT NAME: Storm Water Collection Point

Unit Description: This unit is a naturally occurring playa used as an unlined surface impoundment to receive stormwater runoff from he flightline as well as small spills of fuel. The 15-foot deep playa, which occupies about nine acres in area, is in the Southwest Area of the Air Force Base near crossing jet runways, and 800 feet from a potable water well. The basin of the unit is composed of silt and clay with organic debris, the thickness of the clay and organic debris is unknown. This site was identified as Site No. 12 in the IRP Phase I study because of the suspected disposal of small amounts of hazardous materials and the existence of a drinking well (No. 6) within 800 feet (Ref. 6).

Date of Start-Up: This unit has been active since 1943 (Ref. 6).

Date of Closure: The unit is active (Ref. 47).

Wastes Managed: The playa received storm water runoff from the flight line areas. Large pieces of broken concrete, from apron and runway demolition, have also been disposed in the playa. It is likely that fuels from minor spills, oils, and similar POL materials such as PD-680, a petroleum distillate cleaning solvent, contained in the storm water have reached the site. In addition, washwater from the Aircraft Washrack Oil/Water Separator (SWMU No. 38) is discharged through the storm sewers to this unit (Ref 6). It possible that other Oil Water Separators discharged to this unit also but no information is available at this date. In 1981, an analysis of a sample of the washrack discharge revealed the effluent to be primarily water with a very thin layer of a hydrocarbon, similar to PD-680 solvent with lead and total chromium present in low concentrations (80 ppb and 212 ppb, respectively) (Ref. 6).

Release Controls: The unit is unlined. No release controls were observed during the VSI (Ref. 47).

85. (Cont'd.) Storm Water Collection Point

Release History: During 1985, three 5-foot deep, hand-augered boreholes were made and samples were taken at depths of one foot and five feet. Results from the sampling are presented in Table 85 and Figure 85 following this page. The samples contained no purgeable halocarbons or volatile hydrocarbons. Generally, no elevated levels of oil and grease or concentrations of metals were detected. However, increasing levels of lead are concentrated towards the center of this unit (Ref. 46).

Table 85

Results of Analysis of Soil Samples for Stormwater Collection Point

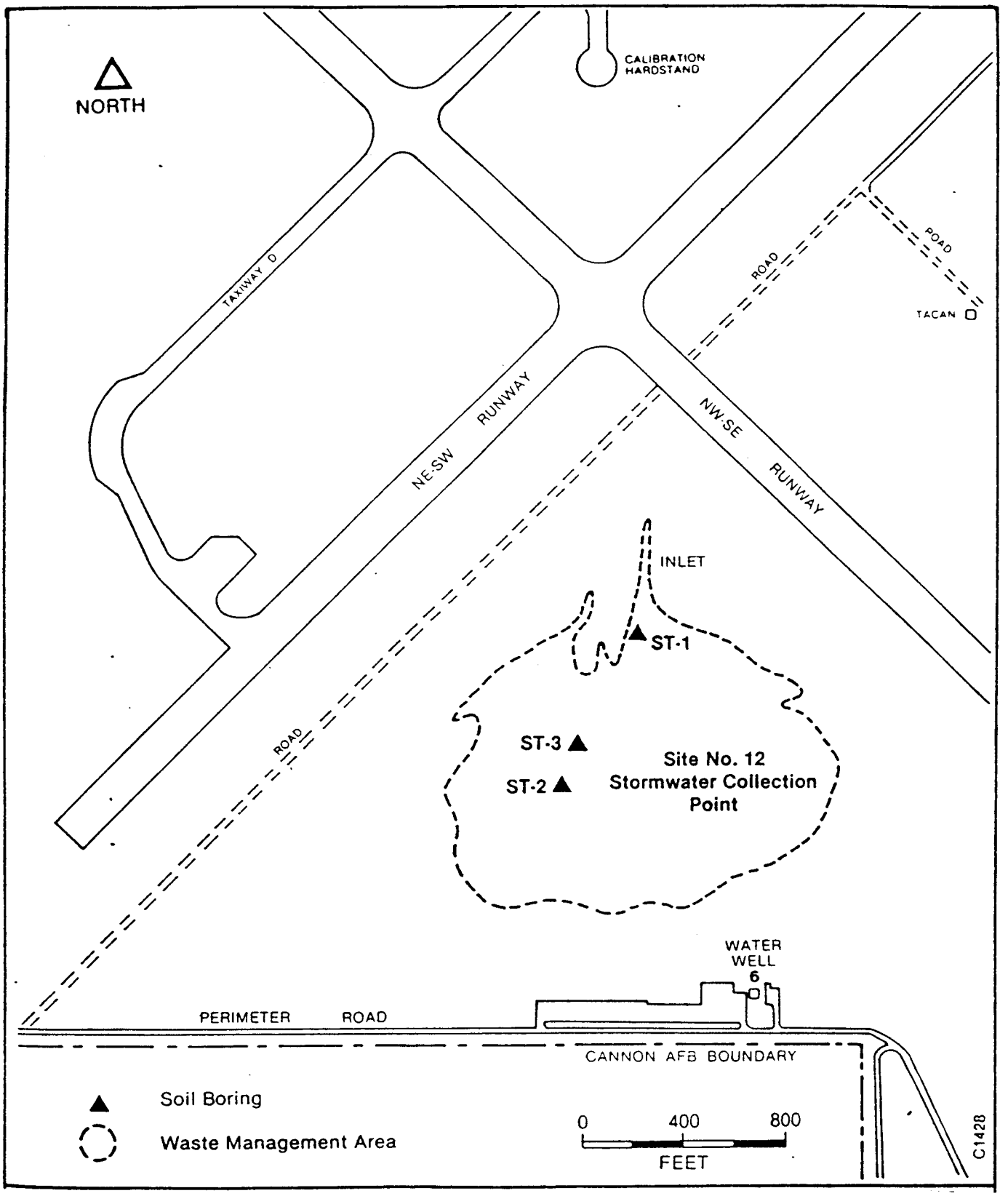
Sample Number	Depth	Ag	As	Ba	Cd	Cr	Cu	Fe	Hg	Ni	O/G	Pb	Se	Zn	Purgeable Organics** (EPA 8010/8020)
		Parameter (concentrations in mg/kg)													
ST-1	3.0-4.0'	0.40	1.6	48	0.28	5.5	3.5	5500	0.17	3.3	ND	5.3	ND	9.9	ND
ST-2	3.0-4.0'	ND	1.8	70	1.2	18.0	7.7	6900	0.20	4.4	ND	33.0	ND	46.0	ND
ST-3	3.0-4.0'	ND	1.5	110	2.3	28.0	12.0	7700	0.21	6.1	40	74.0	ND	57.0	ND
ST-1a	3.0-4.0'	ND	3.1	48	ND	3.4	4.2	3900	0.17	3.2	ND	5.3	1.3	9.0	ND

*duplicate analysis
**concentrations in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 85

Soil Boring Locations at Stormwater Collection Point



Source: Reference 46

86. UNIT NAME: Engine Test Cell

Unit Description: This unit is an enclosed tank located near a runway in the Central Area of the base. The dimensions are approximately 50 feet by 10 feet by 20 feet tall. The cell rests on a concrete slab. Aircraft engines are cleaned with steam removing residual lubricating and synthetic oils and dirt (Ref. 47). This unit was identified as Site No. 11 in the IRP Phase I study due to the known disposal of hazardous material, the observed contamination in the adjacent Overflow Pit, and the site location, within 300 feet of potable water Well No. 9. (Ref. 6).

Date of Start-Up: This unit was built in 1965 (Ref. 6).

Date of Closure: The unit is active (Ref. 47).

Wastes Managed: Washdown water from aircraft engine cleaning containing lubricating and synthetic oils and dirt (Ref. 47).

Release Controls: This unit is self-contained. Wastewater is now channeled to an Oil/Water Separator No. 5114 (SWMU No. 90)(Ref. 47). Prior to that it was channeled to the Former Overflow Pit (SWMU No. 87) (Ref. 6).

Release History: During the VSI, moisture and black discoloration was observed on the concrete and gravel surrounding the unit (Ref. 47). Results from sampling are presented in Table 86 and Figure 86 following this page.

Table 85

Results of Analysis of Soil Samples for Engine Test Cell Area

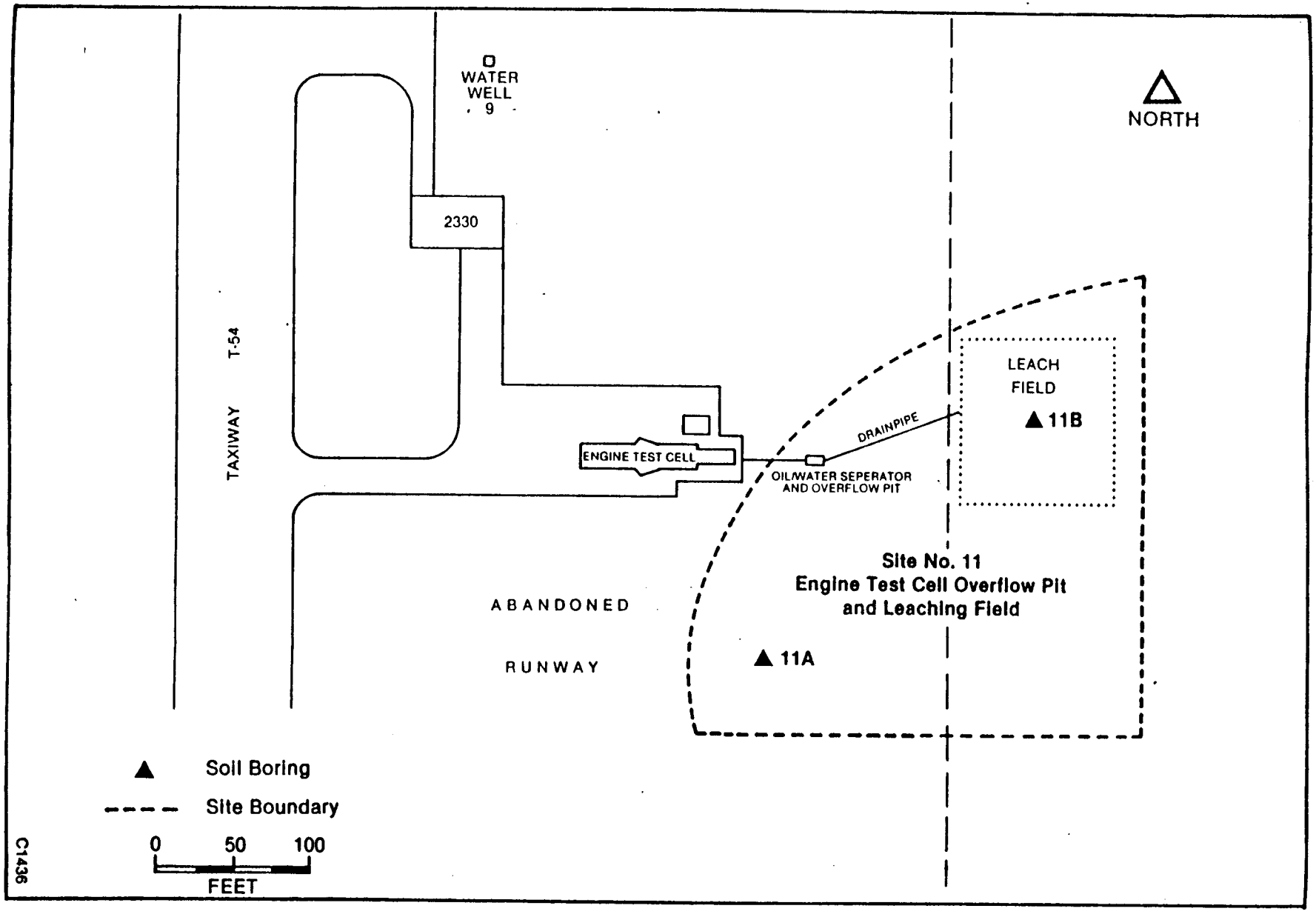
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds** (EPA 8010/8020)
11A-1	1.0-2.0'	ND	1.5	ND
11A-2	5.0-7.0'	ND	4.0	ND
11B-1	2.0-4.0'	ND	4.8	ND
11B-2	5.5-7.0'	ND	2.0	ND
11B-3	46.5-47.5'	ND	2.0	ND
QA-1***	5.0-7.0'	ND	4.3	ND

*all values in mg/kg
**concentrations in ug/kg
***duplicate of 11A-2
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 86

Soil Boring Locations in Engine Test Cell Area



Source: Reference 46

87. UNIT NAME: Former Overflow Pit

Unit Description: This unit was an unlined surface impoundment, 6 to 8 feet in diameter and filled with 5 to 6 feet of liquid. The pit site is located in the Central Area of the Air Force Base. The pit was excavated to receive overflow from the Engine Test Cell washwaters (Ref. 6). This area is now covered with soil and overflow is directed to Oil/Water Separator No. 5114 (SWMU No. 90) which is nearby (Ref. 47).

Subsurface drainage from this unit is typically to the southeast towards low catchment areas (Ref. 6).

Date of Start-Up: This unit was excavated in 1982 (Ref. 6).

Date of Closure: Use of this unit ceased in 1985 (Ref. 46).

Wastes Managed: The pit held wash water containing, in part, a black liquid with a hydrocarbon odor (Ref. 6).

Release Controls: The unit was unlined when in use (Ref. 47).

Release History: During the 1985 inspection the soil appeared to wet and muddy from recent discharges from the Engine Test Cell (Ref. 46). In 1982, the open pit reportedly contained 5 to 6 feet of black liquid with a hydrocarbon odor being released to the air (Ref. 6).

88. UNIT NAME: Former Leaching Field

Unit Description: This unit was a leaching field that received washdown wastewaters from the Engine Test Cell (SWMU No. 86). The estimated area of the leach field is 10,000 square feet. In 1985, use of the leaching field was discontinued because of partial clogging with oils from the Oil/Water Separator (SWMU No. 90) (Ref. 47). An Evaporation Pond (SWMU No. 89) was installed in 1985 and may overlap the former Leaching Field that received water from the Oil/Water Separator (SWMU No. 190).

Date of Start-Up: This unit was built in 1965 (Ref. 6).

Date of Closure: Use of this unit ceased in 1985 (Ref. 46).

Wastes Managed: The leaching field received washdown wastewater from the Engine Test Cell and oils released from the Oil/Water Separator (Ref. 6).

Release Controls: This unit had no known release controls (Ref. 47).

Release History: During 1985, two deep soil borings were installed to evaluate the environmental impact of this site. From the five samples analyzed, no contaminants were detected. However, the information provided from only two boreholes is not considered adequate to evaluate the potential environmental impacts associated with this site (Ref. 46).

89. UNIT NAME: Evaporation Pond

Unit Description: This unit is a concrete, sloped sides impoundment used for evaporating Engine Test Cell washwater located in the Central Area, adjacent to the Engine Test Cell (SWMU No. 86). The unit's bottom area is 60 by 60 square feet and is lined with bentonite clay. The top of the impoundment is 90 x 90 square feet. The depth of the unit is 6 feet. The Evaporation Pond may overlie and overlap the former Leaching Field (SWMU No. 88). During the VSI, a black carbonaceous film was present near the POL discharge inlet.

Date of Start-Up: This unit became active in 1985.

Date of Closure: This unit is currently active.

Waste Managed: Washwater containing carbonaceous black constituents.

Release Controls: The unit is lined with concrete and bentonite.

Release History: Not known.

90. UNIT NAME: Oil/Water Separator No. 5114

Unit Description: This unit is an underground 100-gallon tank located in the Central Area, adjacent to the Engine Test Cell (SWMU No. 86). The unit, of unknown construction, recovers JP-4 fuel from the effluent from the Engine Test Cell. The recovered JP-4 fuel is conducted to Tank No. 5114 (SWMU No. 91) and the effluent is discharged to the Evaporation Pond (SWMU No. 89). Prior to 1985, the effluent was discharged to the Leaching Field (SWMU No. 88). The unit is self-contained with a hinged cover (Ref. 6 and 47).

Date of Start-Up: 1965 (Ref. 6).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: The unit recovers JP-4 fuel from effluent from the Engine Test Cell (Ref. 6 and 47).

Release Controls: The unit is self-contained with a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

91. UNIT NAME: Recovered Fuel Tank No. 5114

Unit Description: This unit is an aboveground 5,000-gallon tank located in the Central Area, near the Engine Test Cell (SWMU No. 86). The unit is of unknown construction. The unit collects recovered JP-4 fuel from Oil/Water Separator No. 5114 (SWMU No. 90) (Ref. 6 and 47).

Date of Start-Up: 1967 (Ref. 6 and 47).

Date of Closure: The unit is currently active (Ref. 6 and 47).

Wastes Managed: The unit collects recovered JP-4 fuel from Oil/Water Separator No. 5114 (SWMU No. 90) (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been reported (Ref. 6 and 47).

92. UNIT NAME: Oil/Water Separator No. 5120

Unit Description: This unit is an underground 100-gallon tank located in the Central Area, adjacent to the Sound Suppressor Building. The unit, of unknown construction, recovers an oily material from washdown from maintenance operations. The ultimate disposition of the recovered oil is unknown. The effluent was discharged to the Leaching Field (SWMU No. 88). An Evaporation Pond (SWMU No. 89) was installed in 1985. It is adjacent to and replaces the Leaching Field. The unit is self-contained with a hinged cover (Ref. 6 and 47).

Date of Start-Up: 1965 (Ref. 6).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: The unit recovers oil from maintenance washdown (Ref. 6 and 47).

Release Controls: The unit is self-contained with a hinged cover (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

93. UNIT NAME: Oil/Water Separator No. 5121

Unit Description: This unit is an underground 100-gallon tank located in the Central Area, adjacent to the Sound Suppressor Building. The unit, of unknown construction, recovers an oily material from washdown from maintenance operations. The ultimate disposition of the recovered oil is unknown. The effluent was discharged to the Leaching Field (SWMU No. 88). An Evaporation Pond (SWMU No. 89) was installed in 1985. It is adjacent to and replaces the Leaching Field. The unit is self-contained with a hinged cover (Ref. 6 and 47).

Date of Start-Up: 1960 (Ref. 6).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: The unit recovers oil from maintenance washdown (Ref. 6 and 47).

Release Controls: The unit is self-contained with a hinged cover (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

94. UNIT NAME: Oil/Water Separator No. 5144

Unit Description: This unit is an underground 1,700-gallon tank, located at the vehicle car wash in the Central Area of the Air Force Base. The unit, which consists of two washrack sumps and a sand trap, recovers an oily material from washdown water from vehicle washing. The unit discharges to the Sanitary Sewerage Line (SWMU No. 98). The ultimate disposition of the oil is unknown. The unit is self-contained with a hinged cover.

Date of Start-Up: 1960

Date of Closure: The unit is currently active.

Wastes Managed: The unit recovers washdown water from vehicle washing.

Release Controls: The unit is self-contained and has a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

95. UNIT NAME: Northeast Storm Water Drainage Area

Unit Description: This unit is an open field which receives water from Cantonment Area oil/water separators and runoff water from the runways and storm water drains located in the Eastern Area of the Air Force Base. This area has recently been identified by the IRP for further evaluation in Phase IV due to known discharge from Oil/Water Separators Nos. 194, 195, and 196 (SWMU Nos. 38, 39, and 46). The area identified by facility representatives is a ditch, 40 feet wide, extending from the end of the northeast runway beneath the base perimeter road to a field leading to the base boundary. During the VSI, the area appeared heavily vegetated and water ponded in a shallow depression (Ref. 47).

Date of Start-Up: Runoff from the runways has been received by this drainage way since 1953 (Ref. 47). The oil/water separators presumably began discharging to this area when they were installed, in 1969 (Ref. 6).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Wash from Oil/Water Separators Nos. 194, 195 and 196 (Aircraft Maintenance Hangers and Corrosion Control/Fuel Systems Shop (SWMU Nos. 38, 39 and 46). This includes alkaline based aircraft cleaning compounds containing 5% by weight ethylene glycol n-mono butyl ether. Runoff water from the runways and the northeast storm water drains is also discharged to this unit.

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

96. UNIT NAME: Old Entomology Rinse Area

Unit Description: This unit is an inactive open pit 3 feet square and 2 feet deep, located in the Eastern Area of the Air Force Base. Rinse water from decontaminating pesticide spraying equipment and empty containers from the pesticide storage building (No. 2160) sink were discharged to this open pit. The pit was within 5 feet of the building. The building has been demolished and the pit is no longer in use. The pit structure appears to be an old Parshall flume and was apparently part of the influent structures for the former wastewater treatment system (Imhoff tank).

Loam topsoil is between four and five feet thick. A caliche layer interbedded with sand and silt lenses extends to 40 feet below the soil surface. Soil and some gravel in the base of the pit prevented inspection to determine the nature and condition of the bottom. It was not known whether pesticides that drained into the pit were self-contained within the open pit or percolated into the ground, possibly through cracked concrete.

This unit was identified as Site No. 17 in the IRP Phase I study due to the potential for percolation of pesticide wastes into the ground and the existence of potable water Wall No. 5 within 1,200 feet of the site (Ref. 6).

Date of Start-Up: Use of this unit is suspected to have started in 1968 or perhaps earlier (Ref. 6).

Date of Closure: Use of this unit probably ceased in 1983 (Ref. 47).

Wastes Managed: This unit collected effluent from the pesticide rinsing sink. The pesticides used on the Air Force Base have included the following: Sevin, Diazinon E.C., Diazinon granules, Dursban E.C., Baygon solution, Baygon granules, Malathion E.C., Malathion technical, zinc phosphate, and 2,4-D herbicide.

96. (Cont'd.) Old Entomology Rinse Area

Release Controls: Soil and some gravel in the base of the pit obscured the nature and condition of the bottom (Ref. 47). It was not known whether pesticides that drained into the pit were self-contained within the open pit or percolated into the ground possibly through cracked concrete (Ref. 6).

Drainage from the site is intercepted by a small ditch which runs parallel to the perimeter road (Ref. 46).

Release History: In 1983, deep soil borings were drilled in this area. Results from soil analysis are presented in Talbe 96 and Figure 96 following this page. Samples collected below the caliche layer contained levels of the herbicide 2,4-D and 4-4 DDT. The accumulation of these contaminants in the unconsolidated sand represents a major or environmental concern (Ref. 46).

Table 96

Results of Soil Samples for Old Entomology Rinse Area

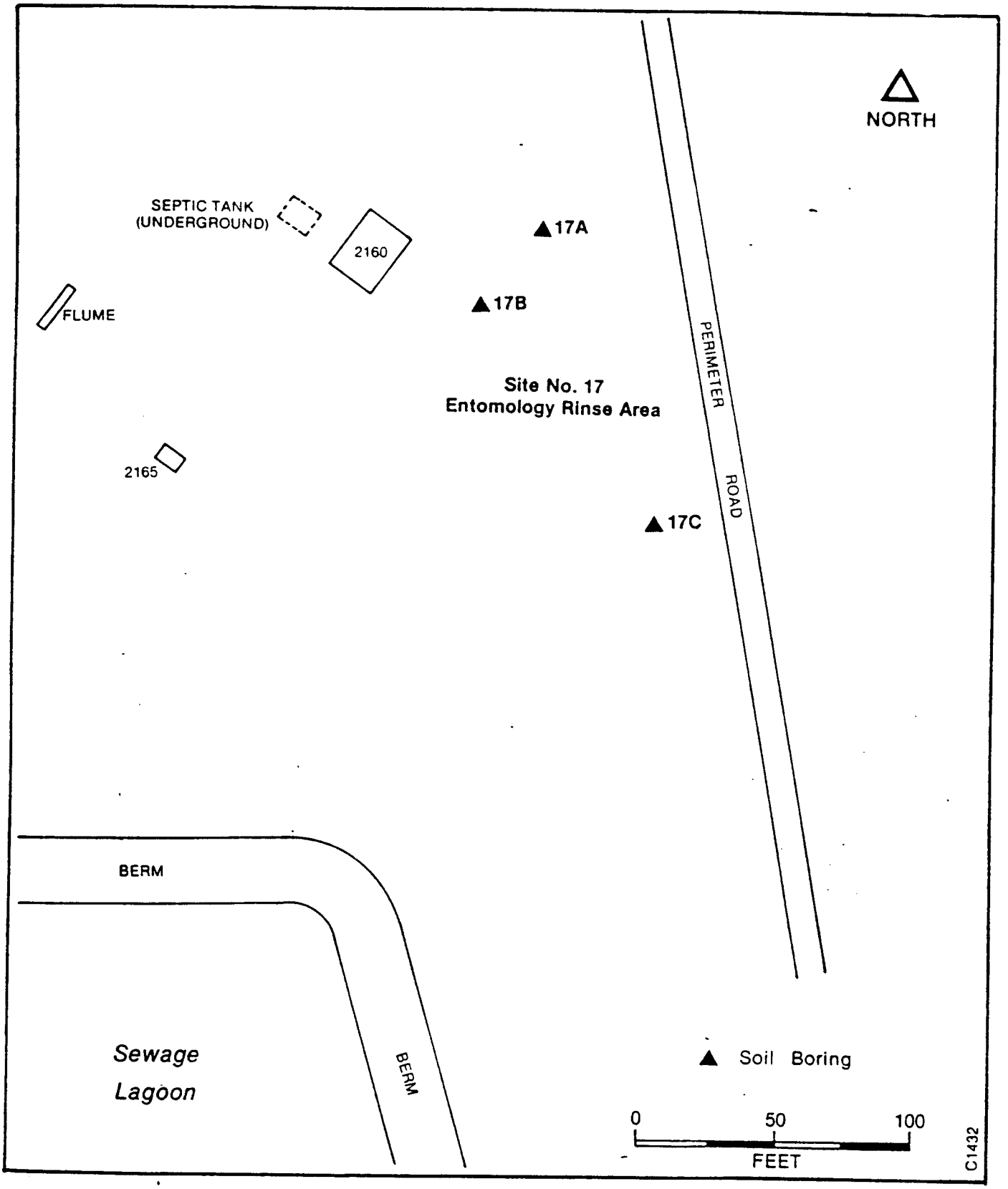
Sample Number	Depth	As[1]	Hg[1]	Herbicides[1]	Organo-Phosphate Pesticides[3]	EPA 608 Pesticides[3]	Purgeable Organics (EPA 8010/8020)[2]
17A-1	2.0-4.0'	4.1	0.09	ND	ND	dieldrin=.002 toxaphene=.221	ND
17A-2	5.0-6.0'	2.3	0.10	2,4-D=.283	ND	ND	ND
17A-3	7.5-9.6'	1.4	0.10	2,4-D=.059	ND	ND	ND
17A-4	62.5-63.0	ND	0.04	2,4-D= 3.41	ND	ND	ND
17B-1	4.0-5.5'	1.8	0.08	ND	ND	ND	ND
17B-2	9.5-10.5'	5.6	0.24	ND	ND	ND	ND
17C-1	2.0-4.0'	1.6	0.07	ND	ND	4,4-DDT=29 4,4-DDE=25 4,4-DDD=7	ND
17C-2	9.5-10.5'	1.2	0.08	ND	ND	ND	ND
17C-3	61.5-62.0'	2.0	0.10	2,4-D=406	ND	4,4-DDT=8	ND
17B-2a	9.5-10.5'	2.0	0.10	ND	ND	ND	ND

[1] concentrations in mg/kg
[2] concentrations in ug/kg
[3] concentrations in ug/kg (corresponding to default units of ug/L reported in Appendix A)
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 96

Soil Boring Locations for
Old Entomology Rinse Area



Source: Reference 46

97. UNIT NAME: Concrete Rubble Pile

Unit Description: This unit is a rubble pile of concrete blocks located in the Eastern Area between Landfill No. 3 (SWMU No. 105) and the Old Entomology Area (SWMU No. 96). The concrete blocks are dispersed over a wide area in a grassy field (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: Unknown

Wastes Managed: The waste consists of concrete rubble (Ref. 47).

Release Controls: No release controls were noted during the VSI.

Release History: No releases from this unit have been documented (Ref. 47).

98. UNIT NAME: Sanitary Sewerage Line

Unit Description: This unit collects sanitary and industrial wastewater from the entire Air Force Base. The capacity of the underground sewer line is approximately 1 mgd. The pipe and associated joints are of unknown construction. The unit discharges to the Wastewater Treatment System (SWMU Nos. 99, 100, 101 and 102) (Ref. 47).

Date of Start-Up: This unit became active in approximately 1943 (Ref. 47).

Date Closure: This unit is currently active (Ref. 47).

Wastes Managed: The unit collects sanitary and industrial wastewater. Expected hazardous waste includes aircraft fuel spills, aircraft maintenance oils and solvents, and pesticide rinse water.

Release Controls: This unit has unknown release controls.

Release History: No releases from this unit have been documented.

99. UNIT NAME: Wastewater Treatment System Bar Screen

Unit Description: The Wastewater Treatment System located in the Eastern Area consists of a Parshall flume (SWMU No. 100), Bar Screen, and two Lagoons (SWMU No. 101). The Bar Screen consists of a concrete chamber approximately 3 feet by 4 feet by 3 feet deep, and metal gratings. The metal grating serves as a coarse screen to collect large objects which may be contained in the influent. The large objects are removed manually on a regular basis (Ref. 47).

Date of Start-Up: This unit became active in 1965 (Ref. 50).

Date of Closure: This unit is currently active (Ref. 47).

Waste Managed: This unit removes large solid material transported by influent from the Sanitary Sewerage Line (SWMU No. 98). Expected hazardous waste in the influent includes aircraft fuel spills, aircraft maintenance oils and solvents and pesticide rinse waters (Ref. 47).

Release Controls: This unit is made of concrete (Ref. 47).

Release History: No releases from this unit have been documented.

100. UNIT NAME: Wastewater Treatment System Parshall Flume

Unit Description: The Wastewater Treatment System consists of a Parshall Flume, Bar Screen (SWMU No. 99) and two Lagoons (SWMU No. 101). The Parshall Flume consists of a concrete chamber used to measure the flow rate of the sanitary waste influent to the sewage lagoons. At its entrance, the width is approximately 5 feet; at the exit the width is approximately 3 feet. The length of the unit is approximately 15 feet with a depth of 6 feet (Ref. 47).

Date of Start-Up: This unit became active in 1965 (Ref. 50).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: This unit manages sanitary and industrial wastewater (Ref. 47). Expected hazardous waste will include aircraft fuel spills, aircraft maintenance oils and solvents, and pesticide rinse waters.

Release Controls: This unit is made of concrete (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 47).

101. UNIT NAME: Wastewater Treatment System - Lagoons

Unit Description: This unit consists of two unlined surface impoundments that are part of the Wastewater Treatment System located on the Eastern Area of the base. The lagoons operate in series, and have a combined surface area of 32 acres. They are constructed with unlined earthen bottoms and concrete-lined banks, and have an average liquid depth of 3 feet with a maximum depth of 4.5 feet. The lagoons are separated by a 12-foot wide levee. The average daily flow to the lagoons is 566,000 gpd. The treated effluent is discharged to the Playa Lake (SWMU No. 103) (Ref. 45). During the VSI, vegetation at the perimeter of the lagoons appeared stressed (Ref. 47).

The Wastewater Treatment System does not have an NPDES permit. Because the lagoons do not discharge into navigable waters, the NPDES permit was waived in 1975 (Ref. 6).

This unit is RCRA-regulated. However, Cannon AFB is attempting to delist its sewage lagoon system from its Interim Status permit filed with EPA in November 1980; the decision on this request is pending. Of particular concern is the fact that the interim status permit indicated that 6,450 TPY of ignitable waste (RCRA No. D001) were treated annually (Ref. 50).

Date of Start-Up: 1966.

Date of Closure: The unit is currently active.

Wastes Managed: Combined sanitary and industrial wastewater is treated in the lagoons. The influent is monitored daily for flow and temperature, and monthly for pH, settled solids, and dissolved oxygen (DO) (Ref. 6).

Samples taken from the sewage lagoons in October 1985 showed the presence of trace levels of EP-toxicity characteristic metals; up to 6.2 ppb of methylene chloride; up to 0.5 ppm of toluene; and up to 0.5 ppm of trichloroethane (Ref. 45).

101. (Cont'd.) Wastewater Treatment System - Lagoon

A sample of the sludge was collected from the lagoons in July 1982 and analyzed for the characteristics of EP Toxicity; the results of the EP toxicity test were negative (Ref. 45). Guidelines for organic compounds detected in groundwater are presented in Table 101 on the following page.

Release Controls: The sewage lagoons are an existing facility, not designed in accordance with 40 CFR 264.221(a) and not exempted by 264.221(b). As a result, the facility has indicated that the sewage lagoons will be closed as a disposal surface impoundment with associated cover, groundwater monitoring and post-closure care requirements (Ref. 45). A five-foot, five-strand barbed wire fence was installed around the lagoons for security in addition to the Cannon AFB boundary fence. Warning signs are posted (Ref. 6).

The surface impoundments are protected from run-on by peripheral dikes which are two to six feet above the ground surface (Ref. 47).

According to facility representatives, the sewage lagoons are inspected weekly and after storms to protect against failure of the dikes. Inspection records include observations and findings, a listing of those items requiring maintenance or remedial work, and documentation of type and date of repair. Dikes are inspected for cracks; settlement or sink holes on the embankment; movement such as slides or bulges; erosion of the crest or exterior slopes; seepage of damp areas on the downstream slope; and animal burrows, trees and brush growth (Ref. 45).

Release History: The vegetation at the perimeter of the lagoons appeared stressed (Ref. 47).

Table 101

Guidelines for Organic Compounds Detected in Groundwater

Source: Reference 46

102. UNIT NAME: Wastewater Treatment Effluent Discharge

Unit Desciption: This unit consists of a discharge pipe and an inlet chamber equipped with two slide gates. Wastewater is piped from the Wastewater Treatment Lagoons (SWMU No. 101) to the Wastewater Playa Lake (SWMU No. 103). The inlet chamber is constructed of concrete, and the slide gates are divided by a concrete partition. The details of construction of the discharge pipe and associated joints are unknown. The daily discharge volume is approximately 0.5 mgd (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: The unit is currently active.

Wastes Managed: The discharge system conducts effluent from the Wastewater Treatment Lagoons (SWMU No. 101) to the Playa Lake (SWMU No. 103).

Release Controls: The unit has no known release controls.

Release History: No releases from this unit have been reported.

103. UNIT NAME: Wastewater Playa Lake

Unit Description: This unit is a natural land depression of approximately 13 acres, located between SWMU Nos. 101 and 105 in the Eastern Area of the base. The Playa Lake receives effluent from the Wastewater Treatment Lagoons (SWMU No. 101). Effluent is ultimately disposed through evaporation and infiltration.

The daily discharge volume is approximately 0.5 mgd. The depth of the unit is unknown. During the VSI, the Playa Lake appeared as a placid pond. Caliche was observed around the edges of the impoundment and concrete rubble was observed on the embankment.

Date of Start-Up: The facility began using the lake as a receiving body in 1943, although the Wastewater Treatment Lagoons did not begin discharging until the mid-1960s.

Date of Closure: The unit is currently active.

Wastes Managed: Annual analyses of samples of the Playa Lake show that the lake has acceptable levels of nitrate, chloride, sulfate, total phosphorus, chemical oxygen demand, oil, grease and metals (Ref. 6). The Playa Lake has received stormwater discharge throughout the operational history of the facility. The site received waste solvents from the Aircraft Washrack (SWMU No. 9) and runoff from the runway (Ref. 48).

Release Controls: None

Release History: Analytical data for shallow corings drilled in the Playa Lake area indicate that sediments may be contaminated with arsenic, chromium, lead, cadmium, zinc and silver (Ref. 48).

104. UNIT NAME: Landfill No. 4

Unit Description: This unit is a roughly rectangular inactive, unlined landfill about 7 acres in size. It is located on the east side of the Air Force Base, with the distance to the base boundary less than 100 feet. The Playa Lake (SWMU No. 103) is less than 50 feet south of the landfill. The landfill appears as an open field covered with prairie grass (Ref. 6). Waste management practices were a burn and trench burial operation (Ref. 46). During the VSI, approximately 6 cells were detected by observing subsided soil. The length of the cells is approximately 250 feet, trending north-south in the landfill area. Drainage from the area is to the south toward Playa Lake (SWMU No. 103) Animal burrows were noted in the soil cover (Ref. 47).

From reconnaissance boring information, the cover in this unit is composed of loamy sand ranging from 2 to 4.5 feet. Underlying the landfill strata is a caliche profile that extends to approximately 50 to 60 below surface. Most boreholes revealed sand at 50 to 60 feet in depth. A number of borings reveal weakly consolidated sand deposits between depths of 15 to 25 feet. These may reflect the presence of locally significant sand lenses which could have a strong influence on the path of potential contaminant migration at the site (Ref. 46).

This unit was identified as Site No. 4 in the IRP Phase I study based on its proximity to the base boundary and to the Playa Lake, the existence of a potable water well in the vicinity of the site, and the known past disposal of hazardous wastes (Ref. 6).

Date of Start-Up: Use of this unit began in 1967 (Ref. 46).

Date of Closure: Use of this unit ceased in 1968 (Ref. 46).

104. (Cont'd.) Landfill No. 4

Wastes Managed: The landfill was active between 1967 and 1968 and received domestic and industrial solid waste, including waste oils and solvents, paints, paint strippers, paint thinners, pesticides, and empty cans and drums (Ref. 6).

Release Controls: This unit is covered. No other release controls were observed during the VSI (Ref. 47)

Release History: During 1985, seven deep soil borings were made at this unit to define the hydrogeologic setting and to evaluate the extent of potential contaminant migration. Results are presented in Table 104 and Figure 105 following this page. Briefly, no purgeable halocarbons or aromatic hydrocarbons were detected. Total concentrations of metals were within normal range for soils. Four samples contained total oil and grease quantities above background levels (Ref. 46).

Table 104

Results of Analysis of Soil Samples at Landfill No. 4

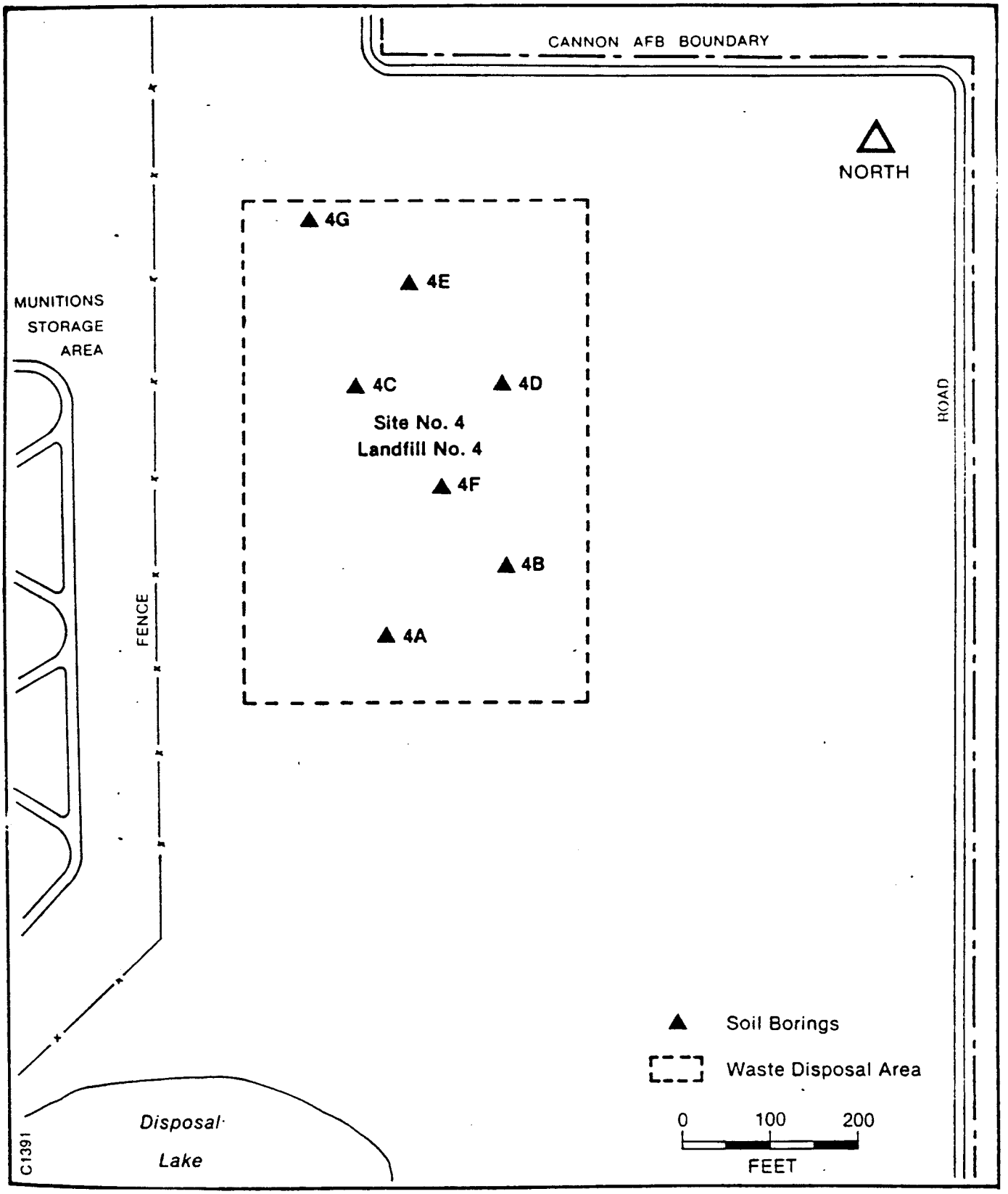
Sample Number	Depth	Ag	As	Ba	Cd	Cr	Cu	Fe	Hg	Ni	O/G	Pb	Se	Zn	Purgeable Organics** (EPA 8010/8020)
		Parameter (concentrations in mg/kg)													
4A-1	1-2'	ND	0.96	75.0	ND	1.7	1.7	4900	ND	3.3	18	5.5	ND	94.0	ND
4A-2	7-9'	0.56	0.87	130.0	ND	4.8	ND	5200	ND	5.1	ND	4.5	ND	45.0	ND
4A-3	62.5-63.0'	1.1	ND	15.0	0.25	0.64	ND	200	ND	ND	34	0.54	ND	54.0	ND
4B-1	1-3'	0.43	1.1	57.0	ND	3.3	ND	2600	ND	5.3	ND	4.1	ND	29.0	ND
4B-2	8-10'	1.4	2.3	150.0	ND	4.6	ND	3400	ND	5.3	ND	5.1	ND	10.0	ND
4C-1	3.0-4.5'	1.1	0.82	54.0	0.52	4.9	1.7	880	ND	6.7	ND	4.2	ND	70.0	ND
4C-2	9.5-11.0'	0.92	ND	150.0	ND	3.7	ND	3100	0.11	4.5	ND	4.3	ND	26.0	ND
4C-3	52.5-54.0'	ND	0.81	23.0	ND	0.91	ND	1500	ND	ND	ND	0.74	ND	5.2	ND
4D-1	1.5-2.9'	0.72	1.2	210.0	0.30	5.0	1.6	4400	ND	3.4	ND	5.3	ND	14.0	ND
4D-2	15.0-17.0'	ND	1.2	38.0	ND	3.9	0.72	4600	ND	3.7	ND	5.0	ND	260.0	ND
4D-3	27.5-28.5'	0.57	1.1	240.0	ND	4.4	ND	3000	ND	1.6	ND	1.9	ND	7.5	ND
4D-4	47.5-49.0'	ND	0.81	320.0	ND	1.1	ND	2100	ND	.30	ND	1.0	ND	4.5	ND
4E-1	3.0-4.5'	ND	1.0	52.0	ND	5.4	2.5	6800	ND	5.4	ND	6.5	ND	85.0	ND
4E-1a*	3.0-4.5'	0.61	1.1	64.0	0.44	6.4	2.5	5400	0.07	6.0	ND	5.7	ND	120.0	ND
4E-2	9.5-11.0'	0.40	ND	160.0	ND	1.3	ND	25	ND	2.3	ND	3.1	ND	8.8	ND
4E-3	52.5-54.0'	0.46	ND	5.9	ND	ND	ND	14	ND	ND	ND	0.24	ND	31.0	ND
4F-1	2.0-3.5'	ND	1.3	78.0	ND	2.5	0.92	3100	ND	1.9	ND	3.9	ND	32.0	ND
4F-2	8.0-9.0'	1.0	0.71	290.0	0.23	4.1	0.58	3400	ND	3.7	ND	4.1	ND	15.0	ND
4F-3	57.5-6..5'	ND	0.65	9.2	ND	2.5	ND	1700	ND	ND	45	2.2	ND	190.0	ND
4G-1	2.0-4.0'	0.66	2.1	78.0	0.56	9.4	6.5	9100	ND	7.3	ND	5.8	ND	16.0	ND
4G-2	9.0-11.0'	1.2	1.4	200.0	0.29	4.7	3.1	3400	ND	3.8	45	2.5	ND	31.0	ND
4G-3	52.5-53.0'	0.20	0.5	30.0	0.11	3.0	1.4	2600	ND	1.6	ND	1.7	ND	9.9	ND

*duplicate analysis
**concentrations in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 104

Soil Boring Locations at Landfill No. 4



Source: Reference 46

105. UNIT NAME: Landfill No. 3

Unit Description: This unit is an unlined, inactive cut-and-fill landfill, long and narrow in dimension, and estimated to occupy about 9 acres. The unit is located in the Eastern Area of the Air Force Base. The distance to the boundary of the air force base is less than 100 feet, and the distance to the Playa Lake (SWMU No. 103) is 400 feet. The site is no longer active and appears as an open field covered with prairie grass (Ref. 6). Wastes were burned and buried in trenches the following day (Ref. 46). During the VSI, soil subsidence and numerous animal burrows were noted in the soil cover (Ref. 47). This unit was identified as Site No. 3 in the IRP Phase I study due to its proximity to the base boundary and to a disposal lake, the existence of base Well No. 5 in the vicinity and the known past disposal of hazardous wastes at this site (Ref. 6). From boring information, the site is covered by surficial loamy sand soil varying from 4 to 5 feet in thickness. Underlying the landfill material is a caliche subsoil ranging from soft, weakly consolidated, sparsely calcareous sand to extremely hard, completely indurated concrete. Texturally the caliche varies from massive and generally featureless from to laminated, honeycombed, and/or nodular varieties (Ref. 46).

The topography in the area of this unit is fairly flat with the exception of remnant trench depressions on the surface outlining areas of past excavation and subsequent backfilling. Generally drainage in the area is to the north toward Playa Lake (SWMU No. 103) (Ref. 46).

Date of Start-Up: Use of this unit began in 1959 (Ref. 6).

Date of Closure: Use of this unit ceased in 1967 (Ref. 6).

105. (Cont'd.) Landfill No. 3

Wastes Managed: The site received domestic and industrial solid waste, including waste oils and solvents, paints, paint strippers, paint thinners, pesticide containers, and empty cans and drums.

Release Controls: No release controls were noted during the VSI (Ref. 47).

Release History: During 1985, nine deep soil borings were placed within the landfill site to define the local hydrogeological setting and to evaluate the potential extent of contaminant migration. Results of the sampling are presented in Table 105 and Figure 105 following this page. No purgeable halocarbons or aromatic hydrocarbons were detected in soil borings. All metal concentrations fell within normal soil ranges except for Borehole 3E located in the northwest section of the landfill area which continued elevated levels of selenium and mercury.

Table 105

Results of Analysis of Soil Samples at Landfill No. 3

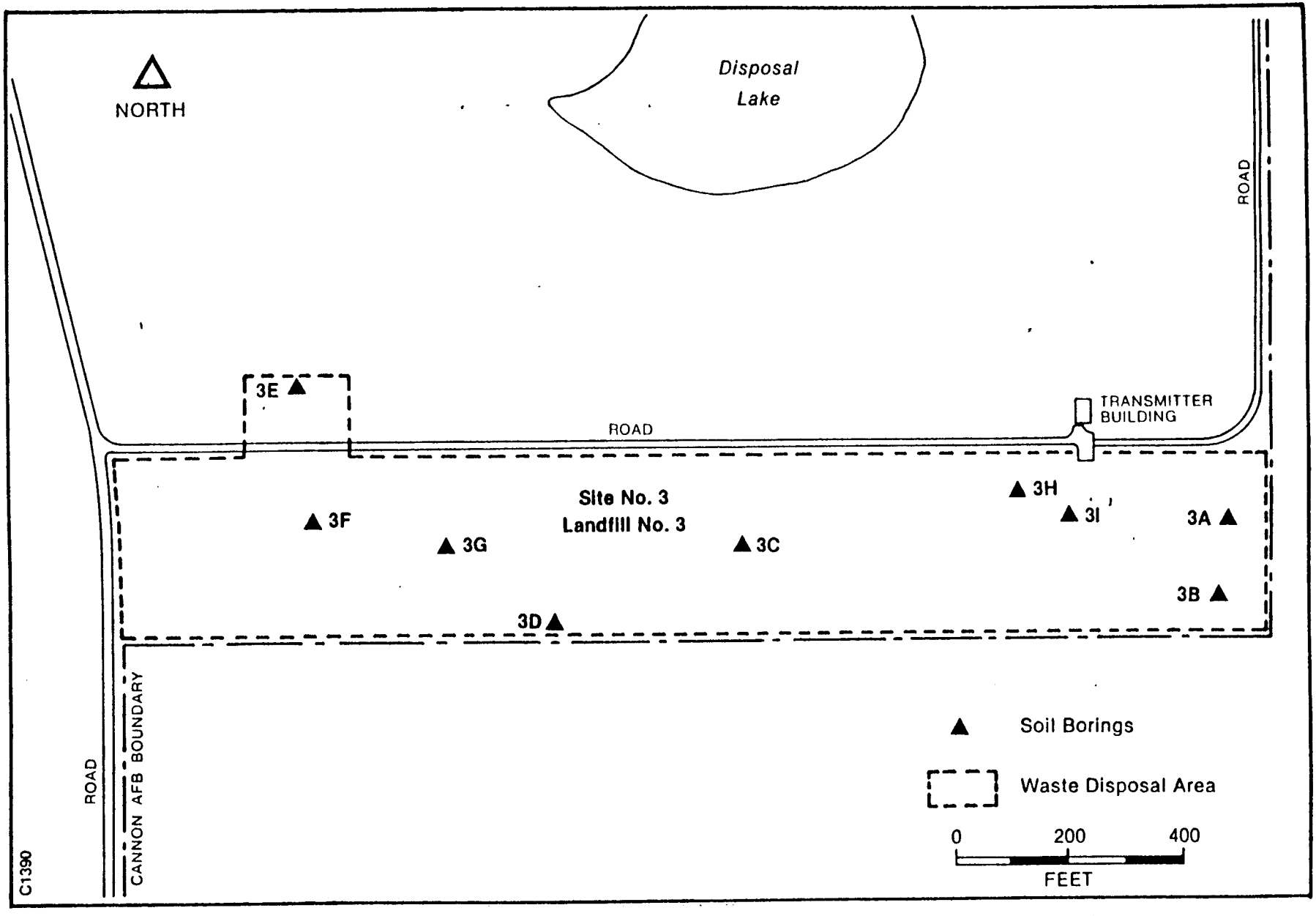
Sample Number	Depth	Ag	As	Ba	Cd	Cr	Cu	Fe	Hg	Ni	O/G	Pb	Se	Zn	Purgeable Organics** (EPA 8010/8020)
							Parameter (concentrations in mg/kg)								
3A-1	3.0-4.5'	0.50	0.89	48	0.37	5.6	1.8	5200	ND	3.9	ND	4.5	ND	19.0	ND
3A-2	9.5-11.0'	1.1	0.92	310	ND	2.4	ND	1500	ND	1.6	ND	1.7	ND	11.0	ND
3A-3	57.5-59.5'	ND	0.81	36	ND	3.4	ND	1900	ND	0.92	ND	1.7	ND	11.0	ND
3B-1	3.0-5.0'	0.23	1.2	40	ND	3.4	0.55	4200	ND	4.0	ND	4.2	ND	67.0	ND
3B-2	10.0-11.0'	0.44	0.93	140	ND	2.6	ND	1700	0.07	1.1	ND	6.0	ND	14.0	ND
3B-3	57.5-58.5'	0.39	0.62	140	ND	1.7	ND	1400	ND	0.50	ND	1.2	ND	4.4	ND
3C-1	3.0-4.0'	0.37	0.87	39	ND	5.8	ND	3400	0.07	3.3	ND	3.6	ND	17.0	ND
3C-2	9.0-10.0'	0.41	1.8	150	ND	3.5	ND	2000	ND	0.98	ND	2.4	ND	23.0	ND
3C-3	57.5-59.5'	0.26	ND	180	ND	15.0	ND	2700	ND	ND	24	14.0	ND	2.6	ND
3D-1	2.5-4.0'	0.65	0.80	33	0.33	4.2	1.3	4000	ND	4.0	ND	4.4	ND	7.3	ND
3D-1a	2.5-4.0'	0.63	0.80	70	0.35	4.6	1.9	4400	0.06	4.5	37	4.6	ND	14.0	ND
3D-2	9.0-11.0'	ND	0.88	260	ND	2.4	ND	2300	ND	1.6	ND	2.8	ND	11.0	ND
3D-3	57.5-59.5'	ND	ND	180	ND	0.86	14.0	1200	ND	ND	43	14.0	ND	500.0	ND
3E-1	2.0-4.0'	0.28	2.0	240	ND	4.4	1.7	3700	0.12	2.7	54	4.2	1.8	29.0	ND
3E-2	7.5-9.5'	1.1	2.5	150	0.91	6.0	4.5	120	0.14	9.2	83	3.2	1.6	20.0	ND
3E-3	57.5-58.5'	ND	ND	5.0	ND	ND	ND	570	0.13	ND	40	0.70	1.2	ND	ND
3F-1	3.5-5.0	0.80	0.58	49	0.27	3.7	1.3	3300	ND	4.0	16	4.1	ND	51.0	ND
3F-2	10.0-11.5'	0.45	0.94	190	ND	2.2	0.49	2100	ND	1.5	ND	3.1	ND	60.0	ND
3F-3	55.5-57.5'	ND	ND	60	ND	ND	0.50	1100	ND	ND	ND	1.1	ND	ND	ND
3G-1	3.0-4.5'	NO	0.51	69	ND	3.9	1.3	4700	ND	3.8	42	5.3	ND	110.0	ND
3G-2	9.5-10.5'	0.86	0.94	130	ND	3.3	0.50	2100	ND	2.2	26	3.1	ND	43.0	ND
3G-3	57.5-59.5'	0.77	ND	10	ND	1.1	0.47	930	0.08	0.29	25	0.94	ND	1.1	ND
3H-1	2.0-4.0'	0.76	1.3	110	0.23	4.5	0.57	3700	ND	2.6	10	5.0	ND	6.5	ND
3H-2	9.0-11.0'	0.23	0.66	540	ND	4.6	ND	4600	ND	7.0	20	6.1	ND	8.6	ND
3H-3	57.5-58.0'	0.40	ND	51	ND	ND	ND	600	ND	ND	25	0.78	ND	0.31	ND
3I-1	0-2'	87	ND	47	0.35	4.9	1.0	4500	ND	3.8	45	4.2	ND	6.1	ND
3I-2	7-9'	0.25	ND	54	ND	2.2	ND	2400	ND	1.6	35	2.9	ND	3.7	ND
3I-3	57.5-59.5'	ND	ND	18	ND	ND	ND	1100	ND	ND	ND	0.81	ND	ND	ND

*Duplicate sample
**concentratinos in ug/kg
ND = not detected, detection limits and analytical techniques are listed in Appendix A.

Source: Reference 46

Figure 105

Soil Boring Locations at Landfill No. 3



Source: Reference 46

106. UNIT NAME: Fire Department Training Area No. 2

Unit Description: This unit is an inactive, unlined fire training area in the Southeastern Area of the Air Force Base near an abandoned runway. The area is circular, about 100 feet in diameter with a scarred surface and some vegetative cover (Ref. 47). After saturation with water, the soil was drenched with fuel which was then ignited and extinguished for training purposes. This unit was identified as Site No. 7 in the IRP Phase I study (Ref. 6).

Date of Start-Up: Use of this unit began in 1968 (Ref. 6).

Date of Closure: Use of this unit ceased in 1974 (Ref. 6).

Wastes Managed: About 300 gallons of unused JP-4 fuel was burned at the site for each exercise, which occurred twice per yearly quarter (Ref. 6).

Release Controls: The unit was not lined. However, the ground was presaturated with water before the burning in a measure to control the percolation of fuel (Ref. 6). No release controls were observed during the VSI (Ref. 47).

Release History: Although the ground was presaturated with water before the fuel was poured on the ground for burning, some waste possibly percolated into the soil (Ref. 6).

During 1985, one deep soil boring was placed at the lowest point of the area as this was the most likely area for hydrocarbons to accumulate. Results of soil sample analysis from this site are summarized in Table 106 and Figure 106 following this page. Sampling at this unit found no purgeable halocarbons or aromatic hydrocarbons. Lead concentrations were within the normal range for the native soils. Elevated levels of oil or grease (1,000-3,400 mg/kg) were detected in samples taken from near the surface (Ref. 46).

Table 106

Results of Analysis of Soil Samples for Fire Department Training Area No. 2

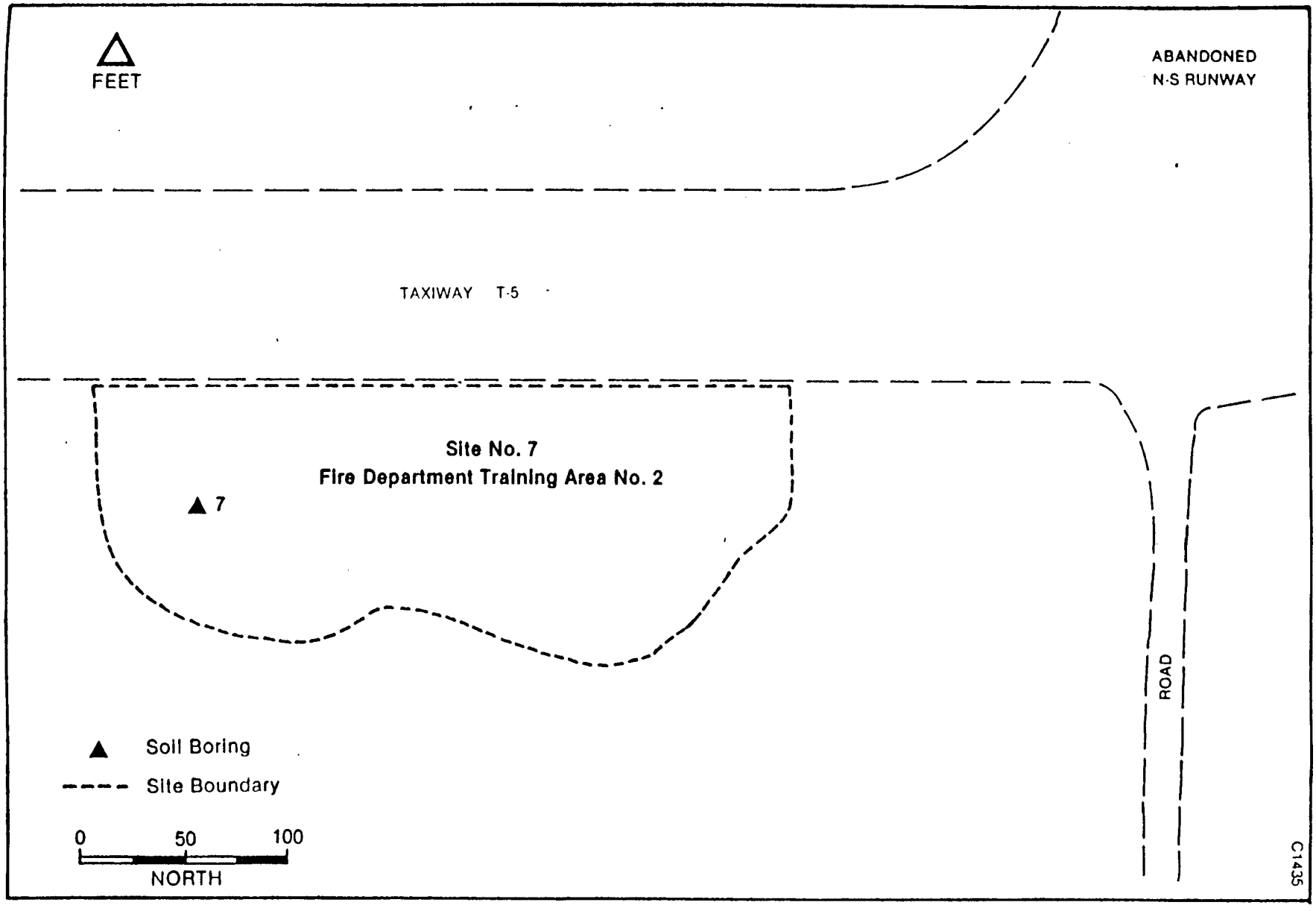
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds** (EPA 8010/8020)
7-1	1.0-2.5'	1000	3.1	ND
7-2	5.0-6.0'	3400	3.9	ND
7-3	57.4-58.0'	8600 (80)	3.9	NA

*concentrations in mg/kg
**concentrations in ug/kg
( ) re-analysis using infrared methods
ND - not detected, detection limits and analytical techniques are listed in Appendix A
NA - not analyzed, sample discarded

Source: Reference 46

Figure 106

Soil Boring Locations at Fire Department Training Area No. 2



Source: Reference 46

107. UNIT NAME: Fire Department Training Area No. 3

Unit Description: This unit is an inactive, unlined fire training area in the Southeast Area of the Air Force Base. The area is circular, about 100 feet in diameter with a scarred surface and some vegetative cover. The site was active at the same period that SWMU No. 106 was active. After saturation with water, the soil was drenched with fuel which was ignited and extinguished for training purposes (Ref. 6). During the May 1987 VSI, the area for this unit identified by facility representatives is contiguous to SWMU No. 56, the Explosive Ordnance Disposal Activities Area. These units are located north of Fire Department Training Area No. 4 (SWMU No. 109) (Ref. 47).

A low berm (less than one foot high) encircles the area and forms the site boundary for the fire training area. Drainage in the site is to the southeast, and is achieved through overland flow. The silty-sand top soil extends to a depth of four feet (Ref. 46). This unit was identified as Site No. 8 in the IRP Phase I study (Ref. 6).

Date of Start-Up: Use of this unit began in 1968 (Ref. 6).

Date of Closure: Use of this unit ceased in 1974 (Ref. 6).

Wastes Managed: About 300 gallons of unused JP-4 fuel was burned at the site during each exercise which was scheduled twice a quarter (Ref. 6).

Release Controls: The unit was not lined although encircled by a low berm. In addition, the ground was presaturated with water before each burning as a measure to control the percolation of fuel (Ref. 6). No release controls were observed during the VSI (Ref. 47).

107. (Cont'd.) Fire Department Training Area No. 3

Release History: Although the ground was presaturated with water before the fuel was poured on the ground for burning, some fuel possibly percolated into the soil (Ref. 6).

During 1985, one deep soil boring was placed in the lowest point of the area as this was the most likely area for contaminants to accumulate. Results of soil sample analysis from this site are summarized in Table 107 and Figure 107 following this page. Sampling at this unit found no purgeable halocarbons or volatile hydrocarbons. Elevated concentrations of oil total and grease were detected in the mid-depth sample (Ref. 46).

Table 107

Results of Analysis of Soil Samples for Fire Department Training No. 3

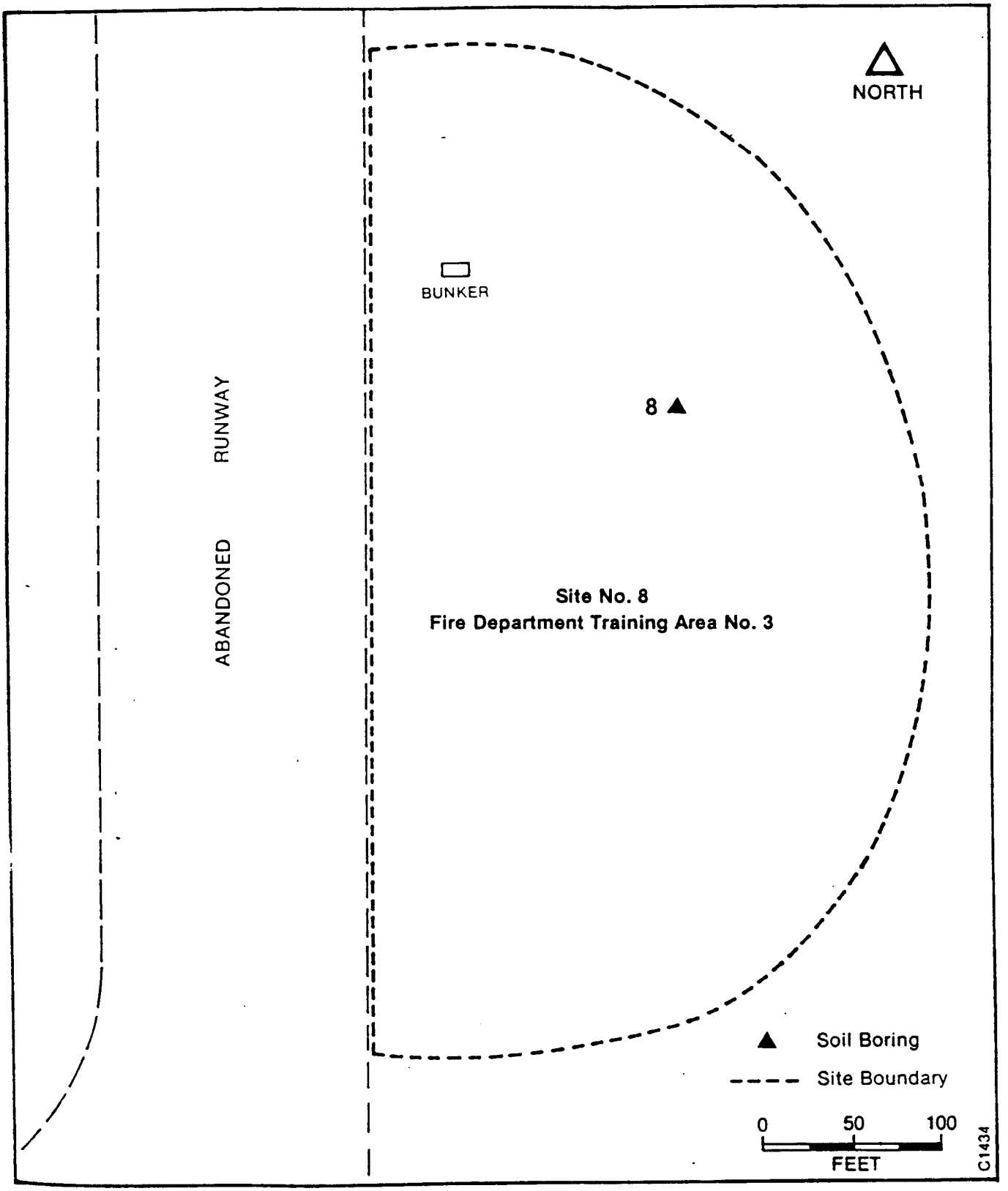
Sample #,	Depth	O&G*	Pb*	Purgeable Organic Compounds (EPA 8010/8020) (ug/kg)
8-1	1.5-2.0'	1700	3.7	ND
8-2	7.5-9.5'	3800	2.9	ND
8-3	59.8-61.5'	2600	1.7	ND

*all values in mg/kg except where noted
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 107

Soil Boring Location at
Fire Department Training Area No. 3



Source: Reference 46

108. UNIT NAME: Explosive Ordnance Disposal Activities Area

Unit Description: This unit is an active ammunition disposal site of unknown type and construction. The site is estimated to be 1,800 feet in diameter and is located in the Southeastern Area of the base, near SWMU Nos. 107 and 109 (Reference 43). The site has always been used for ammunition disposal training operations once a month, with a 5-pound explosive limit (light munitions).

Date of Start-Up: Unknown, but site has probably been active whenever the facility has been in operation, starting in 1942 (Ref. 47).

Date of Closure: Currently, the area is used for practice only, and no detonation occurs (Ref. 47).

Wastes Managed: Unknown types and quantities of ammunition were disposed on the site. Method of disposal is not known. Remnants of old fusings can still be found in the area (Ref. 47).

Release Controls: Following detonation, the EOD team would police the area to pick up live ammunition (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 47).

109. UNIT NAME: Fire Department Training Area No. 4

Unit Description: This unit is an unlined fire training area in the Southeast Area of the Air Force Base, near SWMU Nos. 107, 113, and 56. The area is circular, about 400 feet in diameter with a slight slope towards the center (Ref. 6). A mock aircraft is situated on a concrete pad in the center of the area. Subsurface fuel lines from the underground POL Tank No. 2336 (SWMU No. 110) connect to various points on the aircraft. Recovered JP-4 fuel is pumped from the storage tank to the aircraft prior to practice burns. Runoff from the area is currently collected in an Oil/Water Separator No. 2336 (SWMU No. 112) adjacent to the site. Prior to 1985, runoff was diverted to an Unlined Pit (SWMU No. 111) (Ref. 6 and 47).

This site was reportedly used from 1961 to 1974 as a fuel truck cleaning area in which residual fuels were drained onto the ground, and the fuel tanks were then cleaned at the site. This practice ended about 1974 when the fire training exercises were initiated. For the fire department training exercises, the ground was saturated with water prior to applying commingled wastes or recovered JP-4 fuel onto the ground; however, presaturation was not practiced when fuel trucks were cleaned at the site prior to 1974 (Ref. 6).

Soil borings indicate the topsoil in the Fire Training Area is about 4.5 feet of silty sand. A caliche horizon containing abundant sand and silt layers extends to a depth of 45 feet (Ref. 46). This unit was identified as Site No. 9 in the IRP Phase I study (Ref. 6).

Date of Start-Up: Use of this unit as a fire training area began in 1974. The site was reportedly used as a fuel truck cleaning area between 1961 and 1974 (Ref. 6).

Date of Closure: The unit is active (Ref. 47).

109. (Cont'd.) Fire Department Training Area No. 4

Wastes Managed: From 1974 to 1975, commingled waste oils, solvents, and recovered JP-4 fuels were burned at the site; however, since 1975, only recovered JP-4 fuel has been burned at this site. For each exercise, occurring twice a month, about 300 gallons of wastes have been burned (Ref. 6).

Release Controls: The unit is not lined. Runoff is currently collected in Oil/Water Separator 2336 (SWMU No. 112) (Ref. 47).

Release History: Between 1961 and 1974, the tank truck residual fuels that did not volatilize would have percolated into the ground. From 1974 to the present, during burn exercises, most of the commingled wastes and recovered JP-4 fuel would have been consumed in the fires; however, some minor percolation into the ground has probably occurred. It is not known what quantities of fuels and commingled wastes have percolated into the ground; however, it is estimated that during the pre-1974 practice, up to 4,000 gallons percolated into the ground (Ref. 6).

During 1985, two deep soil borings were drilled at this site to evaluate the impact of past and ongoing activities and to define the site-specific hydrogeologic conditions. Five samples from the soil borings were analyzed. Results of the analysis are summarized in Table 109 and Figure 109 following this page. Sampling at this unit found no purgeable halocarbons or volatile hydrocarbons. Elevated levels of lead (39 mg/kg) and oil and grease (110 mg/kg and 280 mg/kg) were detected in the area where runoff was diverted to an Unlined Pit (SWMU No. 111) in the past. The Unlined Pit was replaced with an Oil/Water Separator (SWMU No. 112) in 1985 (Ref. 46).

Table 109

Results of Analysis of Soil Samples for Fire Department Training Area No. 4

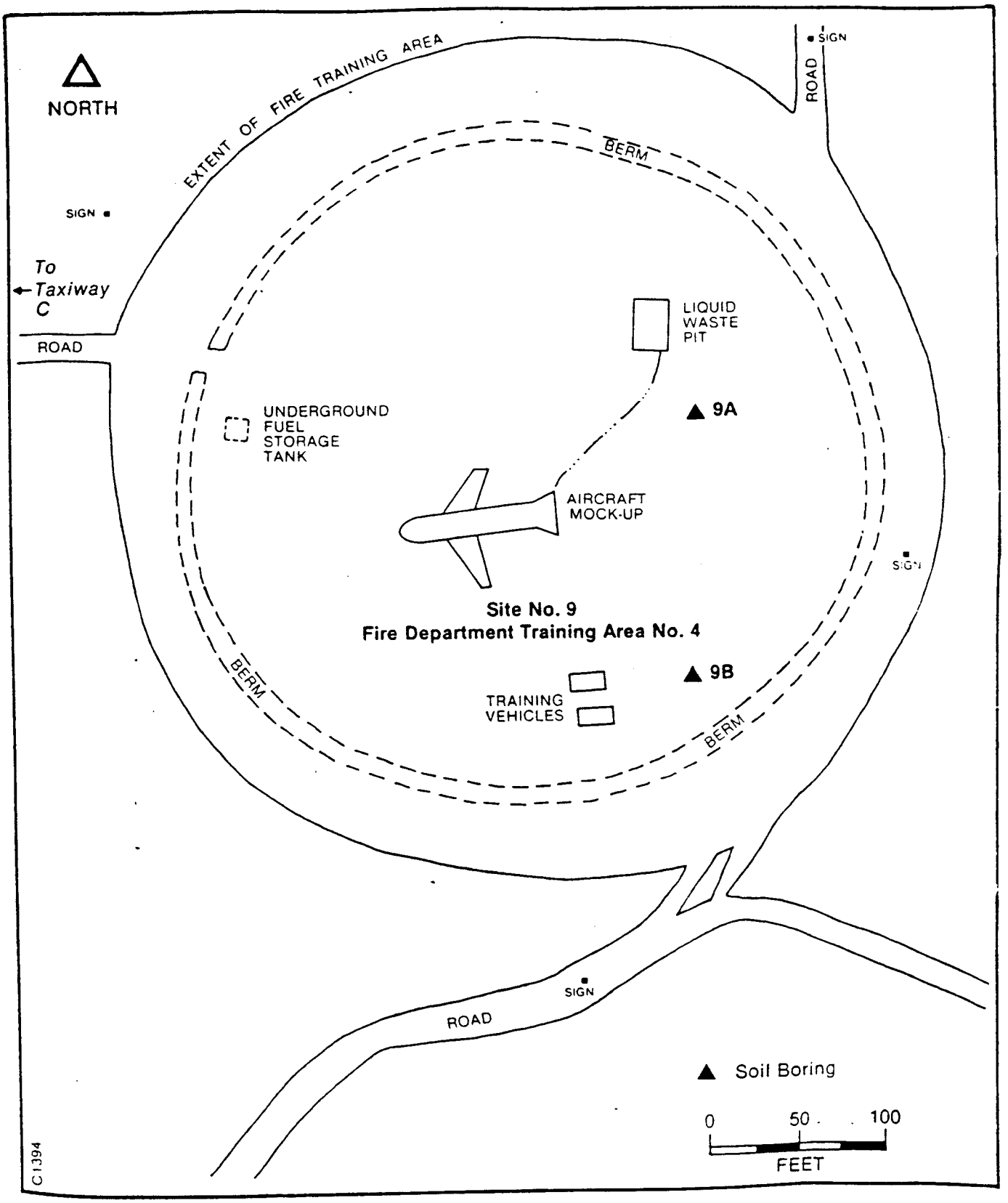
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds (EPA 8010/8020) (ug/kg)
9A-2A**	10.5-11.5'	280	5.3	ND
9A-1	5.5-7.0'	ND	4.1	ND
9A-2	10.5-11.5'	110	39.0	ND
9B-1	4.0-5.5'	ND	4.5	ND
9B-2	9.0-10.5'	ND	3.7	ND
9B-3	43.0-45.0'	37	1.3	ND

*all values in mg/kg, except as noted
**duplicate analysis
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure 109

Soil Boring Locations
at Fire Department Training Area No. 4



Source: Reference 46

110. UNIT NAME: Underground Waste Oil Tank No. 2336

Unit Description: This unit is an underground 2,000-gallon storage tank, located at the active Fire Department Training Area No. 4 (SWMU No. 11) (Ref. 6). The tank, which is connected to various points on the mock aircraft, is used to store recovered JP-4 fuel prior to burning in the fire training exercises. About 300 gallons of JP-4 fuel is used to ignite a practice burn. The tank, of unknown construction, collects recovered JP-4 fuel from Oil/Water Separator No. 2336 (SWMU No. 112) (Ref. 47). The majority of the recovered JP-4 fuel that is stored in the tank, however, is collected in bowsers and 55-gallon drums from various locations on the base, and is transported to the Fire Department Training Area for disposition in the tank (Ref. 6).

Date of Start-Up: Use of this unit began in 1975 (Ref. 6).

Date of Closure: The unit is active (Ref. 47).

Wastes Managed: The tank contains recovered JP-4 fuel collected from Oil/Water Separator No. 2336 (SWMU No. 112) and other locations on the Air Force Base (Ref. 6 and 47).

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: No releases have been documented (Ref. 47).

111. UNIT NAME: Unlined Pit

Unit Description: This unit was an unlined pit adjacent to the active Fire Department Training Area No. 4 (SWMU No. 109). Runoff from the area, including recovered JP-4 fuel, collected in the pit prior to 1985 (Ref 6). The soil at the bottom of the pit provided some natural filtration but did not prohibit downward migration of liquid waste. During the VSI, the site of this unit was observed covered with soil and sparse vegetation, occupying an area 10 feet by 20 feet. The pit is no longer used, as it was replaced by an Oil/Water Separator No. 2336 (SWMU No. 112) in the same location (Ref. 47).

Date of Start-Up: Use of this unit began in 1975 (Ref. 6).

Date of Closure: The unit was closed in 1985 (Ref. 47).

Wastes Managed: JP-4 fuel and Aqueous Fire-Forming Foam (AFFF) was collected in this unit (Ref. 6 and 47).

Release Controls: No release controls were observed during the VSI (Ref. 47).

Release History: In 1985, soil borings were drilled at the site of the Fire Training Area No. 4 (SWMU No. 109). The results of the sampling analysis are discussed in the Release History of SWMU 109 and in Table 109 and Figure 109. Elevated levels of lead (39 mg/kg) and oil and grease (110 mg/kg and 280 mg/kg) were detected in the area of the Unlined Pit (Ref. 46).

112. UNIT NAME: Oil/Water Separator No. 2336

Unit Description: This unit is an underground tank of unknown capacity located adjacent to Fire Department Training Area No. 4 (SWMU No. 109) in the Southeastern Area of the Air Force Base. The unit may overlay the same area as the Unlined Pit (SWMU No. 111), which was used to collect runoff from the fire training area until 1985, when the Oil/Water Separator was installed. The unit recovers JP-4 fuel from the runoff which contains an aqueous fire-fighting foam residue. The recovered JP-4 fuel is conducted to Tank No. 2336 (SWMU No. 110). The effluent is discharged to a field. The unit is self-contained with a hinged cover (Ref. 6 and 47).

Date of Start-Up: 1985 (Ref. 47).

Date of Closure: The unit is currently active (Ref. 47).

Wastes Managed: The unit recovers JP-4 fuel from the fire training runoff. The fire-fighting foam is a fluorinated synthetic hydrocarbon (Ref 6 and 47).

Release Controls: The unit is self-contained with a hinged cover (Ref. 6 and 47).

Release History: No releases from this unit have been documented; however, the unit may overlay the same area of the Unlined Pit (SWMU No. 111) for which 1985 soil sampling analyses showed elevated levels of lead, oil and grease (Ref 46).

113. UNIT NAME: Landfill No. 5

Unit Description: This unit is an active landfill located in the Southeastern Area of the Air Force Base, 200 feet from the boundary fence, occupying 30 acres. The landfill consists of a series of shallow excavated trenches which received both industrial and domestic waste until 1983. Cell #3, which is closed, is RCRA regulated. A closure plan has been submitted for this cell (Ref. 48). Approximately 25 trenches have been excavated, filled and covered. During the VSI, one trench was open and reportedly receives construction debris only. The estimated dimensions of the open trench are 100 feet by 20 feet by 15 feet deep (Ref. 47). The trenches are unlined and the depth of the trenches was generally excavated 18-20 feet, bottoming at the underlying caliche layer (Ref. 6). Results from reconnaissance boring information indicate that the cover is composed of fine to medium grained unconsolidated sand. Underlying the landfill strata is a caliche profile that extends to approximately 60 feet in depth in this area and is characterized by interbedded silt and sand lenses throughout the interval. Below 60 feet, the percentage of caliche decreases and the sand becomes more coarse with depth. Groundwater monitoring well installation for this landfill indicated the Ogallala aquifer is semiconfined in the area (Ref. 46).

This unit was identified as Site No. 5 in the IRP Phase I study (Ref. 6).

Date of Start-Up: Use of this unit began in 1968 (Ref. 48). Dates are not available for such all start-up.

113. (Cont'd.) Landfill No. 5

Date of Closure: One cell in this unit is currently active (Ref. 47).

Wastes Managed: The landfill receives general construction debris and domestic and solid waste, including waste oils and solvents, paints, paint removers, paint thinners, pesticides, and various empty cans and drums. Until late 1981, 5-10 drums per month of waste oils and solvents were received at the site. The drums, partially to completely full, were generally deposited directly into the trench and crushed by a bulldozer. Only empty drums are currently received at the site. From 1968 to 1972, wastes were burned and buried in trenches. The estimated inventory of hazardous waste disposed in Cell #3 is indicative of the landfill wste and includes methyl ethyl ketone, toluene, methyl isobutyl ketone, cyclohexanone, xylene, ethylene glycol monobutyl ether, lead and chromate were placed in this cell until sometime in 1981 (Ref. 46).

Release Controls: At the time of the VSI, all but one trench was covered with soil and a sparse vegetative cover. No other release controls were observed during the VSI (Ref. 47). Groundwater monitoring to date has not indicated any release (Ref. 46).

Release History: No soil sampling has been conducted in the vicinity of the landfill. During an EPA inspection in May 1986, a Notice of Violation was issued indicating the spacing of wells around the landfill Cell #3 for the monitoring system was inadequate (Ref. 18). Results of water samples are presented in Table 113 and Figure 113 following this page.

Table 113

Results of Water Samples at Landfill No. 5

Parameter	Well A*	Well B	Well C	Well D
Ag	ND	ND	ND	ND
As	0.0060	ND	0.0004	0.0005
Ba	0.074	0.320	0.079	0.150
Ca	37.0	55.0	44.0	45.0
Cd	ND	0.003	0.002	ND
Cl	53.0	50.0	50.0	51.0
Cr	0.001	0.002	ND	0.004
Cu	ND	ND	ND	0.002
Fe	0.020	0.34	0.020	0.047
F	2.6	2.7	2.6	2.4
Hg	0.0004	0.0006	0.0004	0.0006
K	3.7	4.7	3.7	4.1
Mg	37.0	38.0	40.0	36.0
Mn	0.021	0.760	0.330	0.520
Na	60.0	62.0	57.0	53.0
Ni	0.032	0.035	0.035	0.030
NO_3	0.81	0.81	0.82	0.88
Pb	ND	ND	ND	ND
Phenol	ND	0.041	ND	ND
Se	ND	ND	ND	ND
SO_4	120.0	130.0	120.0	110.0
TDS	490.0	440.0	450.0	430.0
TOC	ND	2.0	1.0	ND
TOX	ND	ND	ND	ND
TPO_4	0.06	0.05	0.04	0.05
Zn	0.015	0.010	0.010	ND
601**	2.1	ND	ND	ND
602***	ND	ND	ND	ND
Cond.	740/750/750/750*	810	740	720
pH	7.6/7.5/7.4/7.4*	7.6	7.2	8.2

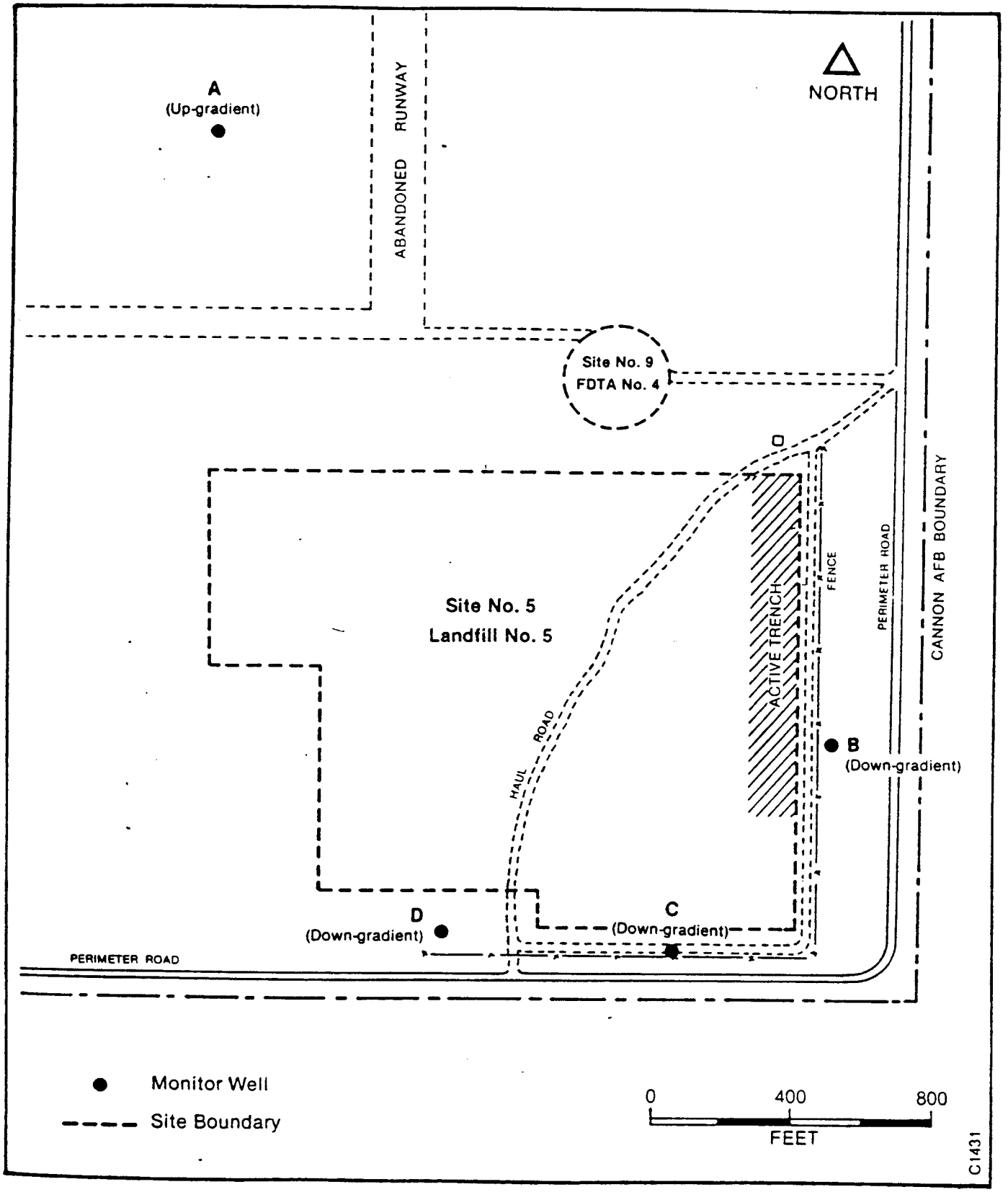
(all units mg/L (equivalent to ug/ml default values in Appendix A) except pH, which is expressed in pH units, and conductivity (Cond.), which is in umhos, and 601/602 results which are reported in ug/L)

*Quadruplicate analyses for up-gradient well only
**601 = purgeable halocarbons (Trichlorofluoromethane)
***602 = purgeable aromatics
ND = not detected, detection limits and analytical techniques are listed in Appendix A.

Source: Reference 46

Figure 113

Monitor Well Locations at Landfill No. 5



Source: Reference 46

114. UNIT NAME: Melrose Bombing Range Expended Ordnance Burial Site

Unit Description: This unit is a landfill located in the northeast corner of the impact area of Melrose Bombing Range. The bombing range is about 30 miles west of the Air Force Base. A potable well is about a half mile northwest of the site. The disposal site consists of eight burial trenches, the dimensions of which are 15 to 20 feet deep, 20 feet wide, and 150 yards long for each trench. The burial site receives scrap metal and residue from ammunition detonation and burning (Ref. 6). During the VSI the soil over the closed trenches had a sparse vegetative cover consisting of prairie grass and cactus (Ref. 47).

Date of Start-Up: Presumably, when the bombing range began operations in 1952 (Ref. 6).

Date of Closure: Of the eight trenches, one trench is active, one trench was recently deactivated, and six are closed (Ref. 47).

Wastes Managed: About 12,000 to 15,000 pounds of scrap metal from practice bombs and munitions are placed in the trenches monthly. In addition, the trenches receive the residue of 20 or 30 pounds of unexploded practice munitions which have been detonated and burned at the Unexploded Ordnance Open Burn Treatment Pit (SWMU No. 118). Live ammunition was buried at the site until 1969 (Ref. 6).

Release Controls: No release controls were observed during the VSI other than a soil cover on the closed trenches (Ref. 47).

Release History: No releases have been reported (Ref. 47).

115. UNIT NAME: Melrose Bombing Range Explosives Contaminated Burial Site

Unit Description: This unit was identified in the 1983 IRP Phase I study as a landfill of unknown dimensions, located in the center of the impact area of Melrose Bombing Range. The site was used for the burial of unexploded ammunition (Ref. 6). The presence and location of this unit was unknown to facility representatives. Therefore the unit was not observed during the VSI (Ref. 47).

Date of Start-Up: Unknown (Ref. 6 and 47)

Date of Closure: Unit is described as having been "closed for a long period" (Ref. 6).

Wastes Managed: An unknown quantity of hazardous unexploded ordnance was buried at the site. Method of disposal is not known (Ref. 6).

Release Controls: This unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

116. UNIT NAME: Melrose Bombing Range Roads

Unit Description: This unit is the system of 120 miles of undeveloped roads at the Melrose Bombing Range. Waste oil from SWMU No. 48 was used on the unimproved roads to control dust. It is not known if the entire 120 miles of road were spread with oil or if the waste was confined to one area. (Ref. 6).

Date of Start-Up: According to facility representatives, this operation probably occurred in the 1960s (Ref. 47).

Date of Closure: This operation has not occurred since 1980 (Ref. 47).

Wastes Managed: The waste oil that was spread on the roads was taken from SWMU No. 48, which contained 7808 Engine Oil, PD-680 (Type II), hydraulic fluid, Turco Cold Stripper, and various waste oils, spent solvents, paint thinners, and recovered fuels (Ref. 6).

During the VSI, no oil was visibly apparent on the roads. According to facility representatives, the oiling operation is no longer practiced and the dates of occurrences are unknown (Ref. 47).

Release Controls: No release controls were observed during the VSI (Ref. 6).

Release History: Spraying of oil on undeveloped roads constitutes a direct release to soil (Ref. 6).

117. UNIT NAME: Melrose Bombing Range Domestic Waste Pile

Unit Description: This unit was described as a landfill located 200 yards east of the main building on the east side of the impact area of Melrose Bombing Range (Ref. 6). According to facility representatives, refuse was placed on the ground surface (Ref. 47); however, the site was described as a landfill in 1983 in the IRP Phase I study (Ref. 6). The area identified was approximately 100 feet by 50 feet. Recent grading was evident from tire tracks and lack of vegetation (Ref. 47).

Date of Start-Up: It is presumed this unit was active since 1952 (Ref. 6).

Date of Closure: This unit is inactive (Ref. 47).

Wastes Managed: The landfill received domestic garbage and solid waste from range support activities (Ref. 6).

Release Controls: The area was covered with bare soil (Ref. 47).

Release History: No releases from this unit have been reported (Ref. 47).

118. UNIT NAME: Melrose Bombing Range Unexploded Ordnance Open Burn Treatment Pit

Unit Description: This unit is RCRA-regulated. This unit is a pit 10 feet by 50 feet by 6 feet, used to burn unserviceable munitions. A burn permit is obtained from the State of New Mexico Environmental Improvement Division, Region IV annually (Ref. 45 and 46).

Date of Start-Up: This unit became active in January 1959 (Ref. 45 and 46).

Date of Closure: This unit is currently active.

Wastes Managed: Approximately 85 pounds per month of unservicable small calibre; 20 50-calibre munitions (one burn per month).

Release Controls: Approximately 200 pounds of dunnage is burned along with the munitions to ensure complete consumption of the explosives. Open burn of these products occurs the same day the range is cleaned. The unit is surrounded by a fenced safety zone with a radius of 750 feet (Ref. 45 and 46).

Release History: No releases from this unit have been documented.

119. UNIT NAME: Melrose Bombing Range Unexploded Ordnance Holding Area

Unit Description: This unit is used as a temporary holding area for unexploded ordnances prior to detonation. The munitions are piled haphazardly in an area about 3 feet in diameter and about 3 feet high on a small grassy patch in the center of a flat, bare soil area about 1,500 feet in diameter (Ref. 47).

Date of Start-Up: This unit became active in January 1959 (Ref. 47).

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Small calibre (20 to 50 calibre) unserviceable munitions (Ref. 47).

Release Controls: This unit is surrounded by a fenced safety zone with a radius of 750 feet (Ref. 47).

Release History: No releases from this unit have been documented (Ref. 47).

120. UNIT NAME: Melrose Bombing Range Expended Target Area

Unit Description: This unit, adjacent to Melrose Bombing Range Expended Ordnance Burial Ground (SWMU No. 114), is used for temporary storage of expended targets. The expended targets, which are managed by DPDO, include old aircraft and wrecked railcars and other large items. The targets are assembled on the soil at the edge of the Burial Ground (Ref. 47).

Date of Start-Up: Unknown.

Date of Closure: This unit is currently active (Ref. 47).

Wastes Managed: Wastes are primarily scrap metal of the target wreckage (Ref. 47).

Release Controls: The unit has no known release controls (Ref. 47).

Release History: No releases from this unit have been documented.

121. UNIT NAME: Containers for Clean and Dirty Speedydry

Unit Description: These units are trash cans dedicated to storage of dirty and clean Speedydry located in the Aircraft Maintenance Hangers in the Cantonment Area. The capacity of the aluminum cans is 15 gallons. The cans have lids and are marked "Clean Speedydry" and "Dirty Speedydry." The units rest on a concrete floor. The Speedydry is used to absorb spills from aircraft maintenance operations (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: The units are active (Ref. 47).

Wastes Managed: The units hold clean and dirty Speedydry used during clean-up operations of spills in the aircraft maintenance hangers (Ref. 47).

Release Control: These units are self-contained and rest on a concrete floor inside a building (Ref. 47).

Release History: No releases from these units have been reported (Ref. 47).

122. UNIT NAME: Sanitary Dumpsters

Unit Description: These units are 9 cubic yard dumpsters located throughout the Air Force Base for disposal of general refuse. The unit is constructed of steel with a hinged cover and sliding side doors. A local contractor removes contents on a weekly basis and disposes the wastes in the Clovis Municipal Landfill (Ref. 46 and 47).

Date of Start-Up: Presumably use of these units began in 1983 (Ref. 46 and 47).

Date of Closure: These units are currently active (Ref. 47).

Wastes Managed: Household and nonhazardous refuse is disposed in this unit (Ref. 47).

Release Controls: This unit is self-contained (Ref. 47).

Release History: No releases from these units have been reported (Ref. 47).

123.	UNIT NAME:	Dirty Rag Disposal Cans
	Unit Desciption:	These units are disposal cans for dirty rags in locations throughout the Air Force Base. The enclosed cans are 3 feet tall and 1 foot square, constructed of aluminum (Ref. 47).
	Date of Start-Up:	Unknown
	Date of Closure:	These units are currently active (Ref. 47).
	Wastes Managed:	Dirty rags generated from the cleaning of aircraft wheels are disposed in these units (Ref. 47).
	Release Controls:	The units are self-contained and located inside buildings (Ref. 47).
	Release History:	No releases from these units have been reported (Ref. 47).

124. UNIT NAME: Inactive Underground Tank 1

Unit Description: This unit is an underground storage tank of unknown dimensions, depth and construction. According to previous documentation, the tank was located near the Underground Waste Oil Tank (SWMU No. 48) in the north central area of the Air Force Base. The tank stored diesel oil (Ref. 6).

During the VSI, facility representatives were unable to locate this unit (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: Unknown, but the tank is no longer active (Ref. 6).

Wastes Managed: The tank originally stored diesel oil. However, the tank has been emptied and filled with sand, according to reports (Ref. 6).

Release Controls: Unknown

Release History: Unknown

125. UNIT NAME: Inactive Underground Tank 2

Unit Description: This unit is an underground storage tank of unknown dimensions, capacity and construction. The unit was adjacent to Building No. 357 (Ref. 6).

During the VSI, facility representatives were unable to locate this unit (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: Unknown, but the tank is no longer active (Ref. 6).

Wastes Managed: The tank originally contained diesel oil. Although previously inactivated in 1975, the tank was discovered to be partially filled with diesel oil. The oil was removed and the tank filled with sand, or the tank had been removed (Ref. 6).

Release Controls: Unknown

Release History: Unknown

126. UNIT NAME: Inactive Underground Tank 3

Unit Description: This unit is an underground storage tank of unknown capacity, depth and construction. According to previous documentation, the tank was located adjacent to Building No. 163 (prior location of Photo Lab) (Ref. 6).

During the VSI, facility representatives were unable to locate this unit (Ref. 47).

Date of Start-Up: Unknown

Date of Closure: Unknown, but tank is inactive (Ref. 6).

Wastes Managed: The tank originally held diesel oil. It is not known whether or not this tank has been filled with sand, or the tank removed (Ref. 6).

Release Controls: Unknown

Release History: Unknown

127. **UNIT NAME**: Oil/Water Separator near tank 4095 (#1)

Unit Description: This unit is an underground tank of unknown capacity and uncertain location. The unit recovers an oily wash. The effluent is discharged to a leaching field. The method of collecting and storing and the ultimate disposition of the recovered material are not known. The unit is self-contained with a hinged cover; however, construction details are not known (Ref. 6 and 47).

Date of Start-Up: Unknown

Date of Closure: The unit is presumed currently active.

Wastes Managed: The Oil/Water Separator recovers an oily wash (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

128. <u>UNIT NAME</u>: Oil/Water Separator near tank 4095 (#2)

Unit Description: This unit is an underground tank of unknown capacity and uncertain location. The unit recovers an oily wash generated by vehicle washrack operations. The effluent is discharged to a leaching field. The method of collecting and storing and the ultimate disposition of the recovered material are not known. The unit is self-contained with a hinged cover; however, construction materials are not known (Ref. 6 and 47).

Date of Start-Up: Unknown

Date of Closure: The unit is presumed active.

Wastes Managed: The Oil/Water Separator recovers an oily wash from vehicle washrack operations (Ref. 6 and 47).

Release Controls: The unit has no known release controls (Ref. 6 and 47).

Release History: No releases from this unit have been documented (Ref. 6 and 47).

VII. OTHER AREAS OF CONCERN

AREA OF CONCERN A: MOGAS Spill

This unit is the site of spills of automobile gasoline. The site is located adjacent to Argentia Avenue in the Cantonment Area, Cluster F. A potable well is 600 feet from the site. This area was identified as Site No. 19 in the IRP Phase I Study (Ref. 6).

On two occasions in the early 1960s, fuel trucks leaving the vehicle refueling area adjacent to the vehicle maintenance shop turned over in a ditch, spilling automobile gasoline into the ditch. The quantity of fuel that was spilled is unknown; however, it is suspected to have been 2,000 to 3,000 gallons. No attempts were made to recover the fuel or to excavate and replace contaminated soils. Reportedly, the fire department washed down the area in both cases. In 1977, nearby construction changed the physical features of the site. As it currently exists, part of the ditch is apparently below the pavement of Argentia Avenue, while a portion exists only as a narrow depression along the roadside. No available documents report evidence of soil contamination during the 1977 construction (Ref. 6). Results of soil sampling are presented in Table A and Figure A following this page.

Table A

Results of Analysis of Soil Samples for MOGAS Spill Site

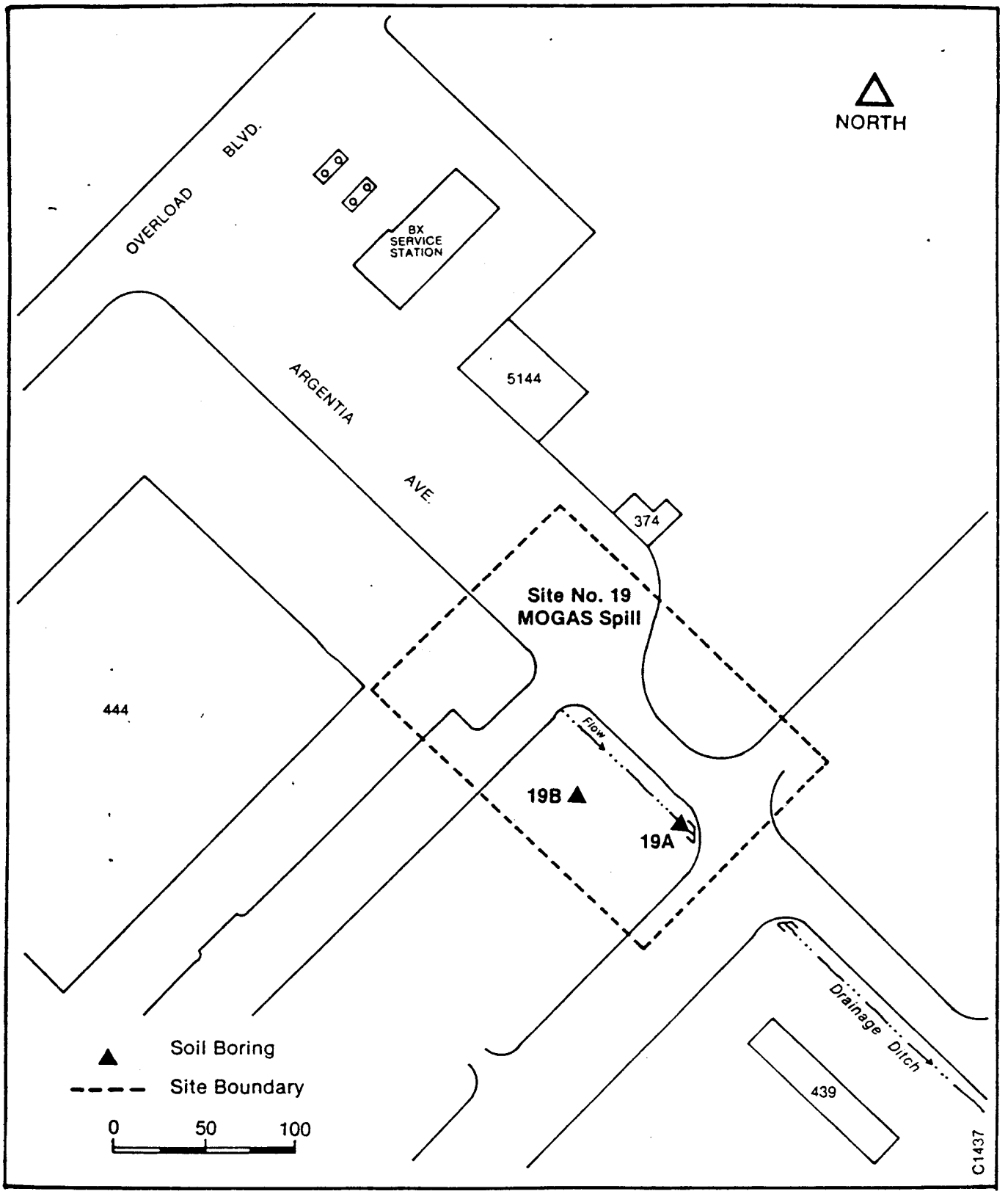
Sample #	Depth	O&G*	Pb*	Purgeable Organic Compounds (EPA 8010/8020) (ug/kg)
19A-1	3.0-4.0'	ND	1.50	ND
19A-2	8.0-9.0'	ND	2.30	ND
19A-3	45.0-47.0'	ND	1.10	ND
19B-1	0.0-1.0'	ND	35.00	ND
19B-2	9.0-10.'	ND	0.95	ND
19B-3	57.5-59.5'	ND	0.99	ND
19A-1A**	3.0-4.0'	ND	2.30	1,2-DCE=237

*all concentrations in mg/kg, except as indicated
**duplicate analysis of 19A-1
ND = not detected, detection limits and analytical techniques are listed in Appendix A

Source: Reference 46

Figure A

Soil Boring Locations at MOGAS Spill Site



Source: Reference 46

AREA OF CONCERN B: JP-4 Fuel Spill

This unit is the site of a fuel spill site in the Southwest Area of the Air Force Base near the flight line area. The accident occurred in 1980 and resulted from a broken coupling of an aircraft fuel tank. An estimated 400 gallons of fuel were lost through evaporation and spillage onto the apron. Some of the lost fuel must have entered the ground through construction joints and cracks in the apron; however, it is believed that the quantity would have been small. This site was identified as Site No. 18 in the IRP Phase I Study (Ref. 6).

AREA OF CONCERN C: Blown Capacitors Site

This unit is the site of a PCB spill located in the Cantonment Area, Cluster I, northwest of a base housing building, and adjacent to a powerline pole where the six capacitors were mounted. The area was identified as Site No. 10 in the IRP Report (Ref. 6). In 1978, lightning struck and caused three of the capacitors to rupture and release six gallons of oil thought to contain PCB. The extent of the spill is estimated to cover a 400 square foot area (Ref. 6). According to facility representatives, the residual oil and contaminated soil was removed, processed through DRMO and disposed in an EPA-approved disposal facility. A total of forty-three 55-gallon drums were removed (Ref. 47).

AREA OF CONCERN D: Aircraft Washrack Holding Tank

This unit is a 1,000-gallon metal tank located in Building No. 166 in the Cantonment Area, Cluster B. The holding tank is used to dilute and mix aircraft cleaning compound which is piped outside the building to the Aircraft Washrack (SWMU No. 9). According to facility representatives, approximately 500 gallons of the cleaning mixture are used each month (Ref. 6 and 47). The unit is currently active and has been in use since 1966 (Ref. 47). The cleaning compound is alkaline and water based, containing 5% by weight ethylene glycol n-mono butyl ether (Ref. 6). The tank is located inside a building on a concrete platform (Ref. 47). No releases from this unit have been reported (Ref. 47).

AREA OF CONCERN E: POL Storage Tank No. 140

This unit is an underground 550-gallon tank located near Building No. 140 in the Cantonment Area, Cluster B. The tank is of unknown construction and was installed in 1953. The tank is currently active and is used for the storage of diesel fuel. The unit has no known release control and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN F: POL Storage Tank No. 163

This unit was an underground 5,000-gallon tank located near Building No. 163 in the Cantonment Area, Cluster B. The tank was of unknown construction and was installed in 1943. The tank is inactive and was used for the storage of diesel fuel. The unit had no known release control and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN G: POL Storage Tank No. 181

This unit is an underground 550-gallon tank located near Building 181 in the Cantonment Area, Cluster D. The tank contains product diesel fuel; the design construction of this unit is unknown. The unit became active in 1943 and is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 6 and 47).

AREA OF CONCERN H: POL Storage Tank No. 182-A

This unit is an underground 2,000-gallon tank located near Building 182 in the Cantonment Area, Cluster D. The tank contains product automobile gasoline; the design construction of this unit is unknown. The unit became active in 1971 and is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 6, 44, and 47).

AREA OF CONCERN I: POL Storage Tank No. 182-B

This unit is an underground 2,000-gallon tank located near Building 182 in the Cantonment Area, Cluster D. The tank contains product diesel fuel; the design construction of this unit is unknown. The unit became active in 1971 and is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 6 and 47).

AREA OF CONCERN J: POL Storage Tank No. 184

This unit is an underground 2,000-gallon steel tank located near Building 184 in the Cantonment Area, Cluster D. The tank contains product diesel fuel; the design construction of this unit is unknown. It is not known when the unit became active, although it is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 44 and 47).

AREA OF CONCERN K: POL Storage Tank No. 185

This unit is an underground 2,000-gallon tank located near Building 185 in the Cantonment Area, Cluster D. The tank contains product diesel fuel; the design construction of this unit is unknown. The unit became active in 1943 and is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 6 and 47).

AREA OF CONCERN L: POL Storage Tank No. 187

This unit is an underground 6,000-gallon steel tank located near Building 187 in the Cantonment Area, Cluster D. The tank contains product JP-4 fuel; the design construction of this unit is unknown. The unit became active in 1976 and is currently active. The tank has no known release controls nor has any release from this unit been documented (Ref. 6, 44 and 47).

AREA OF CONCERN M: New Entomology Building Product Storage Area

This area is located outdoors, adjacent to Building 212 in the Cantonment Area, Cluster G. Several 55-gallon drums containing product pesticide and herbicide rest their sides on a metal rack about 2 feet above bare asphalt. During the VSI, puddles of water from a recent rain were observed on the asphalt under the drums. Narrow metal troughs, about four inches wide, four inches high and three feet long are placed below the bungs and spigots of some of the drums to collect drippage.

Facility representatives were not able to identify the start-up date, but the unit is currently active. The drums contain concentrated pesticide and herbicide. The pesticides and herbicides used on the Air Force Base reportedly include (by product name): Savin, Diazinon E.C., Diazinon granules, Duraban E.C., Baygon solution, Baygon granules, Malathion E.C., Malathion technical, zinc phosphide, and 2,4-D herbicide.

No releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN N: POL Storage Tank No. 368a

This unit is an underground 10,000-gallon tank and is located in a gasoline station at the intersection of Overlord Boulevard and Argentia Avenue, in the Cantonment Area, Cluster F. The tank is of steel construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release controls and no releases from this unit has been documented (Ref. 44 and 47).

AREA OF CONCERN O: POL Storage Tank No. 368b

This unit is an underground 10,000-gallon tank located in a gasoline station at the intersection of Overlord Boulevard and Argentia Avenue, in the Cantonment Area, Cluster F. The tanks are of steel construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release control and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN P: POL Storage Tank No. 368c

This unit is an underground 10,000-gallon tank located in a gasoline station at the intersection of Overlord Boulevard and Argentia Avenue, in the Cantonment Area, Cluster F. The tank is of steel construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release control and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN Q: POL Storage Tank No. 368d

This unit is an underground 6,000-gallon tank located in a gasoline station at the intersection of Overlord Boulevard and Argentia Avenue, in the Cantonment Area, Cluster F. The tank is of unknown construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release control and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN R: POL Storage Tank No. 374

This unit is an underground 10,000-gallon tank located in the Vehicle Maintenance Shop in Building 374 in the Cantonment Area, Cluster F. The tank is of steel construction and the date of installation is unknown. The tank was used for the storage of gasoline and is currently inactive and filled with an inert material. The unit has no known release control and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN S: POL Storage Tank No. 376

This unit is an underground 5,000-gallon tank located in the Vehicle Maintenance Shop in Building 376 in the Cantonment Area, Cluster F. The tank is of steel construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release control and no releases from this unit have been documented (Ref. 6, 44 and 47).

AREA OF CONCERN T: POL Storage Tank No. 377

This unit is an underground 5,000-gallon tank located in the Vehicle Maintenance Shop in Building No. 377 in the Cantonment Area, Cluster F. The tank is of steel construction and was installed in 1963. The tank is currently active and is used for the storage of gasoline. The unit has no known release control and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN U: POL Storage Tank No. 378

This unit is an aboveground 25,000-gallon tank of steel construction, located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is of unknown construction. The unit, which is used for the storage of automobile gasoline, began operation in 1973 and is currently active, although the start-up date is unknown. The tank has no known release controls. No releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN V: POL Storage Tank No. 392a

This unit is an underground 500-gallon tank of steel construction, located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is used to store gasoline. The tank is active, although the start-up date is unknown. The tank has no known release controls. No releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN W: POL Storage Tank No. 392b

This unit is an underground 500-gallon tank of steel construction, located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is used to store JP-4 fuel. The tank is active, although the start-up date is unknown. The tank has no known release controls. No releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN X: POL Storage Tank No. 392c

This unit is an underground 500-gallon tank of steel construction, located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is used to store JP-4 fuel. The tank is active, although the start-up date is unknown. The tank has no known release controls. No releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN Y: POL Storage Tank No. 392d

This unit is an underground 500-gallon tank of steel construction, located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank is used to store JP-4 fuel. The tank is active, although the start-up date is unknown. The tank has no known release controls. No releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN Z: POL Storage Tank No. 394

This unit is an underground 420,000-gallon tank located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank has a floating roof and is used to store JP-4 fuel. The tank began operation in 1966 and is currently active. The unit is diked and is inspected annually. Sludge is removed every five years. No releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN AA: POL Storage Tank No. 395

This unit is an aboveground 840,000-gallon tank located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank has a floating roof and is used to store JP-4 fuel. The tank began operation in 1966 and is currently active. The unit is diked and is inspected annually. Sludge is removed every five years. The tank has no known release controls. No releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN BB: POL Storage Tank No. 396

This unit is an aboveground 840,000-gallon tank located in the Bulk Storage Area in the Cantonment Area, Cluster H. The tank has a floating roof and is used to store JP-4 fuel. The tank began operation in 1966 and is currently active. The unit is diked and is inspected annually. Sludge is removed every five years. No releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN CC: POL Storage Tank No. 420

This unit is a 2,500-gallon underground tank used for the storage of product JP-4 fuel. The steel tank is located in the Maintenance Shop Area near Building No. 420 in the Cantonment Area, Cluster E. The tank is currently active, but it is not known when the tank was installed. The tank has no known internal or external protection, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN DD: Inactive POL Storage Tank No. 443

This unit is the site of a former underground 8,500-gallon tank located in the Maintenance Shop Area near Building No. 443 in the Cantonment Area, Cluster F. The tank was of steel construction and was used for the storage of diesel fuel. The tank was installed in 1977 and was removed in 1986. The tank has no known release controls, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN EE: POL Storage Tank No. 444

This unit is an underground 1,000-gallon tank located in the Maintenance Shop Area near Building No. 444 in the Cantonment Area, Cluster E. The tank, of an unknown construction, is used for diesel fuel storage. The tank is currently active, but the date of installation is unknown. The tank has no known release controls, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN FF: POL Storage Tank No. 728

This unit is a 1,000-gallon underground tank of unknown construction, located in Building 728, a maintenance shop, in the Cantonment Area, Cluster B. The tank holds product diesel fuel. The tank became active in 1972 and is still active. The tank has no known release controls. No releases from this unit have been documented (Ref. 6, 44, and 47).

AREA OF CONCERN GG: POL Storage Tank No. 1400

This unit is an underground 24,000-gallon tank located in the Maintenance Shop Area in the Cantonment Area, Cluster I. The tank, of an unknown construction, is used for diesel fuel storage. The tank began operation in 1968 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN HH: POL Storage Tank No. 2110

This unit is an underground 550-gallon tank located in the Maintenance Shop Area in the Eastern Area of the Cantonment Area, Cluster E. The tank, of an unknown construction, is used for diesel fuel storage. The tank began operation in 1956 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN II: POL Storage Tank No. 2160

This unit is an underground 550-gallon tank located in the Maintenance Shop Area in the Eastern Area of the Air Force Base. The tank, of an unknown construction, is used for diesel fuel storage. It is not known when the tank began or ceased operation. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN JJ: POL Storage Tank No. 2276

This unit is an underground 550-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank, of an unknown construction, is used for diesel fuel storage. The unit began operating in 1961 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN KK: POL Storage Tank No. 2280

This unit is an underground 1,000-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1972 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN LL: POL Storage Tank No. 2285

This unit is an underground 1,000-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1972 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN MM: POL Storage Tank No. 2300

This unit is an underground 550-gallon tank located near Landfill No. 3 (SWMU No. 3) in the Eastern Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. Tank activity began in 1957, and the unit is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN NN: POL Storage Tank No. 2302

This unit is an underground 550-gallon tank located at the southern border in the Southeastern Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operation in 1953 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN OO: POL Storage Tank No. 2307

This unit is an underground 550-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit is currently active, although the start-up date is not known. The tank has no known release controls, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN PP: POL Storage Tank No. 2309

This unit is an underground 2,500-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank if of steel construction and is used for the storage of JP-4 fuel. The unit is currently active, although the start-up date is no known. The tank has no known release controls, and no releases from this unit have been documented (Ref. 44 and 47).

AREA OF CONCERN QQ: POL Storage Tank No. 2313

This unit is an underground 550-gallon tank located in the Small Arms Range in the Central Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1942 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN RR: POL Storage Tank No. 2321

This unit is an underground 550-gallon tank located at the southern boundary in the Southwestern Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1981 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN SS: POL Storage Tank No. 2327

This unit is an underground 650-gallon tank located at the southern boundary in the Southwestern Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1974 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN TT: POL Storage Tank No. 2328

This unit is an underground 3,000-gallon tank located at the southern boundary in the Southwestern Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1972 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN UU: POL Storage Tank No. 2330

This unit is an underground 550-gallon tank located in the Combat Aircraft Parking Area in the Central Area of the Air Force Base. The tank if of unknown construction and is used for the storage of diesel fuel. The unit began operating in 1968 and is currently active. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN VV: POL Storage Tank No. 3117

This unit is an underground 1,000-gallon tank located at the Melrose Bombing Range. The tank if of unknown construction and is used for the storage of diesel fuel. The unit is currently active, although the start-up date is unknown. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN WW: POL Storage Tank No. 3118

This unit is an underground 1,000-gallon tank located at the Melrose Bombing Range. The tank if of unknown construction and is used for the storage of automobile gasoline. The unit is currently active, although the start-up date is unknown. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN XX: POL Storage Tank No. 3121a

This unit is an underground 550-gallon tank located at the Melrose Bombing Range. The tank if of unknown construction and is used for the storage of diesel fuel. The unit is currently active, although the start-up date is unknown. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

AREA OF CONCERN YY: POL Storage Tank No. 3121b

This unit is an underground 250-gallon tank located at the Melrose Bombing Range. The tank if of unknown construction and is used for the storage of diesel fuel. The unit is currently active, although the start-up date is unknown. The tank has no known release controls, and no releases from this unit have been documented (Ref. 6 and 47).

ENFORCEMENT SENSITIVE

VIII. SUMMARY OF SUGGESTED FURTHER ACTIONS

1.	UNIT NAME	Oil/Water Separator Near Building 119 (Cantonment Area A)
	Soil/Groundwater:	The potential exists for release to soil. It is dependent upon the integrity of the unit which is over twenty years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The unit releases liquids to the storm drainage system. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during heavy precipitations.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1963.

2.	UNIT NAME	POL Storage Tank for Building 108 Oil/Water Separator (Cantonment Area A)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. If the unit is in poor condition, leaking may cause soil and groundwater contamination. Since the unit is over 40 years old, the potential for release is moderate. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is again, dependent upon integrity of the unit, as well as location (i.e., whether the unit is located near a surface water body).
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit. Since the unit is over 40 years old, the potential for release is moderate.
	Suggested Further Actions:	Determine the integrity of unit and provide internal and external protection for all units via surface drainage controls.

3.	UNIT NAME	Oil/Water Separator Near Building 108 (Cantonment Area A)
	Soil/Groundwater:	The potential exists for release to the soil depends upon the integrity of the unit. The unit is over 40 years old. In addition, spills, may occur during unit cleaning. The potential for release to groundwater is low. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is minimal. The unit releases liquids to the sanitary sewage system. Surface release is prevented by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1943.

4.	UNIT NAME	Recovered Diesel Tank for Building 121 Oil/Water Separator (Cantonment Area B)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. If the unit is in poor condition, leaking may cause soil and groundwater contamination. Since the unit is over 40 years old, the potential for release is moderate. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is again, dependent upon integrity of the unit, as well as location (i.e., whether the unit is located near a surface water body).
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit. Since the unit is over 40 years old, the potential for release is moderate.
	Suggested Further Actions:	Determine the integrity of unit and provide internal and external protection for all units via surface drainage controls.

5.	<u>UNIT NAME</u>	Oil Water Separator Near Bldg. 121 (Cantonment Area A)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. In addition, spills may occur during unit cleaning and contaminate surrounding soils. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The unit releases liquid to the Storm Drainage System. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during heavy precipitation.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit. The unit has been in place since 1943.

6.	UNIT NAME	POL Storage Tank for Building 129 Oil/Water Separator (Cantonment Area B)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. If the unit is in poor condition, leaking may cause soil and groundwater contamination. Since the unit is over 40 years old, the potential for release is moderate. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is again, dependent upon integrity of the unit, as well as location (i.e., whether the unit is located near a surface water body).
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit. Since the unit is over 40 years old, the potential for release is moderate.
	Suggested Further Actions:	Determine the integrity of unit and provide internal and external protection for all units via surface drainage controls.

7.	UNIT NAME	Oil/Water Separator Near Building 129
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. The unit is over forty years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Some of the units release liquids to the storm drainage system. All storm drains discharge as overland flow to various locations on base.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1943.

8.	UNIT NAME	Oil/Water Separator Near Building 165 (Cantonment Area B)
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. The unit is over twenty years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The unit releases liquids to the storm drainage system. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during heavy precipitations.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1963.

9.	UNIT NAME	Aircraft Washrack (Cantonment Area B)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is situated on a curbed concrete pad.
	Surface Water:	The potential for release to surface water is low due to the fact that there are no surface water bodies in the vicinity of the unit and discharge drains to an oil/water separator.
	Air:	The potential for release to air is moderate due to possible volatilization of organics.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the open nature of the unit and the low potential of methane gas generation from the unit's waste type.
	Suggested Further Actions:	No further action suggested at this time.

10.	<u>UNIT NAME</u>	POL Storage Tank for Building 170 Oil/Water Separator (Cantonment Area B)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. Since the unit is over 40 years old, the potential for release is moderate. If the unit is in poor condition, leaking may cause soil contamination. The presence of the impermeable caliche zone underlying site soils lessens the potential for groundwater contamination; however, the latter is still possible.
	Surface Water:	The potential for release to surface water is dependent upon integrity of the unit and the unit location. Since the unit is not located near a surface water body, the potential is low.
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit. Since the unit is over 40 years old, the potential for release is moderate.
	Suggested Further Actions:	Determine the integrity of unit and provide internal and external protection for the unit via drainage controls.

11. <u>UNIT NAME</u>	Oil/Water Separator Near Building 170 (Cantonment Area B)
Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. The unit is over forty years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release is minimal. The unit releases liquid waste to the sanitary sewer system. However, overland surface release is prevented by the hinged cover.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit may have been in place since the 1940's.

12.	UNIT NAME	Jet Engine Shop Dip Tank (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a controlled tank discharge system.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and is not in the vicinity of any surface water bodies.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action is suggested at this time.

13.	UNIT NAME	Jet Engine Shop Indoor Washrack (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete slab floor and a floor drain system.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building with a floor drain system.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low. The cleaning compounds are unlikely to generate methane, and the unit is located aboveground and inside a building.
	Suggested Further Actions:	No further action is suggested at this time.

14.	UNIT NAME	Pneudraulics Shop PD-680 Dip Tank (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete slab floor.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located within a tank system inside a building. Potential for release during quarterly tank cleaning is minimized by the process of discharging of liquid waste to the Sanitary Sewerage Line.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action is suggested at this time.

15.	UNIT NAME	Pneudraulics Shop Former Drum Storage (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit no longer exists and occurred within a controlled building area.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit no longer exists and the drums were stored in areas not accessible by surface drainage.
	Air:	The potential for release to air is low due to the fact that this unit no longer exists. Prior to that the drums were sealed.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit, aboveground and enclosed.
	Suggested Further Actions:	No further action is suggested at this time.

16. <u>UNIT NAME</u>	Oil/Water Separator Near Building 680 (Cantonment Area C)
Soil/Groundwater:	A moderate potential exists for release to soil depending upon the age and integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is low. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release is minimal. The unit releases liquid waste to the sanitary sewer system. However, overland surface release is prevented by the hinged cover.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1965.

17.	UNIT NAME	Bearing Tank Cleaner (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building. Stains indicate that spills occur but are prevented from release by the concrete floor.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building within a closed tank.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action suggested at this time.

18.	UNIT NAME	Bearing Cleaner and Carbon Remover (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building within a sealed container.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building within a sealed container.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste product and the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action suggested at this time.

19.	UNIT NAME	Container Accumulation Area No. 681 (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the presence of secondary containment and a concrete pad to catch spills.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a surface water body.
	Air:	The potential for release to air is low due to the nature of the unit and the fact that the drums are sealed.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit, aboveground and not capable of generating methane.
	Suggested Further Actions:	No further action suggested at this time.

20.	UNIT NAME	Armament Recording Lab Floor Drains (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor and adequate floor drains to control spillage.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and discharges to the Sanitary Sewer System.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the non-methane generating nature of the waste material.
	Suggested Further Actions:	No further action suggested at this time.

21.	UNIT NAME	NDI Lab Dip Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor and an adequate floor drain system.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and has an adequate system for discharging liquids to the Sanitary Sewerage Line. Also, adequate freeboard is maintained to minimize spillage.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste.
	Suggested Further Actions:	No further action is suggested at this time.

22 a,b.	UNIT NAME	NDI Lab Developer Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a tile covered concrete floor and adequate drainage controls.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and has an adequate system for discharging liquids to the Sanitary Sewerage Line.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the liquid waste.
	Suggested Further Actions:	No further action is suggested at this time.

23 a,b.	<u>UNIT NAME</u>	NDI Lab Emulsifier Processing Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a tile covered concrete floor and adequate drainage control.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and has an adequate system for discharging liquids to the Sanitary Sewerage Line.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the liquid waste.
	Suggested Further Actions:	No further action is suggested at this time.

24a,b.	UNIT NAME	NDI Silver Lab Recovery Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that these units have been located inside a building with a concrete floor and floor drains.
	Surface Water:	The potential for release to surface water is low due to the fact that these units have been located inside a building with adequate drains to discharge to the Sanitary Sewerage Line.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the liquid waste.
	Suggested Further Actions:	No further action is suggested at this time.

25.	UNIT NAME	NDI Drum Storage Area (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit no longer exists. Prior to that, the release potential was minimized by the location of the unit in an enclosed facility.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit no longer exists. Prior to that, the release potential was minimized by the location of the unit in an enclosed facility.
	Air:	The potential for release to air is low due to the fact that this unit no longer exists. Prior to that, the release potential was minimized by the location of the unit in an enclosed facility.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit and the waste.
	Suggested Further Actions:	No further action is suggested at this time.

26.	UNIT NAME	NDI Lab Fixer Processing Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit was located inside a building with a concrete floor and an adequate drain system.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit was located inside a building and has an adequate drain system to discharge to the Sanitary Sewerage Line.
	Air:	The potential for release to air is low due to the fact that this unit was located inside a building and no longer exists.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the liquid waste.
	Suggested Further Actions:	The unit no longer exists. No further action is suggested at this time.

27.	UNIT NAME	Lead Acid Battery Shop Neutralization Tank (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is longer in use. Prior release potential was minimized by the concrete floor and the floor drain system.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is no longer in use. Prior release potential was minimized by an adequate floor drain system that discharges to the sanitary sewerage system.
	Air:	The potential for release to air is low due to the fact that the unit is no longer in use and was located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the liquid waste.
	Suggested Further Actions:	No further action suggested at this time.

28.	UNIT NAME	Lead Acid Battery Shop Used Battery Castings Storage Area (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building above floor level.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit and the waste.
	Suggested Further Actions:	No further action suggested at this time.

29. <u>UNIT NAME</u>	NiCad Battery Rinse Sink - Building 185 (Cantonment Area D)
Soil/Groundwater:	The potential for release to soil/groundwater is low due to the location of the unit inside a building and with a concrete floor and a floor drain system to handle spillage.
Surface Water:	The potential for release to surface water is low due to the location of the unit inside a building, its above floor-level postition and the adequate drain system to the Sanitary Sewerage Line.
Air:	The potential for release to air is low due to the location of the unit inside a building.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the unit.
Suggested Further Actions:	No further action suggested at this time.

30.	UNIT NAME	AGE Maintenance Shop Washrack (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located on a concrete pad.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is located on a concrete pad with adequate drainage controls that discharge to an oil/water separator.
	Air:	The potential for release to air is moderate due to possible volatilization of organics.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the open air nature of the unit and the nature of the waste.
	Suggested Further Actions:	No further action suggested at this time.

31.	UNIT NAME	AGE Maintenance Shop Pad (Cantonment Area D)
	Soil/Groundwater:	The potential for release to soil is high due to the fact that stains have been observed in downslope soil ditches and gravelly areas. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is high due to the fact that a release has been observed to AGE Drainage Ditch (SWMU No. 34).
	Air:	The potential for release to air is moderate due to volatilization of organics.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit and the waste.
	Suggested Further Actions:	Construct secondary containment to prevent releases from this unit, such as curbing and drain lines. Test the downslope gravels and soil ditch for hazardous constituents.

32. <u>UNIT NAME</u>	Oil/Water Separator #1 Near Building 186 (Cantonment Area D)
Soil/Groundwater:	A moderate potential exists for release to soil, depending upon the integrity of the unit. The unit is only sixteen years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release is minimal. The unit releases liquid waste to the sanitary sewer system and is protected from overland surface release by the hinged cover.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1971.

33.	UNIT NAME	Oil/Water Separator #2 Near Building 186 (Cantonment Area D)
	Soil/Groundwater:	A moderate potential exists for release to soil depending upon the integrity of the unit. The unit is only sixteen years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is minimal. The unit releases liquid waste to the sanitary sewer system and is protected from overland surface release by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1971.

34.	UNIT NAME	AGE Drainage Ditch
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of this unit and the permeable nature of the soil. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact the unit does not discharge to any surface water body.
	Air:	The potential for release to air is moderate due to possible volatilization of organic wastes within the outwash.
	Subsurface Gas:	The potential for generation of subsurface gas is low. This unit is located aboveground and receives only rain outwash from the Maintenance Pad near the AGE Shop (SWMU No. 31).
	Suggested Further Actions:	Continue sampling/remedial action under the Air Force IRP Program.

35.	UNIT NAME	Aircraft Drip Pans (Cantonment Area E)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the location of the unit inside a building with a concrete floor to prevent release.
	Surface Water:	The potential for release to surface water is low due to the location of the unit inside a building and the fact that no surface water bodies are nearby.
	Air:	The potential for release to air is low due to the location of the unit inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action is suggested at this time.

36.	UNIT NAME	Wheel and Tire Shop PD-680 Cleaning Dip Tank (Cantonment Area C)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located inside a building with a concrete floor to prevent release to the underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and elevated above floor level. Also, the unit is not located near any surface water body.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low. The unit is located aboveground inside a building and the waste handled does not generate methane..
	Suggested Further Actions:	No further action suggested at this time.

37.	UNIT NAME	Wheel and Tire Shop Cold Stripper Dip Tank (Cantonment Area E)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located inside a building with a concrete floor to prevent release to the underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and elevated above floor level. Also, the unit is not located near any surface water body.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low. The unit is located aboveground inside a building and the waste handled does not generate methane.
	Suggested Further Actions:	No further action suggested at this time.

38.	UNIT NAME	Oil/Water Separator Near Building 194 (Cantonment Area E)
	Soil/Groundwater:	A moderate potential exists for release to soil depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The unit releases liquid waste to the storm drainage system. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during periods of heavy precipitation.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1971.

39.	UNIT NAME	Oil/Water Separator Near Building 195 (Cantonment Area E)
	Soil/Groundwater:	A moderate potential exists for release to soil depending upon the age and integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The unit releases liquid waste to the storm drainage system. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during periods of heavy precipitation.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1969.

40.	UNIT NAME	Corrosion Control Drum Storage (Cantonment Area E)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located on a concrete pad with secondary containment. However, staining is evident on the pad and standing water has been observed. If the latter continues, cracks will develop and allow spills to pass into the underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located on a concrete pad with secondary containment. Also, the unit is not located near any surface water bodies.
	Air:	The potential for release to air is low due the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due the nature of the unit and the waste it handles.
	Suggested Further Actions:	Construct a cover for the unit top to alleviate collection of rainwater within the secondary containment area.

41.	UNIT NAME	Corrosion Control Shop Dumpster (Cantonment Area E)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the self-contained nature of the unit.
	Surface Water:	The potential for release to surface water is low due to the self-contained nature of the unit and the fact that the unit is not located near any surface water bodies.
	Air:	The potential for release to air is low due to the presence of a cover over the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low. The unit is aboveground and does not contain methane-generating wastes.
	Suggested Further Actions:	No further action is suggested at this time.

42. <u>UNIT NAME</u>	Corrosion Control Shop Water Holding Tank (Cantonment Area E)
Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor.
Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building with an adequate drainage system to discharge to the Sanitary Sewerage Line.
Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the location of the unit (aboveground within a building).
Suggested Further Actions:	No further action suggested at this time.

43. <u>UNIT NAME</u>	Fuel Systems Repair Bowser (Cantonment Area E)
Soil/Groundwater:	The potential for release to soil/groundwater is low due to the self-contained nature of the unit.
Surface Water:	The potential for release to surface water is low due to the self-contained nature of the unit and the fact that the unit is not located near any surface water bodies.
Air:	The potential for release to air is low due to the self-contained nature of the unit with adequate release controls.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the position and self-contained nature of the unitand also due to the nature of the waste.
Suggested Further Actions	No further action suggested at this time.

44.	UNIT NAME	Corrosion Control Shop Parts Stripper (Cantonment Area E)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located inside a building with a concrete floor to prevent release to the underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and elevated above floor level. Also, the unit is not located near any surface water bodies.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due. The unit is located aboveground inside a building. The waste handled does not generate methane.
	Suggested Further Actions:	No further action suggested at this time.

45.	UNIT NAME	Paint Spray Booth Air Purifiers
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located inside a building.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and not near any surface water bodies.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building and designed to prevent release to the air.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is located aboveground inside a building and due to the nature of the waste handled.
	Suggested Further Actions:	No further action suggested at this time.

46. <u>UNIT NAME</u>	Oil/Water Separator Near Building 196 (Cantonment Area E)
Soil/Groundwater:	A moderate potential exists for release to soil depending upon the age and integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is low. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The unit releases liquid waste to the storm drainage system. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during periods of heavy precipitation.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1969.

47.	UNIT NAME	Oil/Water Separator Near Building 494 (Cantonment Area E)
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. In addition, spills may occur during unit cleaning and while the waste is being pumped out for transfer. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Potential for release is low. The unit is not located near any surface water bodies, nor does it discharge to any lines that may connect to surface water bodies. Also, the hinged cover protects overland flow, due to heavy precipitation, from entering.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit via visual inspection of the separator; some of these units have been in place since the 1940s.

48a,b. UNIT NAME	Underground Waste Oil Tank (48a) and Aboveground Overflow Capacity Tank (48b) (Cantonment Area E)
Soil/Groundwater:	The potential for release to soil is high due to the fact that this unit is located underground. Also, soil staining and stressed vegetation were evident around the units. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the fact that this unit is not located near any surface water bodies.
Air:	The potential for release to air is low due to the fact that the primary unit (48a) is located underground.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the wastes previously stored in the unit.
Suggested Further Actions:	Determine the integrity of the unit and the presence of hazardous constituents within the unit. Test the surrounding soils for hazardous chemical constituents.

49, 50. <u>UNIT NAME</u>	Inactive POL Storage Tanks Near Facility 4028 (Cantonment Area A)
Soil/Groundwater:	The potential for past release to soil was dependent upon the integrity of the unit. If the unit is in poor condition, leaking to soil and groundwater may have occured. Since the unit is over 40 years old, the potential for release is moderate. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for past release to surface water is again, dependent upon integrity of the unit, as well as location. Since these units are not located near any surface water bodies release potential is low.
Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit and the nature of the waste. Since the age of the unit is unknown and given the nature of the waste handled, potential for past subsurface gas accumulation is high.
Suggested Further Actions:	Determine the integrity of units and provide internal and external protection for all units.

51.	UNIT NAME	Oil/Water Separator Near Building 375 (Cantonment Area F)
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Effluent is discharged to a holding sump. Since the unit is not located near a surface water body and assuming adequate freeboard is maintained, the potential for release is low.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit via visual inspection of the holding sump; some of these units have been in place since the 1940s.

52.	UNIT NAME	Waste Oil and Hydraulic Fluid Bowser (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the self-contained nature of the unit.
	Surface Water:	The potential for release to surface water is low due to the self-contained nature of the unit and its being mounted above ground level.
	Air:	The potential for release to air is low due to the self-contained nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste.
	Suggested Further Actions:	No further action suggested at this time.

53.	UNIT NAME	Special Purpose Vehicle Maintenance Shop Floor Drains (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil is moderate. The unit is located inside a building but release may occur if the drain sytesm leaks when discharging to the Oil/Water Separator (SWMU No. 63). The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and has a drain system for discharging effluent to the oil/water separator.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the fact that this unit is located inside a building.
	Suggested Further Actions:	Pressure test drains to ensure no leakage and its integrity.

54.	UNIT NAME	Special Purpose Vehicle Maintenance Shop Drum Storage Area (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to a concrete pad and secondary containment.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a surface water body and the drums are sealed.
	Air:	The potential for release to air is low. The drums are sealed.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit, aboveground and sealed.
	Suggested Further Actions:	Place all drums within secondary containment area, and reduce volume in bulging drums. Overpack drums in poor condition.

55.	UNIT NAME	Lead Acid Battery Accumulation Point (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil is high due to the fact that the unit has no secondary containment. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential fore release to surface water is low due to the fact that the unit is not located near a receiving surface water body.
	Air:	Releases to air are dependent on the integrity of the batteries.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit and its waste.
	Suggested Further Actions:	Provide secondary containment or a shelter for the accumulation point.

56.	UNIT NAME	Lead Acid Battery Storage Area (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and which is not near any surface water bodies.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action suggested at this time.

57.	UNIT NAME	Oil/Water Separator Near Building 379 (Cantonment Area F)
	Soil/Groundwater:	A moderate potential exists for release to soil is depending upon the age and integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is low. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is low. The unit is not located near any surface water body and discharges its effluent to a Sanitary Sewerage Line.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and lines to and from; the unit has been in place since 1965.

58.	UNIT NAME	Special Purpose Vehicle Maintenance Shop PD-680 Dip Tank (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is located inside a building with a concrete floor to catch spills.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and is not located near any surface water bodies.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action suggested at this time.

59.	UNIT NAME	Civil Engineering Paint Shop Spray Booth (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building with a concrete floor to prevent release to underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building with internal drains.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the fact that this unit is located aboveground inside a building.
	Suggested Further Actions:	No further action suggested at this time.

60.	UNIT NAME	Civil Engineering Paint Shop Waste Container Accumulation Area (Cantonment Area F)
	Soil/Groundwater:	The potential for release to soil/groundwater is moderate. A 55-gallon drum sits upon a galvanized containment pad that provides some protection from downward release but is vulnerable to the elements.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a receiving surface water body.
	Air:	The potential for release to air is low due to the sealed nature of the unit drum.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the aboveground nature of the unit.
	Suggested Further Actions:	Construct secondary containment.

61.	UNIT NAME	Oil/Water Separator No. 5077a Near Overlord/ Argentia Intersection (Cantonment Area F)
	Soil/Groundwater:	The potential exists for release to soil depending upon the age and integrity of the unit. The unit is thirty years old. In addition, spills may occur during unit cleaning. Potential release to the groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is low. The unit is not located near any surface water bodies and isolated from heavy precipitation by the hinged cover. The unit releases effluent to the sanitary sewer system.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and its lines; this unit has been in place since 1957.

62.	<u>UNIT NAME</u>	Oil/Water Separator No. 5077 b Near Overlord/ Argentia Intersection (Cantonment Area F)
	Soil/Groundwater:	The potential exists for release to soil depending upon the age and integrity of the unit. The unit is thirty years old. In addition, spills may occur during unit cleaning. Potential release to the groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is low. The unit is not located near any surface water bodies and isolated from heavy precipitation by the hinged cover. The unit releases effluent to the sanitary sewer system.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and its lines; the unit has been in place since 1957.

63.	UNIT NAME	Oil/Water Separator No. 5077c Near Overland/ Argentia Intersection (Cantonment Area F)
	Soil/Groundwater:	The potential exists for release to soil depending upon the age and integrity of the unit. The unit is thirty years old. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is low. The unit is not located near any surface water bodies and isolated from heavy precipitation by the hinged cover. The unit releases effluent to the sanitary sewer system.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit and its lines; the unit has been in place since 1957.

64.	UNIT NAME	Civil Engineering Open Yard PCB Storage (Cantonment Area G)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to its location on an asphalt pad.
	Surface Water:	The potential for release to surface water is moderate due to the fact that drainage from this unit is received by the Northeast Storm Water Drainage Area (SWMU No. 176).
	Air:	The potential for release to air is low due to the fact that this unit is no longer in use.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location above ground.
	Suggested Further Actions:	No further action suggested at this time.

65. <u>UNIT NAME</u>	Former Interim Status Hazardous Waste Storage Facility Area 304 (Cantonment Area G)
Soil/Groundwater:	Release potential to soil and groundwater is low. The unit is no longer in use, prior to that release was prevented by concrete pad and berms.
Surface Water:	The potential for release to surface water is low. The unit is no longer in use, prior to that it maintained sufficient secondary containment.
Air:	The potential for release to air is low due to the fact that this unit is no longer in use.
Subsurface Gas:	The potential for generation of subsurface gas is low. The unit is no longer in use. Prior to that, wastes were handled and contained aboveground.
Suggested Further Actions:	No further action suggested at this time.

66.	UNIT NAME	Hazardous Waste Storage Facility -- Building 226 (Cantonment Area F)
	Soil/Groundwater:	Release potential to soil and groundwater is low due to the fact that the unit is located indoors with a treated, chemical resistant concrete floor and substantial secondary containment to prevent release to underlying soils.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is located indoors with substantial secondary containment and lies outside the 100 year floodplain.
	Air:	The potential for release to air is low due to the fact that the unit is located indoors and consists of sealed drums and containers.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

67.	UNIT NAME	DPDO PCB Storage Facility -- Building 224 (Cantonment Area G)
	Soil/Groundwater:	Release potential to soil and groundwater is low due to the fact that the unit is located indoors on a concrete pad and has substantial secondary containment to prevent release.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is located indoors with substantial secondary containment to control spillage within the unit.
	Air:	The potential for release to air is low due to the fact that the unit is located indoors.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

68.	UNIT NAME	Civil Engineering Department PCB Storage Facility - Building 224 (Cantonment Area G)
	Soil/Groundwater:	Release potential to soil and groundwater is low due to the fact that the unit is located indoors on a concrete pad and has substantial secondary containment to prevent release.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is located indoors with substantial secondary containment to control spillage within the unit.
	Air:	The potential for release to air is low due to the fact that the unit is located indoors.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

69.	UNIT NAME	New Entomology Building Mixing Room Sink and Floor Drains (Cantonment Area G)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the location of the unit inside a building with a concrete floor to prevent release to underlying soils.
	Surface Water:	The potential for release to surface water is low due to the location of the unit inside a building with internal release controls.
	Air:	The potential for release to air is low due to the location of the unit inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the waste and the location of the unit aboveground and inside a building.
	Suggested Further Actions:	No further action suggested at this time.

70.	UNIT NAME	Oil/Water Separator Adjacent to Vehicle Maintenance Shop (Cantonment Area H)
	Soil/Groundwater:	The potential exists for release to soil depending upon the age and integrity of the unit. In addition, spills may occur during unit cleaning. Potential release to the groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	There is a high potential that discharges to the leach field will influence nearby surface waters.
	Air:	Since the unit is underground, there is no potential for release to air during operation.
	Subsurface Gas:	These units are located below ground, and the integrity of the units is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the units; some of these units have been in place since the 1940s. Also, consider evaluating the time of travel and direction for hazardous consitiuents moving through the leach field.

71.	UNIT NAME	Recovered JP-4 Fuel Tank No. 390 (Cantonment Area H)
	Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. If the unit is in poor condition, leaking may cause soil and groundwater contamination. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is again, dependent upon integrity of the unit, as well as location. Since the unit is not located near any surface water bodies the potential is low.
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit.
	Suggested Further Actions:	Consider assessing the integrity of the tanks and providing internal and external protection. The tank has been in existence since 1976.

72.	UNIT NAME	Oil/Water Separator No. 390 in the Bulk Storage Area (Cantonment Area H)
	Soil/Groundwater:	The potential exists for release to soil and groundwater, depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	No information was available as to effluent discharge. Some of the units release liquids to the storm drainage system. All storm drains discharge as overland flow to various locations on base.
	Air:	The unit is underground; thus, there is minimal potential for release to air during operation.
	Subsurface Gas:	These units are located below ground, and the integrity of the units is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; some of these units have been in place since the 1940s. Establish where effluent is discharged to.

73. <u>UNIT NAME</u>	Storm Water Drainage and Retention Pond (Cantonment Area I)
Soil/Groundwater:	Release potential to soil is high due to the unlined nature of the unit. The potential for release to groundwater is moderate. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer. However, the caliche layer may not be continuous. Furthermore, the presence of a hydraulic head increases the potential for downward migration of hazardous constituents.
Surface Water:	The potential for release to surface water is low due to the fact that the unit does not discharge into any other surface water body.
Air:	The potential for release to air is low due to the nature of the unit and the discharge.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit and the discharge.
Suggested Further Actions:	Conduct soil, surface water and sediment sampling to determine presence of hazardous constituents.

74.	UNIT NAME	Landfill No. 1 (Cantonment Area I)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit and the results to date of soil testing. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the presence of a soil cover and the lack of any surface water bodies nearby. However, ponding does occur in the site area.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is moderate due to nature of wastes disposed.
	Suggested Further Actions:	Install groundwater monitoring wells and vadose zone monitoring to determine if contaminants have migrated from beneath the landfill. Regrade areas that tend to pond.

75.	UNIT NAME	Sanitary Sewage Lift Station Overflow Pit (Cantonment Area I)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to any surface water body and is encompassed by a minimal berm.
	Air:	The potential for release to air is low due to the fact that this unit has not been used since 1983.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is aboveground and unlined.
	Suggested Further Actions:	If this unit is used in the future, soil sampling should be conducted after each use. Consider lining the pit to prevent downward release of hazardous constituents.

76.	UNIT NAME	Sludge Weathering Pit (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of this unit and soil sampling done to date. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to any surface water body.
	Air:	The potential for release to air is low due to the fact that this unit has not been used since 1980.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is located at the surface.
	Suggested Further Actions:	Conduct additional soil sampling to determine if oil and grease levels have decreased.

77.	UNIT NAME	Civil Engineering Container Storage Area (Northern Area of the Base)
	Soil/Groundwater:	The potential for release to soil is high due to the fact that there is no secondary containment. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is not located near any receiving surface water bodies.
	Air:	If the integrity of the drums is inadequate, an air release may occur.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	Determine regulatory status of this unit. Construct secondary containment in the unit, and install a cover of the unit. Overpack damaged, buldging drums.

78.	UNIT NAME	Fire Department Training Area No. 1. (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil/groundwater is high due to the past disposal of hazardous wastes and the unlined nature of the unit.
	Surface Water:	The potential for release to surface water is high due to the surface disposal of wastes.
	Air:	The potential for future release to air is low due to the fact that this unit has not been used in 20 years.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the open method of disposal.
	Suggested Further Actions:	Additional soil sampling to determine if soil contamination still exists.

79.	UNIT NAME	Underground Tank (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil was dependent upon the integrity of the unit. If the unit was in poor condition, leaking may cause soil contamination. The potential for release to groundwater is low. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is again dependent upon the integrity of the unit, as well as location (i.e., whether the unit is located near a surface water body).
	Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
	Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the integrity of the unit and the waste held. The potential for this unit is considered moderate.
	Suggested Further Actions:	Facility representatives were not aware of the location of this unit. However, as described in the unit description, an area was observed where obvious excavation had taken place. The previous existence, or non-existence of the tank in this location should be verified. If the tank was, in fact, located in this spot, soil borings should be taken to determine if there is any contamination.

80. <u>UNIT NAME</u> Drum Storage Area

This unit was not observed during the VSI. Insufficient information was available to develop conclusions regarding the release potentials to the various pathways.

Suggested Further Actions: Obtain information on the location, date of start-up and closure, release controls and release history, and current condition of the unit.

81.	UNIT NAME	Solvent Disposal Site (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the nature of the wastes disposed and the lack of certainty as to whether the site was lined. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to any surface water body.
	Air:	The potential for release to air is low due to the fact that this unit is no longer used.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the wastes disposed.
	Suggested Further Actions:	Determine exact location of this unit and conduct soil sampling to determine if residual contamination exists. Also determine whether an effective liner exists.

82.	UNIT NAME	Landfill No. 2 (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the presence of a soil cover and the lack of any surface water bodies nearby.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to nature of wastes disposed.
	Suggested Further Actions:	Install groundwater monitoring wells and vadose zone monitoring to determine if contaminants have migrated from beneath the landfill.

83.	UNIT NAME	Sump (Southwest Area of Base)
	Soil/Groundwater:	A release to soil is dependent upon the integrity of the concrete. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a receiving surface water body.
	Air:	The potential for release to air is high due to the open nature of the unit.
	Subsurface Gas:	Subsurface gas generation is dependent upon the integrity of the concrete and the nature of wastes disposed.
	Suggested Further Actions:	Determine integrity of the unit, and perform an analysis of the wastes contained in the unit.

84.	UNIT NAME	Waste Oil and Product Storage Area (Southwest Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the fact that there is a drain pipe on th boundary of the unit which discharges to the surrounding soil. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a receiving surface water body.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action is suggested at this time.

85.	UNIT NAME	Storm Water Collection Plant (Southwest Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is moderate. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer. However, the caliche layer may not be continuous. Furthemore, the presence of a hydraulic head increases the potential for downward migration of hazardous constituents.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to any other surface water body.
	Air:	The potential for release to air is high due to the possible volatilization of organic contaminants.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location of the unit.
	Suggested Further Actions:	Elevated lead levels were found in soil borings from this unit in 1985; conduct surface water sampling to determine the source of contamination.

86.	UNIT NAME	Engine Test Cell (Central Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the fact that releases from this unit were observed. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the location of the unit.
	Air:	The potential for release to air is low due to the fact that the unit is self-contained.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location aboveground.
	Suggested Further Actions:	Conduct soil sampling to determine if contaminants have been released from the unit.

87.	UNIT NAME	Former Overflow Pit (Central Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is no longer in use.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of wastes disposed.
	Suggested Further Actions:	Conduct additional soil sampling to determine if contaminants exist in the soil.

88. <u>UNIT NAME</u>	Former Leaching Filed - Engine Test Cell (Central Area of Base)
Soil/Groundwater:	The potential for release to soil is high. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the fact that the unit is no longer in use.
Air:	The potential for release to air is low due to the presence of a soil cover.
Subsurface Gas:	The potential for generation of subsurface gas is low due to past disposal of hydrocarbon wastes.
Suggested Further Actions:	Conduct additional soil sampling to determine if contaminants exist in the soil.

89.	UNIT NAME	Evaporation Pond--Engine Test Cell (Central Area of Base)
	Soil/Groundwater:	The potential for release to soil is high. The potential for release to groundwater is moderate. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer. However, the caliche layer may not be continuous. Furthermore, the presence of a hydraulic head increases the potential for downward migration of hazardous constituents.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit is not located near a surface water body.
	Air:	The potential for release to air is low due to the nature of the wastes disposed.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location of the unit aboveground.
	Suggested Further Actions:	No further action suggested at this time. Conduct soil sampling to establish if contaminants exist in the soil.

90.	UNIT NAME	Oil/Water Separator No. 5114 (Central Area of Base)
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release is low. The site is not near any surface water bodies and is protected from heavy rain runoff by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; the unit has been in place since 1965.

91.	UNIT NAME	Recovered Fuel Tank No. 5114 (Central Area of Base)
	Soil/Groundwater:	The potential for release to soil and groundwater is dependent upon the integrity of the unit. Based on inspection of the aboveground unit, the potential for release is low.
	Surface Water:	The potential for release to surface water is low due to integrity of the unit, as well as its location.
	Air:	For aboveground tanks, the potential for release to air is dependent upon the integrity of the tanks.
	Subsurface Gas:	For aboveground tanks, there is no potential for subsurface gas generation.
	Suggested Further Actions:	Consider determining the integrity of unit on a regular basis, and providing internal and external protection for all the unit.

92.	UNIT NAME	Oil/Water Separator No. 5120 (Central Area of Base)
	Soil/Groundwater:	The potential exists for release to soil is depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Potential for release is low. The site is not near any surface water bodies and is protected from heavy rain runoff by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; the unit has been in place since 1965.

93.	UNIT NAME	Oil/Water Separator No. 5121 (Central Area of Base)
	Soil/Groundwater:	The potential exists for release to soil is depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Potential for release is low. The site is not near any surface water bodies and is protected from heavy rain runoff by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; the unit has been in place since 1960.

94.	UNIT NAME	Oil/Water Separator No. 5144 (Central Area of Base)
	Soil/Groundwater:	The potential exists for release to soil is depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Potential for release is low. The site is not near any surface water bodies and is protected from heavy run off by the hinged core.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; the unit has been in place since 1960.

95.	UNIT NAME	Northeast Storm Water Drainage Area
	Soil/Groundwater:	Release potential to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit does not discharge into any other surface water body.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	Conduct soil, surface water and sediment sampling to determine presence of hazardous constituents.

96.	UNIT NAME	Old Entomology Rinse Area (Northern Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to any surface water body.
	Air:	The potential for release to air is low due to the fact that this unit is no longer in use.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the wastes disposed.
	Suggested Further Actions:	Continued monitoring under the Air Force IRP Program.

97.	UNIT NAME	Concrete Rubble - East of Old Entomology Rinse Area
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the unlined nature of the unit.
	Surface Water:	The potential for release to surface water is low due to the nature of the unit.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

98.	UNIT NAME	Sanitary Sewage Line
	Soil/Groundwater:	Due to the age of the unit, there is a high probability of cracks in the system; as a result, the potential for release to soil is expected to be high. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low except for the Playa Lake (SWMU No. 184).
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is moderate due to possible generation of methane gas under anoxic conditions.
	Suggested Further Actions:	Determine the integrity of the sewer lines.

99.	UNIT NAME	Wastewater Treatment System - Bar Screen
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is constructed of concrete.
	Surface Water:	The potential for release to surface water is low due to the nature of the unit.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

100.	UNIT NAME	Wastewater Treatment System - Parshall Flume
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the unit is constructed of concrete.
	Surface Water:	The potential for release to surface water is low due to the nature of the unit.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

101.	UNIT NAME	Wastewater Treatment System - Lagoons
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the unlined nature of the unit.
	Surface Water:	The potential for release to surface water is high; this unit discharges into the Playa Lake (SWMU No. 184).
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	Continue groundwater monitoring as part of the IRP Program and follow appropriate monitoring and sampling procedures as recommended by the USEPA.

102.	UNIT NAME	Wastewater Treatment Effluent Discharge
	Soil/Groundwater:	Assuming the integrity of the piping is maintained, the potential for release to soil/groundwater is low.
	Surface Water:	The unit discharges to the on-site Playa Lake (SWMU No. 103). The potential for release to off-site surface water is dependent upon control of Playa Lake water resources.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for subsurface gas generation is low due to the nature of the unit.
	Suggested Further Actions:	Consider testing of the integrity of the piping system on a regular basis.

103.	UNIT NAME	Wastewater Playa Lake
	Soil/Groundwater:	The potential for release to soil/groundwater is moderate. The caliche layer may act as an aquitard but it does not occur continuously. However, due to the unlined nature of the unit and the presence of a hydraulic head, the potential for downward migration of hazardous constituents is enhanced.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge into any other receiving surface water body.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	Sample surface water and sediment for hazardous constituents.

104.	UNIT NAME	Landfill No. 4 (Eastern Area of Base)
	Soil/Groundwater:	The potential for release to soil/groundwater is high due to the unlined nature of the unit and the results to date of soil testing. Potential release to the groundwater is lower. The caliche layers could possibly act as an acquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the presence of a soil cover.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is moderate due to the nature of wastes disposed.
	Suggested Further Actions:	Install groundwater monitoring wells and vadose zone monitoring to determine if contaminants have migrated from beneath the landfill.

105. <u>UNIT NAME</u>	Landfill No. 3 (Eastern Area of Base)
Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit and the results to date of soil testing. Potential release to the groundwater is lower. The caliche layers could possibly act as an acquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the presence of a soil cover.
Air:	The potential for release to air is low due to the presence of a soil cover.
Subsurface Gas:	The potential for generation of subsurface gas is moderate due to the nature of wastes disposed.
Suggested Further Actions:	Install groundwater monitoring wells and vadose zone monitoring to determine if contaminants have migrated from beneath the landfill.

106. <u>UNIT NAME</u>	Fire Department Training Area No. 2
Soil/Groundwater:	The potential for release to soil is high due to the past disposal of hazardous wastes and the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is high due to the surface disposal of wastes.
Air:	The potential for release to air is low due to the fact that this unit has not been used in 13 years.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the method of disposal.
Suggested Further Actions:	Additional soil sampling to determine if soil contamination still exists.

107. <u>UNIT NAME</u>	Fire Department Training Area No. 3
Soil/Groundwater:	The potential for release to soil is high due to the past disposal of hazardous wastes and the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is high due to the surface disposal of wastes.
Air:	The potential for release to air is low due to the fact that this unit has not been used in 13 years.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the method of disposal.
Suggested Further Actions:	Additional soil sampling to determine if soil contamination still exists.

108. <u>UNIT NAME</u>	Explosive Ordnance Disposal Activities Area (Southeast Area of the Base)
Soil/Groundwater:	The potential for release to soil/groundwater is low due to the nature of the wastes disposed.
Surface Water:	The potential for release to surface water is low due to the fact that this unit does not discharge to a surface water body.
Air:	The potential for release to surface water is low due to the fact that burning no longer occurs at this unit.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of this unit.
Suggested Further Actions:	No further action suggested at this time.

109. <u>UNIT NAME</u>	Fire Department Training Area No. 4
Soil/Groundwater:	The potential for release to soil is high due to the past disposal of hazardous wastes and the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is high due to the surface disposal of wastes.
Air:	The potential for release to air is low due to the fact that this unit has not been used in 13 years.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the method of disposal.
Suggested Further Actions:	Construct a berm to reduce runoff from the unit.

110. <u>UNIT NAME</u>	Underground Waste Oil Tank No. 2336
Soil/Groundwater:	The potential for release to soil is high due to the unit's being located underground. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the location of the unit being underground; surface drainage does not flow in the direction of the nearest surface water body--the Playa Lake Stormwater Collection Point (SWMU No. 85).
Air:	The potential for release to air is low due to the nature of the unit.
Subsurface Gas:	The potential for generation of subsurface gas is high due to the nature of the unit.
Suggested Further Actions:	Determine the integrity of the unit.

111. <u>UNIT NAME</u>	Unlined Pit
Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the location of the unit.
Air:	The potential for release to air is low due to the presence of a soil cover.
Subsurface Gas:	The potential for generation of subsurface gas is high due to the nature of the wastes.
Suggested Further Actions:	Conduct soil sampling to determine if contamination exists.

112.	UNIT NAME	Oil/Water Separator No. 2336 (Central Area of Base)
	Soil/Groundwater:	The potential exists for release to soil depending upon the integrity of the unit. In addition, spills may occur during unit cleaning. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	Potential for release is low. The site is not near any surface water bodies and is protected from heavy rain runoff by the hinged cover.
	Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
	Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
	Suggested Further Actions:	Consider assessing the integrity of the unit; the unit has been in place since 1960.

113.	UNIT NAME	Landfill No. 5 (Southeastern Area of Base)
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the presence of a soil cover.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is moderate due to the nature of wastes disposed.
	Suggested Further Actions:	Continue groundwater monitoring and perform vadose zone monitoring to determine if contaminants have migrated from beneath the landfill.

114.	UNIT NAME	Melrose Bombing Range Expended Ordnance Burial Site
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to soil/groundwater is low due to the fact that the unit is not located near a receiving body of water.
	Air:	In trenches which have not been covered, the potential for release to air is high.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the wastes disposed.
	Suggested Further Actions:	Maintain adequate soil cover.

115. <u>UNIT NAME</u> Melrose Bombing Range Explosives Explosives Contaminated Burial Site

This unit was not observed during the VSI. Insufficient information was available to develop conclusions regarding the release potentials to the various pathways.

Suggested Further Actions: Obtain information on the location, date of startup and closure, release controls and release history, and current condition of the unit.

116.	UNIT NAME	Melrose Bombing Range Roads
	Soil/Groundwater:	The potential for release to soil is high due to past disposal of hazardous wastes. The potential for release to groundwater is low. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is not located near any receiving surface water bodies.
	Air:	The potential for release to air is low due to the fact that this disposal practice is no longer in use.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location aboveground.
	Suggested Further Actions:	No further action suggested at this time.

117.	UNIT NAME	Melrose Bombing Range Domestic Waste Pile
	Soil/Groundwater:	The potential for release to soil is high due to the unlined nature of the unit. The potential for release to groundwater is low. The caliche layers act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is not located near any receiving surface water bodies.
	Air:	The potential for release to air is low due to the presence of a soil cover.
	Subsurface Gas:	The potential for generation of subsurface gas is high due to the nature of the wastes disposed (domestic wastes).
	Suggested Further Actions:	Maintain adequate soil cover.

118.	UNIT NAME	Melrose Bombing Range Unexploded Ordnance Open Burn Treatment Pit
	Soil/Groundwater:	Release potential to soil is high due to the unlined nature of the unit. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit does not discharge into any other surface water body.
	Air:	The potential for release to air is high due to the disposal practices (open burning of wastes).
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the wastes disposed.
	Suggested Further Actions:	Continue operation under existing NMEID permit conditions.

119.	UNIT NAME	Melrose Bombing Range Unexploded Ordnance Holding Area
	Soil/Groundwater:	Release potential to soil is high due to the nature of the wastes stored. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit does not discharge into any other surface water body.
	Air:	The potential for release to air is low due to the nature of the wastes stored.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location aboveground.
	Suggested Further Actions:	No further action suggested at this time.

120.	UNIT NAME	Melrose Bombing Range Expended Target Area
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the nature of the wastes.
	Surface Water:	The potential for release to surface water is low due to the fact that the unit does not discharge to a receiving surface water body.
	Air:	The potential for release to air is low due to the nature of the unit.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

121.	UNIT NAME	Containers for Clean and Dirty Speedydry (General Area of the Base)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that this unit is located inside a building.
	Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building.
	Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this unit is located inside a building.
	Suggested Further Actions:	No further action is suggested at this time.

122.	UNIT NAME	Sanitary Dumpsters (General Area of the Base)
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the nature of the unit (self-contained).
	Surface Water:	The potential for release to surface water is low due to the nature of the unit (self-contained).
	Air:	The presence for release to air is low due to the presence of a cover.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the nature of the unit.
	Suggested Further Actions:	No further action suggested at this time.

123.	UNIT NAME	Dirty Rag Disposal Can
	Soil/Groundwater:	The potential for release to soil/groundwater is low due to the location of the unit inside a building.
	Surface Water:	The potential for release to surface water is low due to the location of the unit inside a building.
	Air:	The potential for release to air is low due to the location of the unit inside a building.
	Subsurface Gas:	The potential for generation of subsurface gas is low due to the location of the unit inside a building.
	Suggested Further Actions:	No further action suggested at this time.

124. <u>UNIT NAME</u> Inactive Underground Tank No. 1

This unit was not observed during the VSI. Insufficient information was available to develop conclusions regarding he release potentials to the various pathways.

Suggested Further Actions: Obtain information on the location, date of startup and closure, release controls and release history, and current condition of the unit.

125. UNIT NAME — Inactive Underground Tank No. 2

This unit was not observed during the VSI. Insufficient information was available to develop conclusions regarding he release potentials to the various pathways.

Suggested Further Actions: Obtain information on the location, date of startup and closure, release controls and release history, and current condition of the unit.

126. UNIT NAME

Inactive Underground Tank No. 3

This unit was not observed during the VSI. Insufficient information was available to develop conclusions regarding he release potentials to the various pathways.

Suggested Further Actions:

Obtain information on the location, date of startup and closure, release controls and release history, and current condition of the unit.

127. <u>UNIT NAME</u>	Oil Water Separator Near Tank 4095
Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. In addition, spills may occur during unit cleaning and contaminate surrounding soils. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The unit releases liquid to the Storm Drainage System. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during heavy precipitation.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit, since it is not known how long the unit has been in place.

128. <u>UNIT NAME</u>	Oil Water Separator Near Tank 4095
Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of the unit. In addition, spills may occur during unit cleaning and contaminate surrounding soils. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The unit releases liquid to the Storm Drainage System. All storm drains discharge as overland flow to various locations on base. There is potential for release to occur during heavy precipitation.
Air:	Because the unit has a hinged cover, there is no potential for release to air during operation. However, during unit cleaning, the cover is lifted, resulting in a moderate potential for release to the ambient air.
Subsurface Gas:	The unit is located below ground, and the integrity of the unit is unknown; thus, there is a potential for subsurface gas generation.
Suggested Further Actions:	Consider assessing the integrity of the unit, since it is not known how long the unit has been in place.

AREA OF CONCERN A:	MOGAS Spill Site (Cantonment Area F)
Soil/Groundwater:	The potential for release to soil is high due to the fact that the spill occurred on bare soil. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the fact that this unit is not located near a receiving surface water body.
Air:	The potential for release to air is low due to the fact that this is not a continuous release.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this is not a continuous release
Suggested Further Actions:	No further action suggested at this time.

AREA OF CONCERN B:	JP-4 Fuel Spill Site (Southwest Area of Base)
Soil/Groundwater:	The potential for release to soil is moderate due to the fact that the spill occurred on concrete and asphalt. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is low due to the fact that this spill area is not located near a receiving surface water body.
Air:	The potential for release to air is low due to the fact that this is not a continuous release.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this is not a continuous release
Suggested Further Actions:	No further action suggested at this time.

AREA OF CONCERN C:	Blown Capacitors Site (Cantonment Area I)
Soil/Groundwater:	The potential for release to soil/groundwater is low due to the fact that the spill occurred once, and contaminated soil was removed.
Surface Water:	The potential for release to surface water is low due to the fact that this spill area is not located near a receiving surface water body.
Air:	The potential for release to air is low due to the fact that this is not a continuous release.
Subsurface Gas:	The potential for generation of subsurface gas is low due to the fact that this is not a continuous release and contaminated soil was removed.
Suggested Further Actions:	No further action suggested at this time.

AREA OF CONCERN D:	Aircraft Washrack Holding Tank (Cantonment Area B)
Soil/Groundwater:	The potential for release to soil/ groundwater is low due to the fact that the unit is located inside a building within a controlled tank/discharge system.
Surface Water:	The potential for release to surface water is low due to the fact that this unit is located inside a building and is not in the vicinity of any surface water bodies.
Air:	The potential for release to air is low due to the fact that this unit is located inside a building.
Subsurface Gas:	The potential for generation of sursurface gas is low due to the fact that this unit is located aboveground, inside a building and due to the low potential for gas generation from this unit's waste type.
Suggested Further Actions:	No further action suggested at this time.

AREA OF CONCERN M:	New Entomology Building Product Storage Area (Cantonment Area G)
Soil/Groundwater:	Release potential to soil is moderate. The unit is located on an asphalt pad but no secondary containment exists. The potential for release to groundwater is lower. The caliche layers could possibly act as an aquitard and inhibit downward migration of hazardous constituents to the aquifer.
Surface Water:	The potential for release to surface water is moderate due to no secondary containment. Drainage from this unit is received by the Northeast Storm Water Drainage Area (SWMU No. 95).
Air:	The potential for release to air is low due to the nature of the unit. The drums are sealed.
Subsurface Gas:	The potential for generation of subsurface gas is low due to unit's location aboveground.
Suggested Further Actions:	Provide secondary containment for this unit.

AREA OF CONCERN D-L, N-Z, AA-YY:	Underground POL Storage Tanks
Soil/Groundwater:	The potential for release to soil is dependent upon the integrity of each individual unit. If the unit is in poor condition, leaking may cause soil contamination and increase the potential for groundwater contamination.
Surface Water:	The potential for release to surface water is again dependent upon integrity of the unit as well as location (i.e., whether the unit is located near a surface water body). These tanks are not located near surface water bodies.
Air:	For underground tanks, the potential for release to air is low, even if the tank is in poor condition.
Subsurface Gas:	For underground tanks, the potential for subsurface gas generation is dependent on the nature of the waste and the integrity of the unit.
Suggested Further Actions:	Determine the integrity of the units on a regular basis and provide internal and external protection for all unit.

IX. REFERENCES

1. Installation Restoration Program Phase II - Confirmation/ Quantification Stage 1, Volume I, Cannon AFB, New Mexico by Radian Corporation, March 1986. Prepared for: Tactical Air Command, Langley AFB, Virginia, U.S. Air Force, Occupational & Environmental Health Laboratory, Technical Services Division, Brooks Air Force Base, Texas.

2. Installation Restoration Program Phase II - Confirmation/ Quantification Stage 1, Volume II - Appendix A, Cannon AFB, New Mexico by Radian Corporation, March 1986. Prepared for: Tactical Air Command, Langley AFB, Virginia, U.S. Air Force, Occupational & Environmental Health Laboratory, Technical Services Division, Brooks Air Force Base, Texas.

3. Installation Restoration Program Phase II - Confirmation/ Quantification Stage 1, Volume III - Appendix B-M, Cannon AFB, New Mexico by Radian Corporation, March 1986. Prepared for: Tactical Air Command, Langley AFB, Virginia, U.S. Air Force, Occupational & Environmental Health Laboratory, Technical Services Division, Brooks Air Force Base, Texas.

4. Phase II Report Review for Problem Confirmation/ Quantification, Cannon Air Force Base, New Mexico, May, 1986. REM II.

5. Presurvey for Phase II - Installation Restoration Program Cannon Air Force Base, New Mexico - Draft Final Report. Prepared by Radian Corporation; submitted to U.S.A.F.O.E.H.L., Brooks AFB, Texas, 1984.

6. Installation Restoration Program Records Search for Cannon Air Force Base, New Mexico, prepared by CH_2M Hill for Air Force Engineering and Services Center, Directorate of Environmental Planning, Tyndall AFB, Florida, and Tactical Air Command, Directorate of Engineering and Environmental Planning, Langley AFB, Virginia, August 1, 1983.

7. Letter dated June 17, 1985 from Mary N. Turner, EPA Region VI, to Allyn Davis, U.S. EPA Region VI, Director Air & Waste Management Division. Re: EPA formal request for additions/revisions to RCRA Part B Permit Application to incorporate new requirements of HSWA of 1984.

8. Memo dated February 28, 1986 from Steve Rubin to Bill Taylor. Re: Falsified codification of Groundwater Monitoring Program (Reference 7).

REFERENCES

9. Record of communication dated March 21, 1986 from Jamie Wright to Boyd Hamilton, NMEID.

10. Letter dated October 11, 1985 from Boyce W. Wiltrout, Colonel U.S. Air Force, to U.S. EPA Region VI, Hazardous Materials Branch. Report: Evaluation of Priority Pollutants & Heavy Metals in Wastewater and Sludges of the Cannon AFB, Sewer Treatment Plant Oxidation Ponds - Proposed Sampling Protocol. Prepared by Robert B. Walton, Sept. 4, 1985.

11. Loss of Interim Status Region VI, EPA R06-02-06 Attachment III, S. Phillips.

12. Letter from Boyce W. Wiltrout to Peter H. Pache of Hazardous Waste Section, October 28, 1985.

13. Informal memo - Joyce L. to Bill Taylor regarding Cannon AFB - Lois.

14. Letter from Boyce Wiltrout to Peter Pache, Groundwater & Hazardous Waste Bureau.

15. Letter dated October 17, 1986 from Boyce W. Wiltrout to Mr. Bill Rhea, U.S. EPA.

16. Letter dated November 26, 1985 from Boyce W. Wiltrout to U.S. EPA Hazardous Waste Management Division.

17. Telephone conversation dated November 11, 1986 between Marc Sides of Region VI and Boyd Hamilton of EID.

18. Letter dated February 9, 1987 from U.S. EPA to New Mexico Environmental Improvement Division regarding inspection of Groundwater Monitoring Program for all Cell #3 of Landfill No. 5, A Notice of Violation for Inadequate Spacing of Wells is included.

19. Letter dated April 11, 1984 from Colonel Mary Turner, U.S. Air Force, to Raymond R. Sisneros, State of New Mexico EID.

20. Letter dated August 6, 1984 from Colonel Mary Turner, U.S. Air Force, to U.S. EPA, Region VI Air & Waste Management Division. Re: Formal Request for Part B Application.

21. Letter dated October 21, 1985 from Allyn Davis to Major Don Michael Bradford, Director, Environmental Planning Division, Department of U. S. Air Force.

22. Letter dated November 15, 1984 from William Rhea of Hazardous Materials Branch to Colonel Mary Turner.

REFERENCES

23. Letter from Colonel Mary N. Turner, U.S. Air Force, to Allyn Davis of U.S. EPA Region VI. Re: EPA letter Aug. 6, 1984 - Formal request for Part B Permit Application.

24. Letter dated January 10, 1983 from James W. Boyce, Jr. to U.S. EPA Region VI.

25. Letter dated August 15, 1980 from Joe LaFoy to Revion VI. Re: Notification of hazardous waste activity.

26. Letter dated August 6, 1984 from Allyn Davis, Air & Waste Management Division, to Colonel J. W. Boyce, Jr.

27. Telephone conference from Jamie Wright to AF TAC. Re: Regulated hazardous waste units.

28. Warning letter dated June 1982 from Allyn Davis of U.S. EPA Region V to Jimmie Richards.

29. Letter dated August 8, 1984 from William Taylor of Enforcement Section U.S. EPA to Peter Pache of Hazardous Waste Section, EID.

30. Record of communication dated August 1, 1983 from Sharyl Foryt to Gerald Fontenot. Re: EPA meeting with Cannon AFB.

31. Record of communication dated July 5, 1983 from Scott Nicholson to James Richards. Re: Groundwater monitoring at Cannon AFB.

32. Record of communication dated June 2, 1983 between Jack and Martin Allen. Re: Possible resolution of military facilities' storage activities.

33. Letter dated August 4, 1983 from Sharyl Foryt to Duane Helmberger.

34. Groundwater monitoring well sample results dated November 18, 1985 from Boyce W. Wiltrout, NM EID.

35. Cannon Air Force Base Spill Prevention and Response Plan, December, 1983.

36. Hazardous Waste Management Plan Cannon Air Force Base, NM June, 1982.

REFERENCES

37. Letter dated July 3, 1986 from Peter Pache, NM EID, to William Taylor of Region VI.

38. Letter dated July 14, 1986 from Peter Pache, NM EID, to Boyce W. Wiltrout.

39. Informal memo from Jorge Lanastide.

40. RCRA Part A Revisions, 1985.

41. RCRA Part A Revisions, June 1983.

42. RCRA Part A Revisions, 1982.

43. Map, Tactical Air Command Master Plan Base Plan Cannon Air Force Base, Clovis, New Mexico, prepared for Department of the Air Force, Directorate of Civil Engineering DCS/FBR - Washington, DC, by Lydick Engineering Service, Clovis, New Mexico, April 1971, revised September 1978.

44. Renotification of Underground Storage Tanks in New Mexico. Submitted by Cannon Air Force Base, May 7, 1987.

45. Part B Permit Application submitted October 20, 1986.

46. Installation Restoration Program Phase II - Confirmation/Quantification Stage 1, Volume 1, Cannon AFB, New Mexico, Final Report by Radian Corporation, September 1986. Prepared for: Tactical Air Command, Langley AFB, Virginia; U.S. Air Force, Occupational and Environmental Health Laboratory, Technical Services Division, Brooks Air Force Base, Texas.

47. VSI Logbook, May 18-20, 1987.

48. RCRA Ground-Water Monitoring Compliance Inspection for the Cannon Air Force Base Facility, New Mexico. Prepared for U.S. EPA by PRC Environmental Management, Inc. and Versar, Inc., January 1987.

49. Closure and Post Closure Plans for Landfill Trench at Cannon Air Force Base, Final Draft, dated July 1, 1985, by Hazardous Materials Technical Center. Prepared by Headquarters Tactical Air Command/DEEV.

50. "Linear Features and Groundwater Distribution in the Ogallala Formation of the Southern High Plains," Ogallala Aquifer Symposium, Texas Tech University, Lubbock, Texas, 1970. Special Report Number 39, International Center for Arid and Semi-Arid Land Studies.

REFERENCES

51. Soil Removal Investigation Report AGE Drainage Ditch - Site 15, Cannon Air Force Base, prepared Radian Corporation for Headquarters, Tactical Air Command, HQ, TAC/DEEV, dated April 1987.

52. "Drainage Pattern Analysis, Southern High Plaines, West Texas and Eastern New Mexico," Ogallala Aquifer Symposium, Texas Tech University, Lubbock, Texas, 1970. Special Report Number 39, International Center for Arid and Semi-Arid Land Studies.

53. U.S. Department of Agriculture Soil Conservation Service.

54. Daniel, D. E., S. J. Traotwein, D. C. McMurtry, 1985, A Case History of Leakage from a Surface Impoundment in Proceedings, "Symposium on Seepage and Leakage from Dams and Impoundments" ASCE:220-235.

55. Walton, Robert B., (Cannon AFB) Evaluation of Priority Pollutants and Heavy Metals in Wastewater and Sludges of the Cannon AFB Sewer Treatment Plant Oxidation Ponds Proposed Sampling Protocol, September 4, 1985 (Contained in Part B - Ref. 45).