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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

W. P. Ard, Colonel, USAF
Commander, 27th Support Group
100 S DL Ingram Blvd Suite 200
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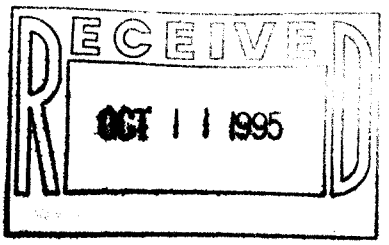

Mr. William Honker
Chief, RCRA Permits Branch
US EPA Region VI
1445 Ross Avenue Suite 1200
Dallas TX 75202-2733

Dear Mr. Honker

The Cannon AFB Installation Restoration Program (IRP) Management Action Plan (MAP), August 1995, is attached for your review. The MAP summarizes the tentative planning of IRP programs for the base as of August 1995.

If you have any questions, please contact Mr. John S. Pike or Mr. Sanford Hutsell, of my environmental flight, at (505) 784-4348.

Sincerely

W. P. ARD, Colonel, USAF
Commander, 27th Support Group

Attachment:
Management Action Plan, August 1995

cc:
NMED (B. Hoditschek)

FINAL

MANAGEMENT ACTION PLAN

CANNON
AIR FORCE BASE

CLOVIS,
NEW MEXICO

August 1995

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1.0
INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

As a result of past waste and resource management practices at Cannon Air Force Base (AFB), New Mexico (hereafter also referred to as the Base), some areas became contaminated by various hazardous compounds. In response, the Installation Restoration Program (IRP) and other environmental restoration programs were initiated at the Base. In addition, the Base has ongoing efforts to comply with applicable laws and regulations to ensure that present waste and resource management practices are carried out in a manner that protects human health and the environment.

This Management Action Plan (MAP) summarizes the status of the Cannon AFB environmental restoration program and presents a strategy for implementing response actions necessary to protect human health and the environment. This strategy integrates activities being performed under both the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-based IRP and the Resource Conservation and Recovery Act (RCRA) permit requirements for corrective action. The MAP is a dynamic document that will be updated regularly to incorporate newly obtained information and reflect the completion or change in status of RCRA Facility Investigations (RFIs) or Remedial Actions (RAs). This MAP was prepared with information available as of April and July 1995.

The MAP is a planning document, and information and estimates presented on costs, schedules, and RAs do not necessarily represent those that have been or will be approved by the U.S. Air Force (USAF) or state and federal regulatory agencies. It was necessary to make certain assumptions and interpretations to develop the estimates; therefore, as additional data become available, estimates could be dramatically altered. New estimates would be reflected in future updates to the MAP.

This MAP is organized as follows:

- Section 1 describes the objectives of the environmental restoration program, explains the purpose of the MAP, introduces the current project team formed to manage the IRP and compliance programs, and provides a brief history of the Base and surrounding area.

- Section 2 summarizes the Base Comprehensive Plan (BCP) and includes land use maps for the Base and surrounding area.

- Section 3 summarizes the status and history of the Cannon AFB IRP and associated Environmental Compliance Programs (ECPs), community relations activities that have occurred to date, and the environmental condition of Base property.

- Section 4 describes the Base-wide environmental restoration strategies, including strategies for dealing with each on-Base solid waste management unit (SWMU) and plans for addressing contaminant sources via the underground storage tank (UST) program and other compliance programs.

- Section 5 describes the master schedule of planned and anticipated activities, including associated compliance activities, to be performed throughout the duration of the environmental restoration program.

- Section 6 describes specific technical and/or administrative issues to be resolved by the Cannon AFB project team and presents a strategy for resolving these issues.

1.2 ENVIRONMENTAL RESPONSE GOALS AND OBJECTIVES

The goals and objectives of the Cannon AFB IRP/RCRA Corrective Actions Program (RCAP) are as follows:

1. Protect human health and the environment.

2. Comply with existing statutes and regulations.

3. Meet Cannon AFB's RCRA Hazardous Waste Storage Permit deadlines and/or commitments in other agreements.

4. Complete Remedial Investigations (RIs) or RFIs as soon as practicable for each SWMU, in order of priority as given in the Hazardous and Solid Waste Amendments of 1984 (HSWA) Permit Appendices.

5. Continue efforts to identify all potential source areas.

6. Identify and map the environmental condition of the Base, including areas of no suspected contamination (ANSCs), in a restoration geographic information system (GIS).

7. Initiate removal actions where necessary to control, eliminate, or reduce risks to manageable levels.

8. Characterize risks associated with releases of hazardous substances, pollutants, contaminants, or hazardous wastes.

9. Develop, screen, and select RAs that reduce risks in a manner consistent with statutory requirements. Full participation by the project team and the public is vital to this process.

10. Commence RAs as soon as practicable.

11. Conduct long-term groundwater monitoring/post-closure care as required.

12. Complete all RFIs and corrective actions by 2000.

1.3 PURPOSE OF THE MAP

This MAP summarizes the status of Cannon AFB's environmental restoration program and provides a comprehensive long-range strategy for conducting environmental restoration and associated compliance programs. It also defines the status of efforts to resolve scientific and technical issues so that continued progress and implementation of scheduled activities can occur. The Cannon AFB project team will use this MAP to direct and monitor environmental response actions, and to schedule activities needed to resolve technical, administrative, and operational issues.

1.4 PROJECT TEAM

The Cannon AFB project team has been established and is currently led Mr. John Constantine, the Base Remedial Project Manager (RPM). The project team meets when required to resolve technical and policy issues, review programs, and reach a consensus on procedural, organizational, and operational issues with state and federal regulators. Table 1-1 lists the team members and specifies their roles and responsibilities. Frequent, open communication by all team members is critical to the success of this MAP.

Project team meetings are used to review and discuss progress of the work at Cannon AFB. Meeting agendas would include discussions of reports, evaluations of the performance of environmental monitoring, reviews of progress on the RFI, and adjustments of deadlines or schedules. Other issues addressed in project team meetings may include data quality assurance/quality control (QA/QC), data management and analysis, background levels of contaminants in environmental media, data gap review, and risk assessment protocols. Section 6 presents the status and actions planned for these issues.

The project team will maintain communication among all team members on an as-needed basis for review and discussion of the progress of work at the Base. Communication can include correspondence, telephone conferences, and formal meetings. Topics of discussion and procedures for team members can include:

- Preparing periodic summaries from the RPM of the status of environmental restoration work at the Base and distributing to other team members

- Discussing issues related to the progress of the work
- Providing approval of minor modifications
- Documenting teleconferences and following up in writing to all team members when necessary

TABLE 1-1

CURRENT CANNON AFB PROJECT TEAM MEMBERS

Core Team Members			
Name	Title	Phone	Role/Responsibility
Mr. John Constantine	RPM	505-784-2739	Lead USAF Project Manager
Bob Sturdivant	RPM (Cannon AFB)	214-665-7440	EPA Region VI Project Manager
Rich Mayer	RPM (Melrose AFR)	214-665-7442	EPA Region VI Project Manager
Barbara Hoditschek	State RCRA Permit Manager	505-827-4358	NMED-HRMB
Dave Morgan	RPM	505-827-2771	NMED Project Manager
Margaret Calvert	HQ ACC/CEVR	804-764-3614	USAF Oversight Point of Contact
Captain Dezell	BEE	505-784-4063	Cannon AFB - BEE
Lt. Col. James Strasler	BCE	505-784-2008	Cannon AFB - BCE
Richard Chandler	UST Project Manager	505-784-4348	Cannon AFB - UST Project Manager
Captain O'Sullivan	JAG	505-784-2211	Cannon AFB - JAG
Captain Pierson	Public Affairs	505-784-4131	Cannon AFB - Public Affairs

Other Key Participants		
Name	Agency/Service	Contact/Phone
Craig Olsen	USACE Contract Management and Oversight	402-221-7827
Tom Acre	USACE Contractor Project Manager	303-694-2770
Steve Cox Woodward-Clyde		402-334-8181
Jim Bush Foster Wheeler	USACE Contractor Project Manager	303-980-3644
Ron Kern	State RCRA Technical Manager	505-827-4313
Paul Lancer	USACE DSMOA Contact	202-272-1176

AFB = Air Force Base
AFR = Air Force Range
BCE = Base Civil Engineer
BEE = Bioenvironmental Engineer
DSMOA = Defense and State Memorandum of Agreement
EPA = U.S. Environmental Protection Agency
HQ ACC/CEVR = Headquarters, Air Combat Command Environmental
JAG = Judge Advocate General
NMED = New Mexico Environment Department
RCRA = Resource Conservation and Recovery Act
RPM = Remedial Project Manager
USACE = U.S. Army Corps of Engineers
USAF = United States Air Force
UST = Underground Storage Tank

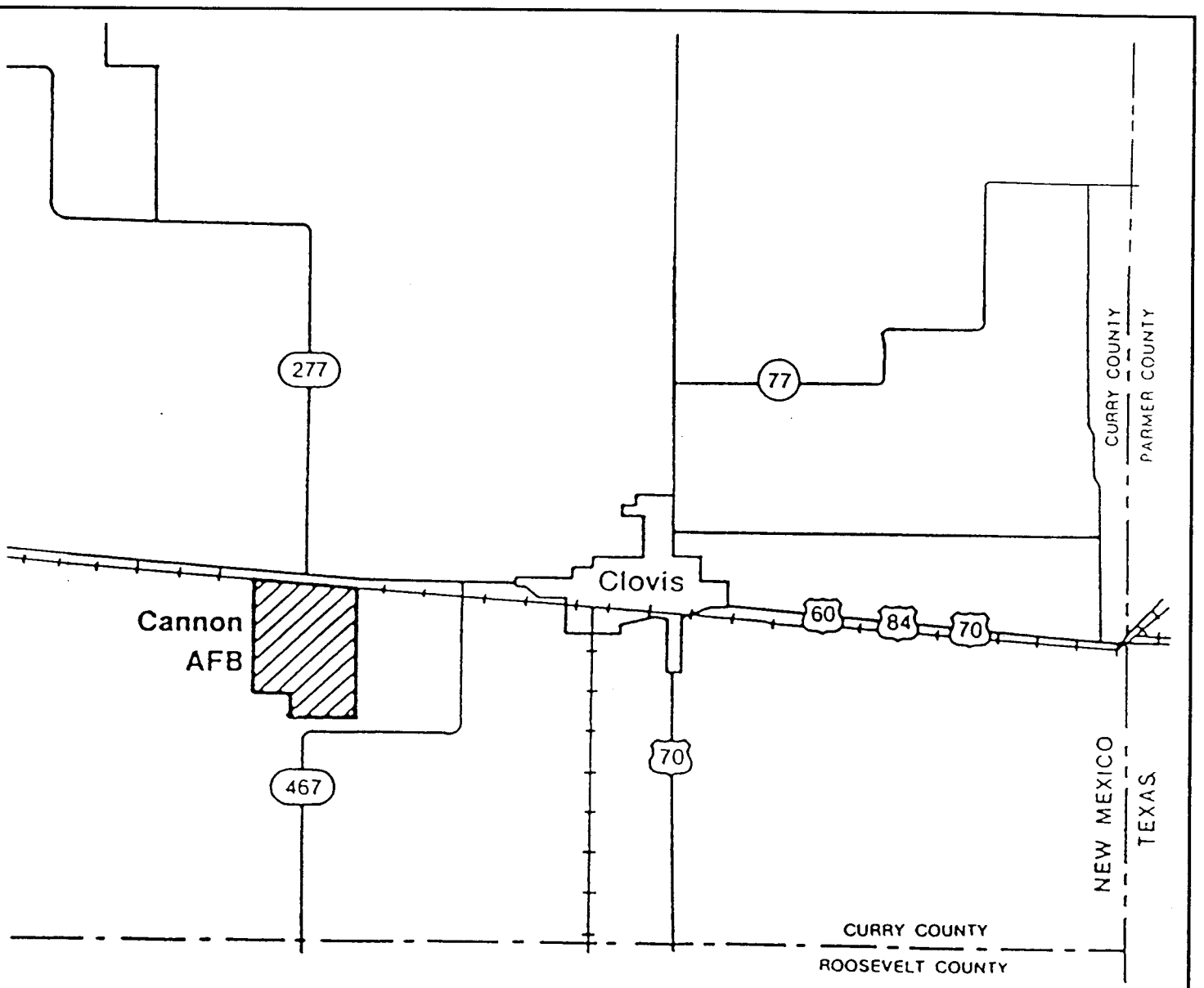
1.5 BRIEF HISTORY OF CANNON

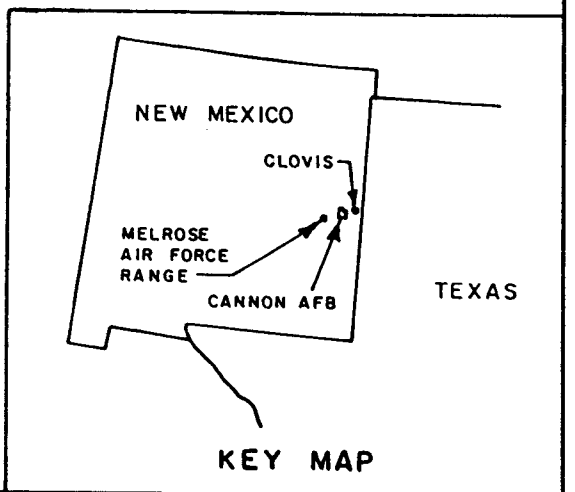
Figure 1-1 shows the location of Cannon AFB in Clovis, New Mexico, and Table 1-2 outlines the Base's operational history. The area was farmland before the Base was established as Portair Field in 1929. Portair Field was a civilian passenger terminal for transcontinental flights where passengers transferred from overnight trains to Ford Tri-Motors for daytime flights. The U.S. War Department, now the Department of Defense (DoD), took control of Portair Field in 1942, renaming it Clovis Army Air Base. The Army Air Base provided training facilities for B-17, B-24, and B-29 air crews during World War II. Clovis Army Air Base was deactivated in 1947.

In 1951, the Air Base was reassigned to the Tactical Air Command and reactivated as Clovis AFB, operating P-51s and F-86s. The Base was renamed Cannon AFB in 1957 and operated F-100s. Since 1971, the primary mission of the Base has been to develop and maintain tactical fighter wings composed of various models of the F/EF-111 aircraft. Cannon AFB was reassigned to the Air Combat Command (ACC) on 1 June 1992. Cannon AFB is scheduled to convert from F/EF-111 to F-16 aircraft in 1995-1997.

The mission of Cannon AFB is to maintain a combat-ready force capable of day, night, and all-weather operations and to provide replacement training of combat aircrews for tactical organizations worldwide. To support this mission, quantities of petroleum, oils, and lubricants (POL) as well as solvents and protective coatings are used, resulting in waste generation.

The main Base covers approximately 3,801 acres (Figure 1-2). Open farmland borders the Base in every direction. Most of the Base is bounded to the north by U.S. Highway 60/84, with the exception of the 239-acre Chaves Manor Housing Area located north of 60/84. Chaves Manor is part of the Base and provides housing for Base personnel. Other residences are scattered along the highway in the vicinity of the Base.





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SCALE IN MILES

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DRN BY SCR	DATE 04/12/95	LOCATION OF CANNON AFB, CLOVIS, NEW MEXICO CANNON AIR FORCE BASE NEW MEXICO	PROJECT No. 9C114LL1
CHK'D BY	REVISIONS: 0		FIG. No. 1-1

REPORT PHASE: MANAGEMENT ACTION PLAN

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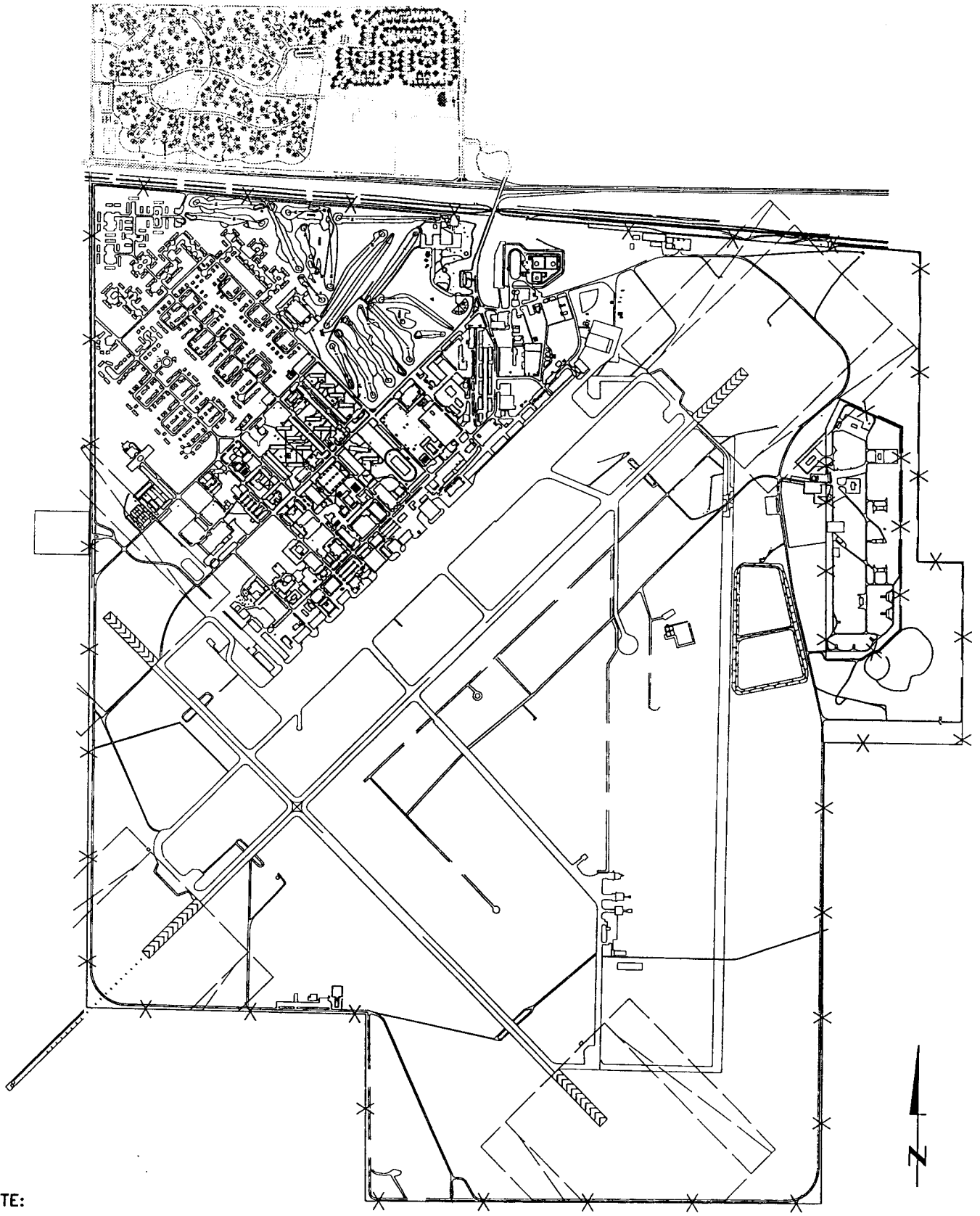
TABLE 1-2

HISTORY OF BASE OPERATIONS AT CANNON AFB

Period	Type of Operation	Weapon System	Hazardous Substance Activities
Pre-1929	Farmland	None	None
1929 to 1942	Portair Field Civilian Air Terminal	None	None
1942 to 1947	Clovis Army Air Base Bomber Training	B-17 B-24 B-29	Landfills, aircraft and auto fuel storage, hangars, machine shops (paints, solvents, metals), POL
1947 to 1951	Inactive	None	None
1951 to 1957	Clovis AFB Fighter/Bomber Training TAC	P-51 F-86	Landfills, aircraft and auto fuel storage, hangars, machine shops (paints, solvents, metals), POL, OWS, weapons storage, fire training areas, fuel pumphouses
1957 to 1969	Cannon AFB Fighter Training	F-100	Landfills, aircraft and auto fuel storage, hangars, machine shops (paints, solvents, metals), POL, OWS, weapons storage, fire training areas, fuel pumphouses
1969 to 1992	Cannon AFB Fighter/Bomber Training TAC	F/EF-111	Landfills, aircraft and auto fuel storage, hangars, machine shops (paints, solvents, metals), POL, OWS, weapons storage, fire training areas, fuel pumphouses, wastewater lagoons
1992 to Present*	Cannon AFB Fighter/Bomber Training ACC	F/EF-111	Landfills, aircraft and auto fuel storage, hangars, machine shops (paints, solvents, metals), POL, OWS, weapons storage, fire training areas, fuel pumphouses, wastewater lagoons

*F-111 aircraft will be replaced by F-16 aircraft in fiscal year 1996.
ACC = Air Combat Command
AFB = Air Force Base
POL = Petroleum, oils, and lubricants
TAC = Tactical Air Command
OWS = Oil/Water Separator



NOTE:

SEE FIGURES 1-2a AND 1-2b FOR LARGER SCALE.

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CANNON AIR FORCE BASE
CLOVIS, NEW MEXICO

DRN BY: JWB/SR	DATE: 08/01/95	PROJECT NO.	FIG. NO.
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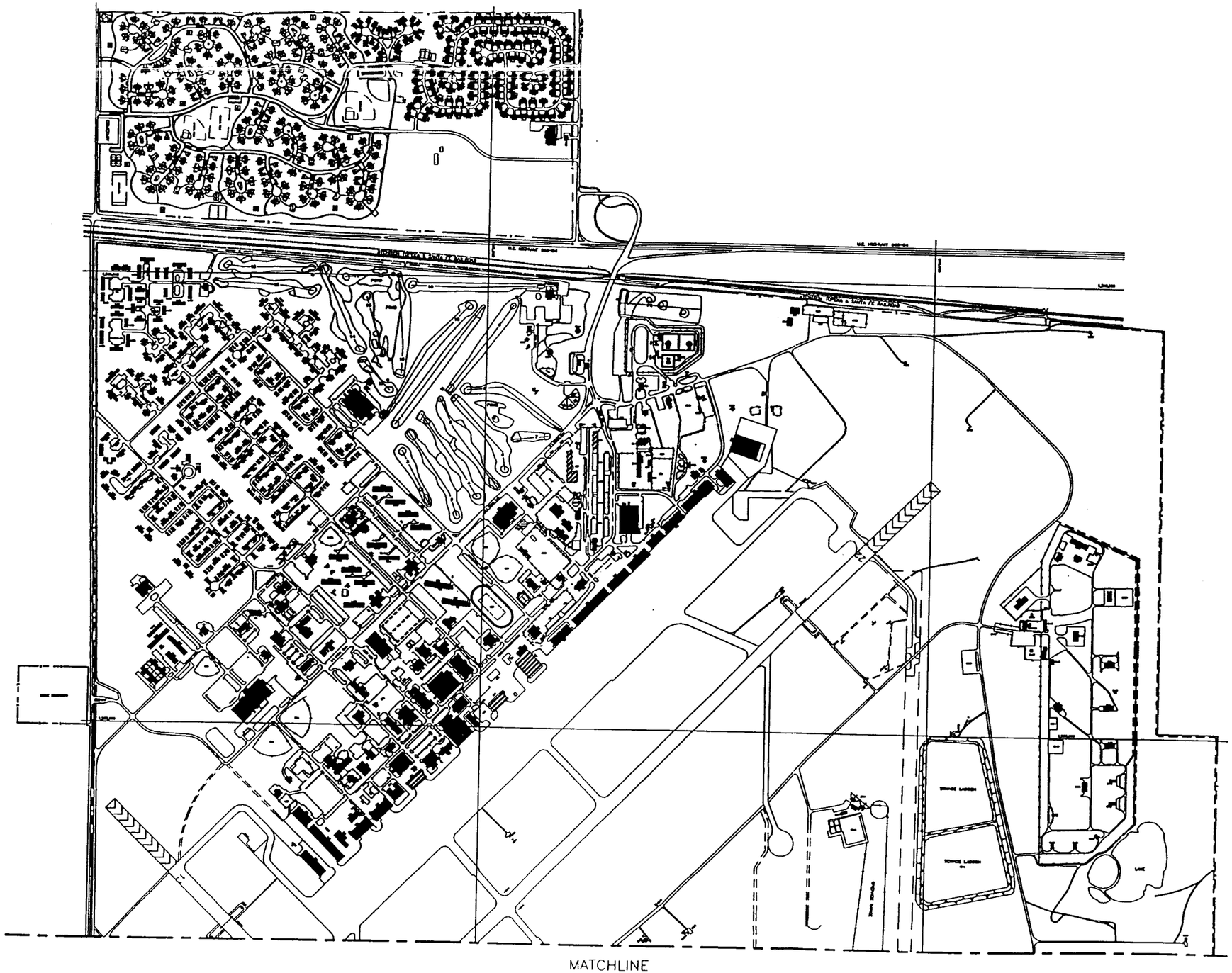

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DRN. BY: SCR	DATE: 08/01/95	BASE MAP – NORTH CANNON AIR FORCE BASE NEW MEXICO	PROJECT NO. 9C114LL1
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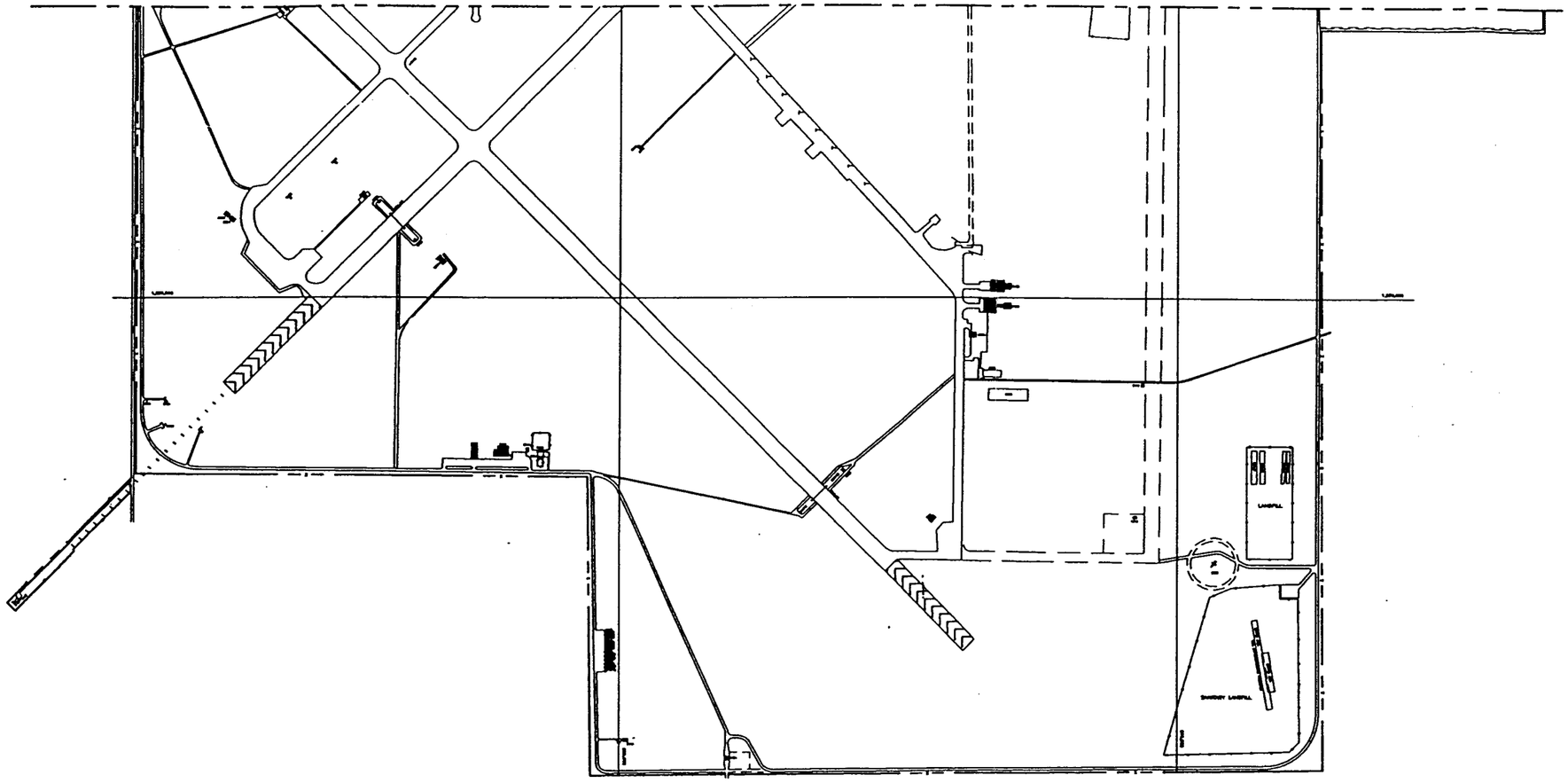

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The Base maintains the following satellite facilities (Figure 1-3):

- Melrose Air Force Range (AFR) property (87,925 acres of Base-owned, public domain, and restricted easement property), approximately 25 miles west of the Base (Figure 1-4). 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 use was discontinued in 1969. The site has received a RCRA Subpart X permit for treatment of unserviceable munitions.

- Clovis Housing Area (40 acres). This area includes 200 units, a community center, and maintenance facility in Clovis, New Mexico.

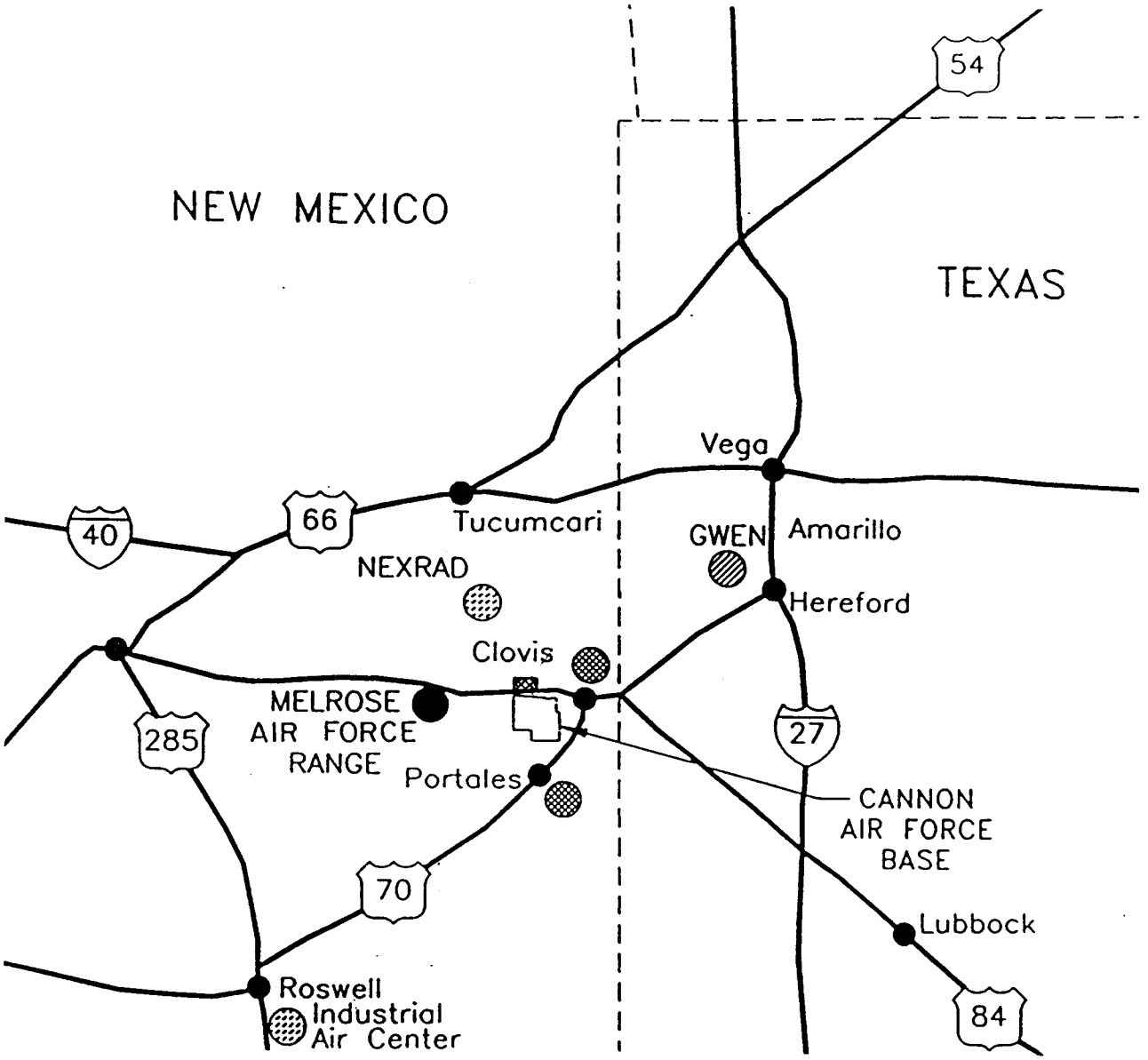
- Portales Housing Area (30 acres). This includes approximately 150 units in Portales, New Mexico.

- NEXRAD radar site (0.5 acres), near Field, New Mexico.

- Roswell Site (12 acres), at the Roswell Industrial Air Center. The site contains four facilities and five unimproved acres to be used as support facilities.

- GWEN Hereford Site (10 acres). This site is used for the Ground Wave Emergency Network (GWEN) transmitter.

Currently, there are several tenant organizations and contractors at Cannon AFB (see Tables 1-3 and 1-4). It is not believed that these tenants or contractors will conduct RAs at the Base. The lists were developed with information available at the Civil Engineering Squadron and is not a complete list of all tenants and contractors on Base.



LEGEND

FACILITY TYPE

- Bombing Range
- Housing Area
- Radar Site
- GWEN Site

FACILITY NAME

- Melrose Air Force Range
- Clovis Housing Area
  Portales Housing Areas
  Chaves Manor
- GWEN Site Hereford TX.
- NEXRAD – Field NM.
  Roswell Industrial Air Center

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DRN. BY: SCR	DATE: 04/12/95	CANNON AFB SATELLITE FACILITIES CANNON AIR FORCE BASE NEW MEXICO	PROJECT No.	FIG. No.
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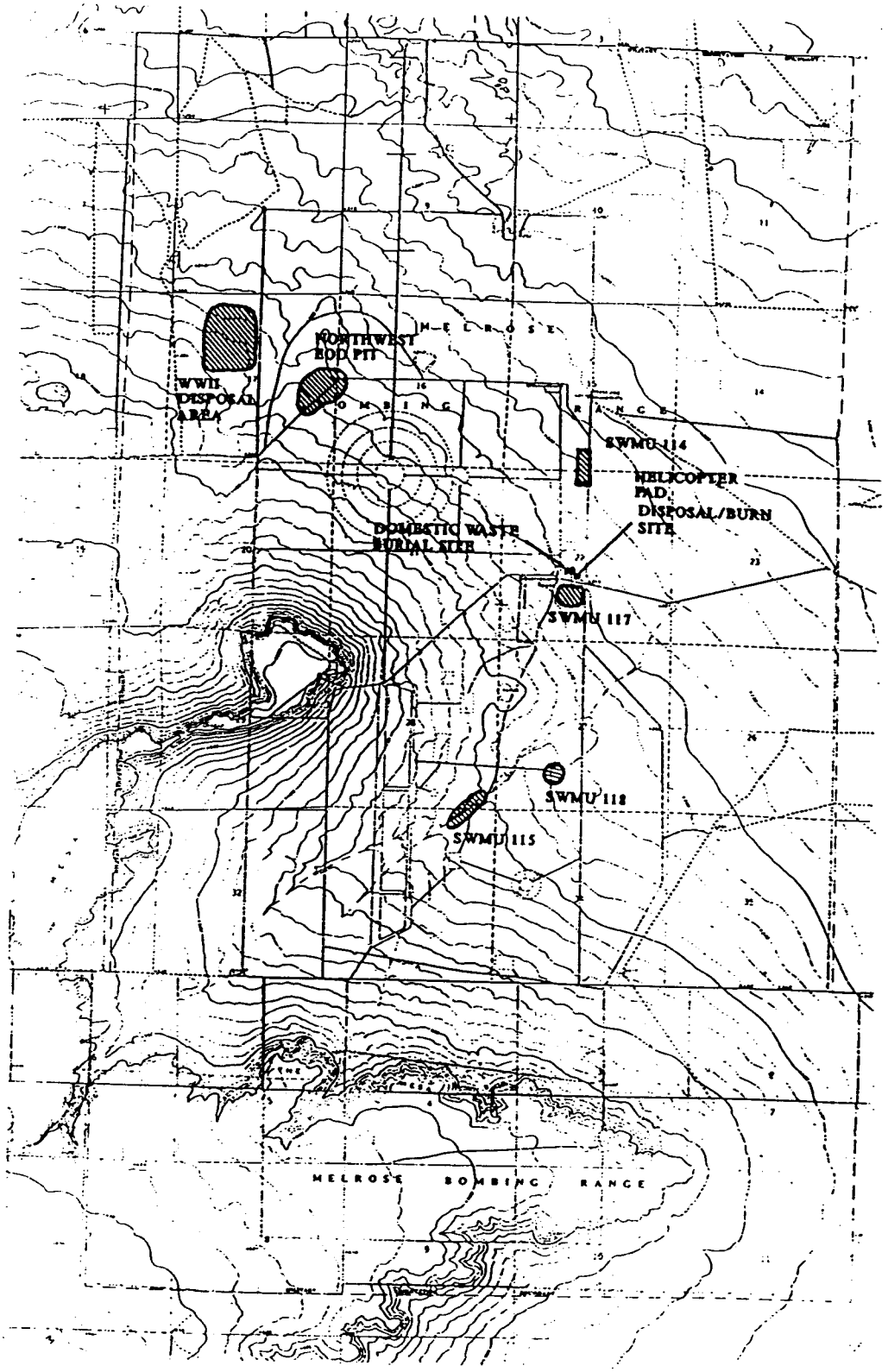
REPORT PHASE: CANNON AFB – MANAGEMENT ACTION PLAN



SOURCE: DRAFT MELROSE RFI WORKPLAN

DRN. BY: SCR	DATE: APRIL, 1995	MELROSE AIR FORCE RANGE CANNON AIR FORCE BASE NEW MEXICO	PROJECT No.	FIG. No.
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TABLE 1-3

ON-BASE TENANT UNITS AT CANNON AFB

Organization	Telephone Extension
Army and Air Force Exchange Service	2141
AFAA Area Audit Office	2991
American Red Cross	2023
DET 2 Fighter Weapons School	4203
U.S. Army Corps of Engineers	4350/4351
Area Defense Council	2915
AFOSI, DET 224	2511
DET 2, 4444 Operations Squadron	4104
DET 526, Field Training Detachment	4183
DeCA (Commissary)	4330
Defense Reutilization and Marketing Office (DRMO)	2437
New Mexico National Guard (Clovis/Portales)	4765/4780
Defense Investigative Service	4304
DET 3, 57th Fighter Wing	7618
U.S. Postal Service (Civilian/Service Center)	2410/4574

TABLE 1-4

CANNON AFB CONTRACTORS

Contractor	Telephone Extension
Texas Instruments	4497
General Electric	4705
Rockwell	2024
Norden Systems	2003
General Dynamics	2834
McDonnell Douglas	4818
Westar Corporation	
Reflectone	4030
Lockheed	

AFAA = Air Force Audit Agency
AFOSI = Air Force Office of Special Investigations
DeCA = Defense Commissary Agency
DET = Detachment

2.0
BASE COMPREHENSIVE PLAN

The Cannon AFB BCP ("Cannon Visions" September 1993) is intended to provide an organized, systematic, and comprehensive approach to both current and future Base planning and development. The BCP classifies land use according to function. The following are the 12 categories that characterize land use at the Base.

- Airfield: Active and inactive runways, taxiways, and parking aprons.
- Aircraft Operations and Maintenance: Land use areas directly related to the operation, maintenance, and training of aircraft and their crews.
- Industrial: Land use areas for maintenance, storage, and supply functions not directly related to aircraft.
- Administrative Support: Land use areas reserved for administrative functions.
- Community (Commercial): Land use areas designated for commercial activities, clubs and dining facilities, and indoor recreation.
- Community (Service): Land use areas reserved for educational dependent schools, post offices, libraries, and other community service facilities.
- Medical: Land use areas occupied by hospitals, dental clinics, and veterinarian facilities.
- Housing (Accompanied): Temporary and permanent housing areas and trailer courts.
- Housing (Unaccompanied): Bachelor and visitor housing.
- Outdoor Recreation: Land use areas designated for outdoor recreation.

- Open Area: Conservation areas and required buffer space (i.e., safety clearances, security areas, and utility easements).

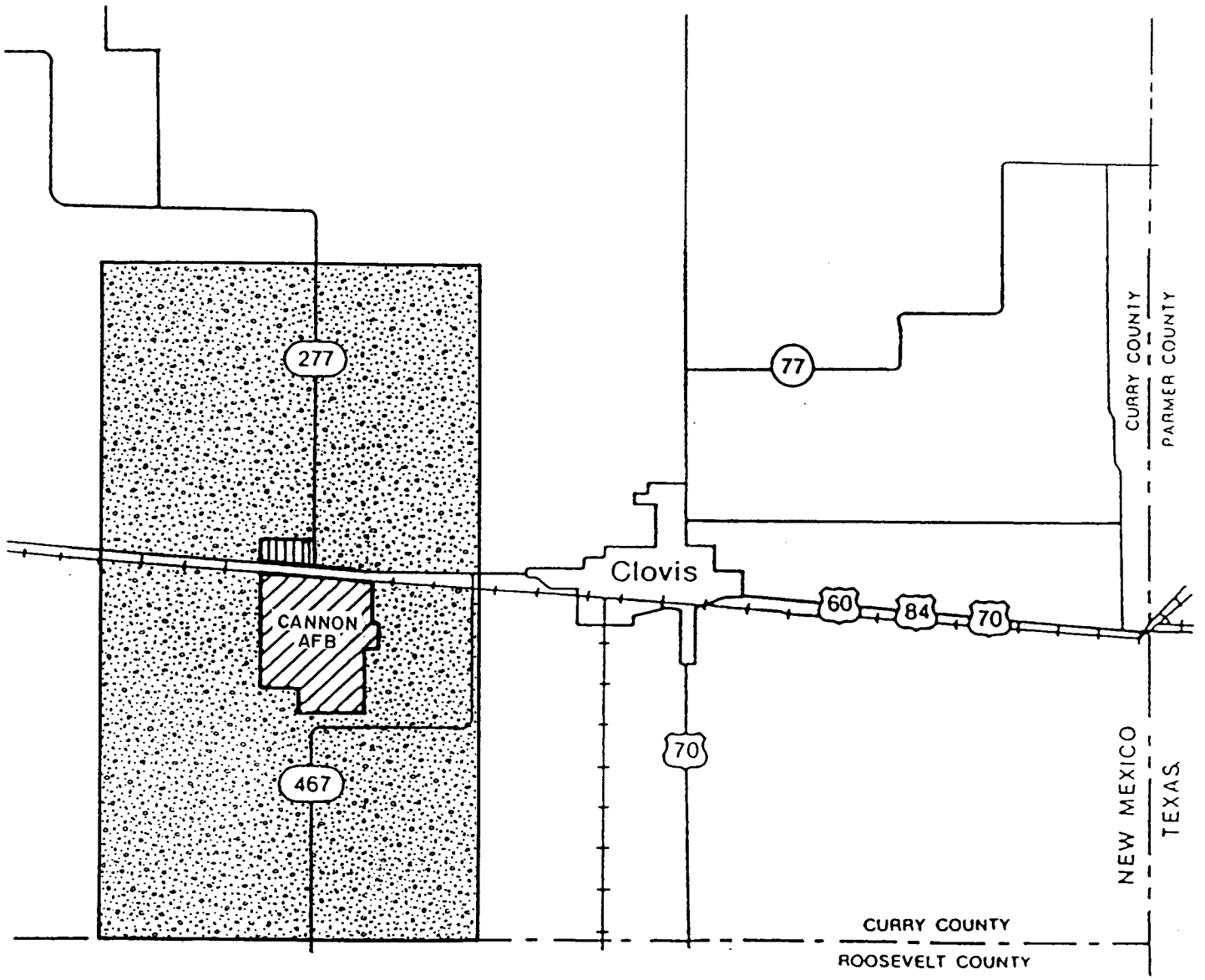
- Water: On-Base ponds, playa lakes, and storm drainage areas.

Over the years, Cannon AFB has implemented changes to keep the Base functionally organized and to maintain and upgrade its primary role as a combat-ready force capable for day, night, and all-weather operations. The BCP addresses a multitude of other installation requirements and assists in the long-range growth of the Base, including natural resources, environmental protection, land use, airfield operations, utilities, transportation, and architectural compatibility.

Of particular importance and significance to this MAP is its role for environmental protection. The BCP provides a strategy for addressing proper hazardous waste management and recognizing the high priority of the IRP/RCAP. The BCP also provides a model for future land use, which helps determine risk-based cleanup levels. Figure 2-1 presents a current land use map and Figure 2-2 shows a map of surrounding off-Base land use.

With the pending changeout of aircraft in fiscal year 1996, the BCP should be updated to reflect the changing mission and requirements for Base facilities.

REPORT PHASE: MANAGEMENT ACTION PLAN



LEGEND

- CANNON AIR FORCE BASE
- AGRICULTURAL
- RESIDENTIAL

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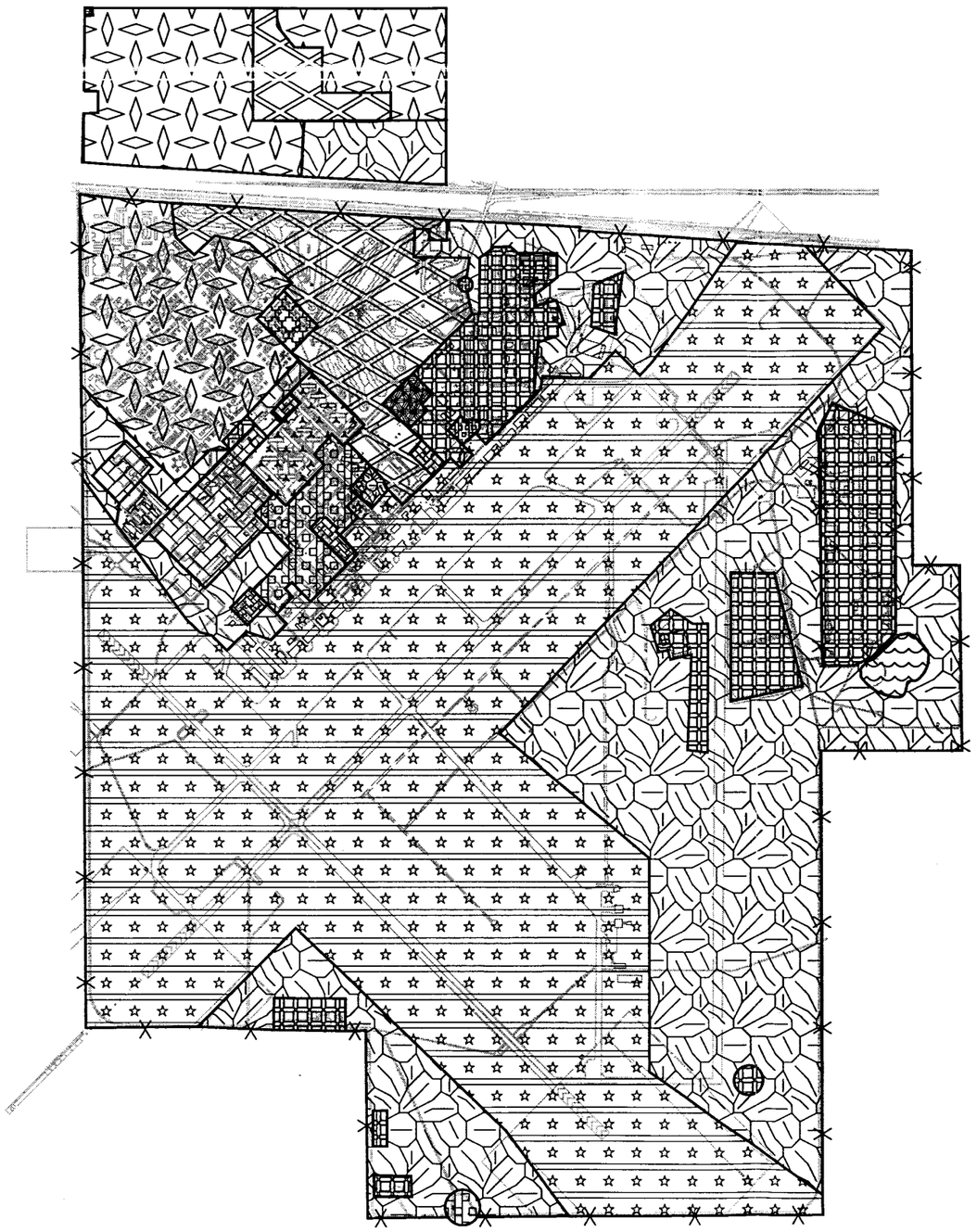

LEGEND

- AIRCRAFT OPERATIONS AND MAINTENANCE FACILITIES
- INDUSTRIAL AREA
- ADMINISTRATIVE SUPPORT AREA
- COMMUNITY (COMMERCIAL)
- COMMUNITY (SERVICE)
- MEDICAL AREA
- HOUSING AREA, ACCOMPANIED
- HOUSING AREA, UNACCOMPANIED
- OUTDOOR RECREATION AREA
- OPEN AREA
- WATER

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DRN. BY: JWB	DATE: 04/12/95	BASE COMPREHENSIVE PLAN – LAND USE CANNON AIR FORCE BASE CLOVIS, NEW MEXICO	PROJECT NO.	FIG. NO.
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3.0
BASE-WIDE ENVIRONMENTAL PROGRAM STATUS

This chapter summarizes the IRP and the associated RCRA compliance activities at Cannon AFB. It also lists community relations activities performed to date and describes the environmental condition of Cannon AFB property.

3.1 INTRODUCTION

To ensure compliance with applicable state and federal hazardous substance regulations promulgated under CERCLA, DoD developed the IRP program. The IRP program was to be the primary mechanism for response actions at USAF installations under the provisions of CERCLA. However, since all Cannon AFB IRP sites were included in a RCRA Part B Permit and given SWMU numbers, these IRP sites must also conform to the requirements of RCRA. The Melrose AFR RCRA permit requires RCAP for Melrose sites. This has resulted in the IRP and RCRA programs at Cannon AFB and Melrose AFR being combined into one investigative effort under RCAP. The IRP sites follow any additional provisions of CERCLA during the RFI, and in fact, all sites are now being closed out under RCRA. The exception to this process is the Disposal Pit (DP-33), a recently identified site that does not meet the requirements of a SWMU. Its 1994 removal action will follow the provisions set forth by CERCLA.

The RFIs and corrective actions on SWMUs only identified as RCRA sites are being funded by the ECP. Investigations and corrective action of the SWMUs also identified as IRP sites are funded under the Defense Environmental Restoration Account (DERA) program. Some sites previously considered IRP eligible have now been determined to be ineligible for DERA funds (see letter in Appendix D). Table 3-1 lists the DERA funded IRP sites.

The schedules presented in previous editions of this MAP were based on continuous progress towards completion of the IRP/RCAP process at each site and did not consider staff or budgetary limitations. These schedules also did not reflect events that could not be predicted, such as the results of field investigations or engineering studies, regulatory comments or relations, or emerging technologies. All schedules and costs can be dramatically altered by

TABLE 3-1

DERA FUNDED IRP SITES

Site	Description	Priority	Validation Date	Risk
DP-16	Solvent Disposal Site	3A	910501	Low
DP-33	Disposal Pit	3A	931029	Low
FT-06	Fire Department Training Area No. 1	3A	910501	Low
FT-07	Fire Department Training Area No. 2	3A	910501	Low
FT-08	Fire Department Training Area No. 3	3A	910501	Low
LF-01	Landfill No. 1	3A	910501	Low
LF-02	Landfill No. 2	3A	910501	Low
LF-03	Landfill No. 3	2A	910501	Medium
LF-04	Landfill No. 4	2A	910501	Medium
LF-05	Landfill No. 5	2A	910501	Medium
LF-25	Concrete Rubble Pile	2A	920220	Medium
OT-10	Blown Capacitors Site	3A	910501	Low
SD-11	Engine Test Cell	1A	910501	High
SD-12	Storm Water Collection Point	3A	910501	Low
SD-13	Sanitary Sewage Lift Station Overflow Pit	3A	910501	Low
SD-15	AGE Drainage Ditch	3A	910501	Low
SD-17	Old Entomology Rinse Area	3A	910501	Low
SD-20	NE Storm Water Drainage Area	3A	910501	Low
SS-18	JP-4 Fuel Spill	3A	910501	Low
SS-19	MOGAS Spill	3A	910501	Low
ST-26	Underground Waste Oil Tank	3A	920220	Low
ST-27	Sump	3A	920220	Low
WP-14	Sludge Weathering Pit	3A	910501	Low

AGE = Aerospace Ground Equipment
MOGAS = Motor Gasoline

these factors. Former versions of this MAP summarized the planned restoration activities and estimated costs for the complete IRP/RCAP program for Cannon AFB. The cost estimate was as high as $18.3 million, with the work running through at least 2001. For the most part, the Cannon sites estimated to have the highest restoration costs were those listed in the Appendix I SWMU list (see Section 3.3). However, because of numerous No Further Action (NFA) recommendations, both the original dollar estimate and the time scales originally programmed have proved to be overestimated. As an example, RCRA cell caps were estimated and programmed for each Appendix I landfill. However, initial and follow-on RFI reports have shown NFA required on four landfill sites completed to date, Landfills 2, 3, 4, and 25 (SWMUs 82, 105, 104, and 97, respectively). The only action required by the U.S. Environmental Protection Agency (EPA) Region VI for these landfills was to install downgradient monitoring wells around Landfills 3 and 4 and boundary markers around Landfills 2, 3, and 4. Landfill 5 (SWMU 113) is still under investigation.

3.2 RCRA/CERCLA TERMINOLOGY

In the early 1980s, DoD initiated a four-phase IRP:

- Phase I, Installation Assessment/Records Search
- Phase II, Confirmation/Quantification
- Phase III, Technology Base Development
- Phase IV, Remedial Actions (RAs)

Subsequent to the Phase I and Phase II DoD IRP studies, the terminology was changed at Cannon AFB to ensure consistency with the CERCLA response action process. As a result procedures for the IRP were changed to reflect the four-phase approach outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations, Part 300. The procedures were again changed to reflect the RCRA approach subsequent to issuance of the RCRA Part B permit. IRP data collected prior to issuance of the permit was used for site screening purpose only. This data was replaced by the RCRA Facility Assessment (RFA)/RFI data; in some cases, this meant resubmitting data gathered during a CERCLA RI using RCRA terminology. As a result of all the changes, RCRA terminology is the terminology used today.

The CERCLA phases and their RCRA equivalents are as follows:

CERCLA	RCRA
Preliminary Assessment (PA)/ Site Investigation (SI)	RCRA Facility Assessment (RFA) Confirmation Sampling
Remedial Investigation (RI)/ Feasibility Study (FS)	RCRA Facility Investigation (RFI)/ Corrective Measures Study (CMS)
Remedial Design (RD)/ Remedial Action (RA)	Corrective Measures Design (CMD)/ Corrective Measures Implementation (CMI)

RFIs scheduled for each RCRA Permit Appendix were originally referred to as Phase 1 for Appendix I, Phase 2 for Appendix II, and Phase 3 for Appendix III. As used here, the terms Phase I, Phase II, and Phase III have different meanings under CERCLA IRP. The titles of the two CERCLA reports listed in paragraph 3.4 should not be confused with the RCRA meaning for a Phase I or Phase II Investigations. EPA Region VI now prefers to use the term Phase I for the first investigation on a SWMU and Phase II for the second investigation on a SWMU. To cross reference between the old and new designations of the RFIs, refer to the following table:

Original RFI Designation	New RFI Designation
Phase 1	Appendix I, Phase I
Phase 2	Appendix II, Phase I
Phase 3	Appendix III, Phase I

3.3 CANNON AFB IRP/RCAP STATUS

The Air Force IRP/RCAP at Cannon AFB began in 1983 with the IRP Records Search, which was part of the IRP Phase I approach. An IRP Phase II Confirmation/Quantification study was conducted in 1986.

A July 1987 RFA listed 128 SWMUs and 52 Areas of Concern (AOCs). After these 128 SWMUs and 52 AOCs were selected, 74 SWMUs and 3 AOCs were eventually included in the HSWA portion of the Cannon AFB Part B permit. The original permit was issued in November 1989 to the Defense Reutilization and Marketing Office (DRMO), a tenant organization on Base. The permit was issued jointly by EPA Region VI and the New Mexico

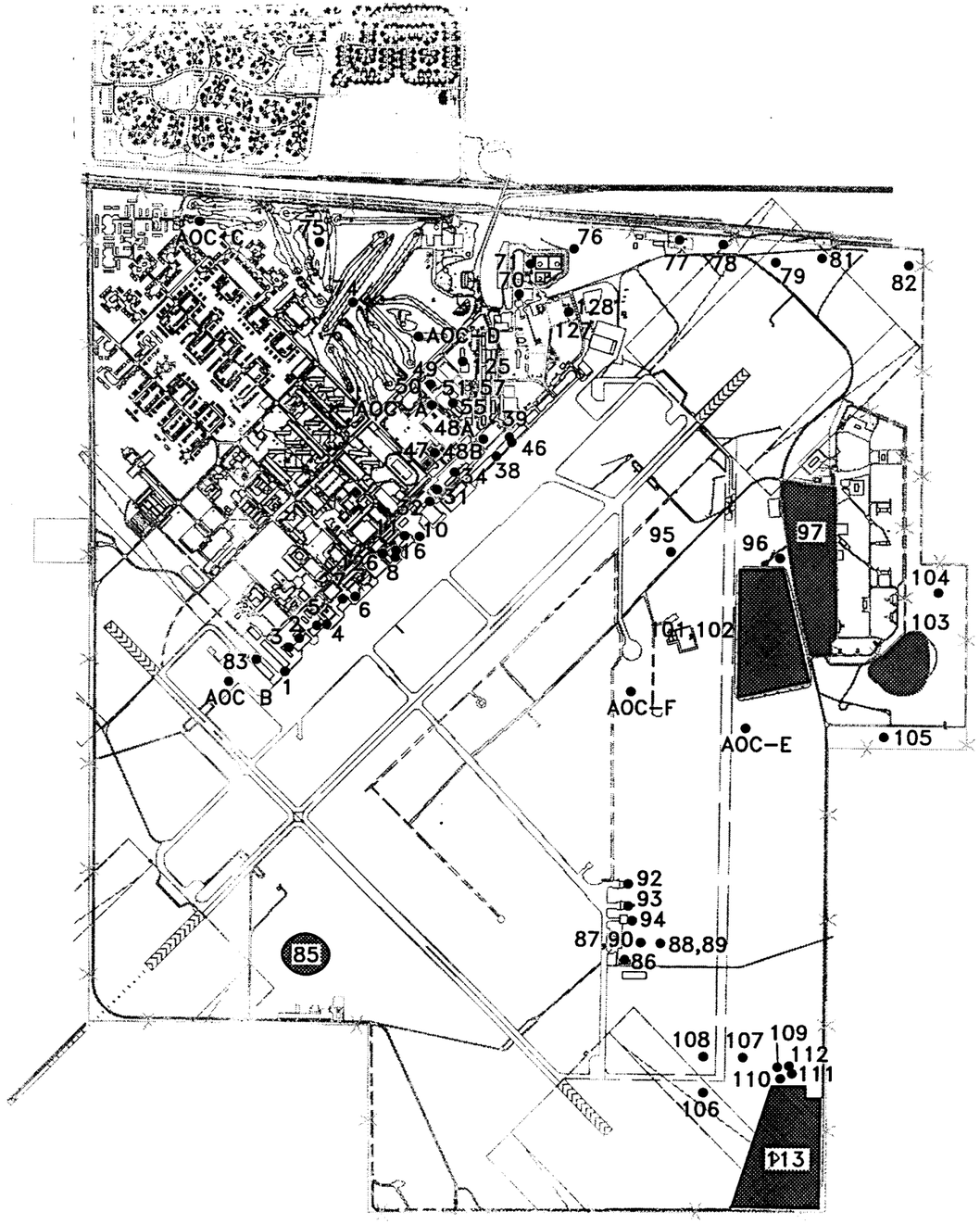
Environment Department (NMED). In order to establish the preferred investigation order, EPA Region VI divided the 74 SWMUs and 3 AOCs into 3 sections, Appendix I, Appendix II, and Appendix III.

The 1987 RFA included seven potential SWMUs at Melrose AFR (IRP site OT-23). In December 1994, NMED and EPA issued a RCRA Subpart X permit for the unexploded ordnance open burn pit. The HSWA section of this permit requires an RCAP for the Expended Ordnance Burial Site (SWMU 114), Explosives-Contaminated Burial Site (SWMU 115), and Domestic Waste Pile (SWMU 117) at Melrose AFR beginning in 1995. Figure 3-1 shows the locations of SWMUs at Cannon AFB. Figure 3-2 shows the locations of SWMUs and AOCs at Melrose AFR. Table 3-2 summarizes information on the SWMUs, AOCs, and IRP sites.

Studies on the Cannon AFB SWMUs listed in Appendix I were scheduled first, studies on the SWMUs listed in Appendix II were scheduled second, studies on the SWMUs listed in Appendix III were scheduled third. In general, this schedule was followed except for two SWMUs where Military Construction Program (MCP) projects were programmed. These two sites were Landfill 25 (SWMU 97) and the JP-4 Fuel Spill (AOC B) on the south ramp. Both of these SWMUs were listed in Appendix III but were studied in the same time frame as the Appendix I SWMUs.

Phase I RFIs have been completed on all SWMUs listed in Appendix I except for Landfill 5 (SWMU 113) and the rediscovered burn pits of Landfill 1 (SWMU 74). A Phase I Investigation on Landfill 5 is scheduled for 1995 to 1997. Money left over from the original Phase I investigation of Landfill 1 will be used to complete a Phase I RFI on the rediscovered burn pits in 1995. The Old Entomology Rinse Area (SWMU 96) required a Phase II Investigation that was completed in 1994. The majority of the Appendix I SWMUs have boundary markers installed around them and now need to have Decision Documents (DDs) written for site closeout. (The Draft DDs are kept in the separate IRP site folders of the 17B section in the Administrative Record File.) Monitoring wells for Landfill 3 (SWMU 105) and Landfill 4 (SWMU 104) were installed in 1994 and 1995. During a 1994 interim removal project at Engine Test Cell SD-11 (SWMUs 86-90), contamination requiring further RFIs was uncovered.

REPORT PHASE: MANAGEMENT ACTION PLAN



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SCALE IN FEET

LEGEND

3 ● SOILD WASTE MANAGEMENT UNIT (SWMU) LOCATION AND NUMBER

SWMU No.	DESIGNATED AREA
1	OIL/WATER SEPARATOR No. 119
2	ST-28 RECOVERED DIESEL TANK No. 108
3	OIL/WATER SEPARATOR No. 108
4	ST-29 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
10	POL TANK No. 170
11	OIL/WATER SEPARATOR No. 170
16	OIL/WATER SEPARATOR No. 680
31	AGE MAINTENANCE SHOP PAD
34	SD-15 AGE DRAINAGE DITCH
38	OIL/WATER SEPARATOR No. 194
39	OIL/WATER SEPARATOR No. 195
46	OIL/WATER SEPARATOR No. 196
47	OIL/WATER SEPARATOR No. 494
48A	OIL/WATER SEPARATOR No. 165
48B	ABOVEGROUND STORAGE TANK
49	ST-26 INACTIVE POL STORAGE TANK No. 4028A
50	ST-26 INACTIVE POL STORAGE TANK No. 4028B
51	OIL/WATER SEPARATOR No. 375
55	OIL/WATER SEPARATOR No. 186 ACCUMULATION POINT
57	OIL/WATER SEPARATOR No. 379
70	OIL/WATER SEPARATOR No. 326
71	RECOVERED JP-4 FUEL TANK No. 390
74	LF-1 LANDFILL No. 1
75	SD-13 SANITARY SEWAGE LIFT STATION OVERFLOW PIT
76	WP-14 SLUDGE WEATHERING PIT
77	CIVIL ENGINEERING CONTAINER STORAGE AREA
78	FT-6 FIRE DEPARTMENT TRAINING AREA No. 1
79	UNDERGROUND TANK

SWMU No.	DESIGNATED AREA
81	DP-16 SOLVENT DISPOSAL SITE
82	LF-2 LANDFILL No. 2
83	ST-27 SUMP
85	SD-12 STORMWATER COLLECTION POINT
86	SD-11 ENGINE TEST CELL
87	SD-11 FORMER OVERFLOW PIT
88	SD-11 FORMER LEACHING FIELD
89	SD-11 EVAPORATION POND
90	SD-11 OIL/WATER SEPARATOR No. 5114
92	OIL/WATER SEPARATOR No. 5120
93	OIL/WATER SEPARATOR No. 5121
94	OIL/WATER SEPARATOR No. 5144
95	SD-20 NE STORMWATER DRAINAGE AREA
96	SD-17 OLD ENTOMOLOGY RINSE AREA
97	LF-25 CONCRETE RUBBLE PILE
101	SD-21 WASTEWATER TREATMENT SYSTEM-LAGOONS
102	SD-21 WASTEWATER TREATMENT SYSTEM - EFFLUENT DISCHARGE
103	WASTEWATER PLAYA LAKE
104	LF-4 LANDFILL No. 4
105	LF-3 LANDFILL No. 3
106	FT-7 FIRE DEPARTMENT TRAINING AREA No. 2
107	FT-8 FIRE DEPARTMENT TRAINING AREA No. 3
108	EXPLOSIVE ORDINANCE DISPOSAL (EOD) TRAINING AREA
109	FT-9 FIRE DEPARTMENT TRAINING AREA No. 4
110	UNDERGROUND WASTE OIL TANK No. 2336
111	UNLINED PIT
112	OIL/WATER SEPARATOR No. 2336
113	LF-5 LANDFILL No. 5
124	ST-30 INACTIVE UNDERGROUND TANK
125	ST-30 INACTIVE UNDERGROUND TANK
126	ST-30 INACTIVE UNDERGROUND TANK
127	OIL/WATER SEPARATOR No. 4095 #1 AND LEACH FIELD
128	OIL/WATER SEPARATOR No. 4095 #2 AND LEACH FIELD
AOC A	SS-19 MOGAS SPILL
AOC B	SS-18 JP-4 FUEL SPILL
AOC C	OT-10 BLOWN CAPACITORS SITE OT-23 MELROSE BOMBING RANGE OT-24 CONCHAS LAKE RECREATION ANNEX DP-33 DISPOSAL PIT
AOC-D	DISPOSAL PIT (ON GOLF COURSE)
AOC-E	RUBBLE PILE
AOC-F	BORE SITE MOUND

DRN. BY: JWB	DATE: 04/10/95	SITE PLAN AND LOCATION OF INVESTIGATED SWMU SITES CANNON AIR FORCE BASE CLOVIS, NEW MEXICO	PROJECT NO.	FIG. NO.
CHK'D. BY:	REVISION: 0		9C114LL1	3-1

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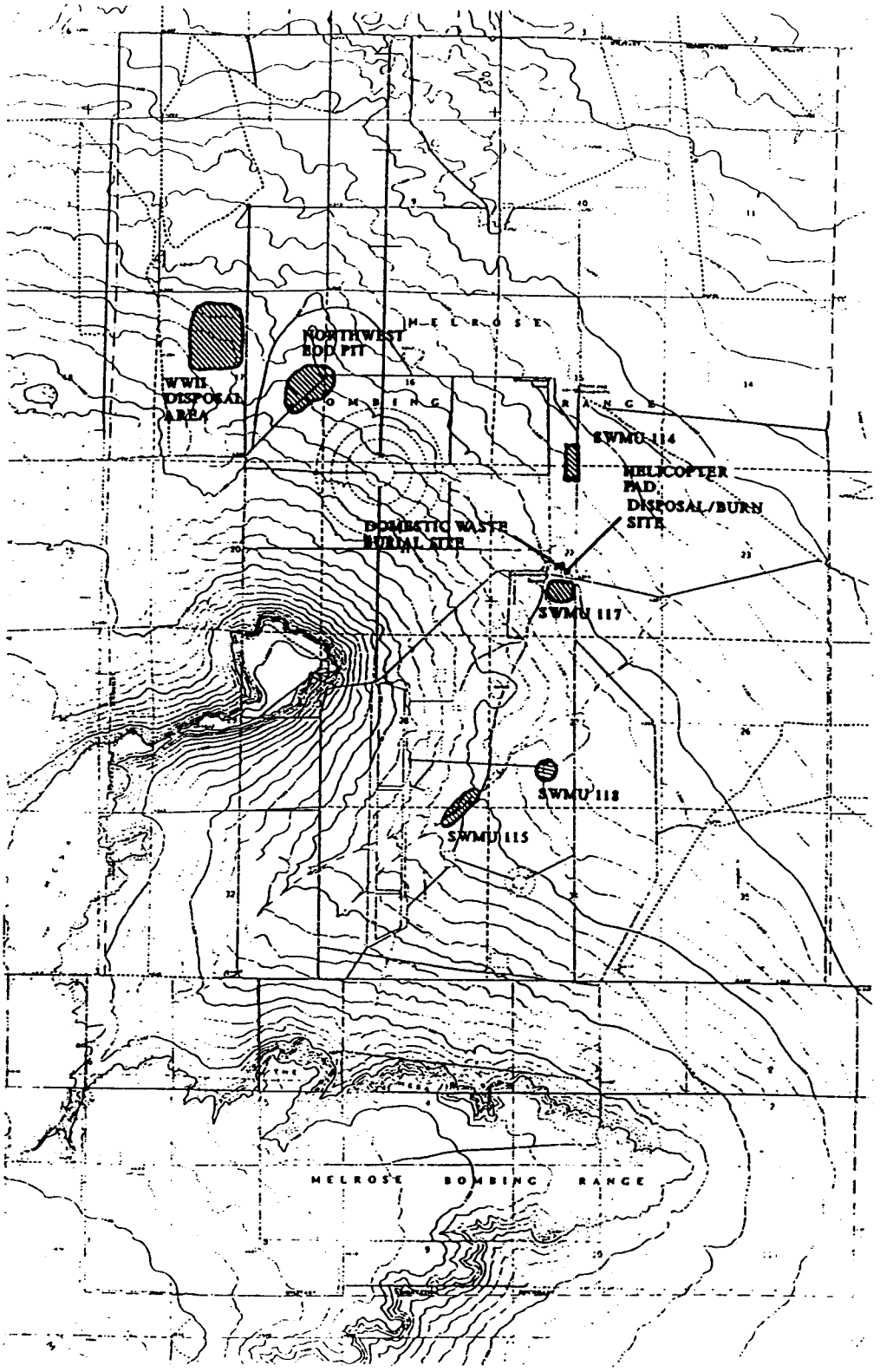
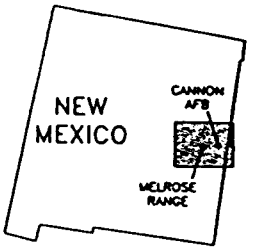
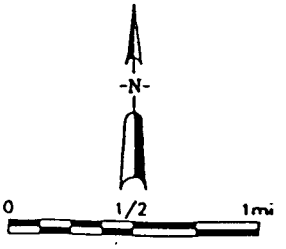


LEGEND

Areas of Concern





SOURCE: DRAFT MELROSE RFI WORKPLAN

DRN. BY: SCR	DATE: APRIL, 1995	SITE LOCATION MAP MELROSE AIR FORCE RANGE CANNON AIR FORCE BASE NEW MEXICO	PROJECT No.	FIG. No.
CHK'D. BY:	REVISIONS: 0		9C114LL1	3-2

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
1	II	-	SWMU	OWS No. 119	Recovers washdown from aircraft maintenance operations	1987	1963 to present	REP95	RCRA	-	-
2	II	ST-28	SWMU/IRP*	Recovered Diesel Tank No. 108	2,000-gal. heating oil UST at Building 108 (demolished 1989)	1989	1943 to 1990 Removed 1989	NFA	RCRA	0.2	2-1-93
3	II	-	SWMU	OWS No. 108	Recovered oil and grease from washdown generated by aircraft maintenance operations	1987	1943 to 1989 Removed 1989	NFA[1]	RCRA	-	-
4	II	ST-29	SWMU/IRP*	Recovered Diesel Tank No. 121	2,000-gal. heating oil UST at Building 121 (demolished 1989)	1991	1943 to 1989 Removed 1989	NFA	RCRA	0.2	2-1-93
5	II	-	SWMU	OWS No. 121	Recovered oil and grease from washdown generated by aircraft maintenance operations	1987	1943 to 1989 Removed 1989	NFA[1]	RCRA	-	-
6	II	-	SWMU	POL Tank No. 129	2,000-gal. heating oil UST at Building 129	1987	1943 to 1992 Removed 1992	NFA	RCRA	-	-
7	II	-	SWMU	OWS No. 129	Recovers diesel fuel, solvents, oil, and grease from aircraft washdown operations	1987	1943 to present	REM95	RCRA	-	-
8	II	-	SWMU	OWS No. 165	Recovers fuel, solvents, oil, and grease in runoff from the aircraft washrack	1987	1963 to present	REM95	RCRA	-	-
9	II	-	SWMU	Aircraft Washrack Drain System	Recovers solvents, fuel, oil, and grease	1987	1966 to present	REP95	RCRA	-	-
10	II	-	SWMU	POL Tank No. 170	2,000-gal. heating oil UST at Building 170	1987	1943 to present Removed 1992	NFA	RCRA	-	-
11	II	-	SWMU	OWS No. 170	Recovers fuel, solvents, oil, and grease from aircraft washdown operations	1987	Unknown to 1989	REM95	RCRA	-	-
16	II	-	SWMU	OWS No. 680	Recovers fuel, solvents, oil, and grease from aircraft washdown operations	1987	1965 to 1991 Removed 1991	NFA[1]	RCRA	-	-
31	III	-	SWMU	AGE Maintenance Shop Pad	Fuel, oil, and grease	1983	1971 to present	NFA[2]	RCRA	-	-
32	II	-	SWMU	OWS No. 186 (#1)	Recovers fuel, oil and grease from AGE washrack	1987	1971 to present	REM95	RCRA	-	-
33	II	-	SWMU	OWS No. 186 (#2)	Recovers fuel, oil and grease from AGE shop floor drains	1987	1971 to present	REM95	RCRA	-	-

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
34	I	SD-15	SWMU	AGE Drainage Ditch	Receives fuel, solvents, oil, and grease from flightline and road runoff	1987	Late 1960s to present	NFA	RCRA	7.1	2-1-93
38	II	-	SWMU	OWS No. 194	Recovers oil and grease from washdown operations	1987	1971 to present	REP95	RCRA	-	-
39	II	-	SWMU	OWS No. 195	Recovers oil and grease from washdown operations	1987	1971 to present	REP95	RCRA	-	-
46	III	-	SWMU	OWS No. 196	Recovers oil and grease from washdown operations	1987	1969 to present	REM95	RCRA	-	-
47	III	-	SWMU	OWS No. 494	Recovers oil and grease from washdown operations	1987	1982 to present	REM95	RCRA	-	-
48a	II	ST-26	SWMU/IRP	Underground Waste Oil Tank	Waste oils, solvents, paint thinners, fuels	1987	1941 to 1985 Removed 1988	NFA[1]	RCRA	0.8	2-1-93
48b	II	ST-26	SWMU/IRP	Aboveground Overflow Capacity Tank	Waste oils, solvents, paint thinners, fuels	1992	1965 to 1985 Removed 1992	NFA[1]	RCRA	0.8	2-1-93
49	II	-	SWMU/IRP*	Inactive POL Storage Tank No. 4028a				Does not exist on CAFB	RCRA	-	-
50	II	-	SWMU/IRP*	Inactive POL Storage Tank No. 4028b				Does not exist on CAFB	RCRA	-	-
51	III	-	SWMU	OWS No. 375	Recovers oil and grease from vehicle maintenance operations	1987	1968 to present	REP95	RCRA	-	-
55	III	-	SWMU	Lead Acid Battery Accumulation Point	Storage area for waste lead acid batteries	1987	1965 to present	NFA[2]	RCRA	-	-
57	III	-	SWMU	OWS No. 379	Recovers oil and grease from vehicle maintenance operations	1987	1965 to present	REP95	RCRA	-	-
61	III	-	SWMU	OWS No. 5077a	Actually a sandtrap receiving wash water with oil and grease from a motor vehicle washrack	1987	1957 to present	REM95	RCRA	-	-
62	III	-	SWMU	OWS No. 5077b	Actually a sandtrap in washrack floor drain upstream of SWMU No. 61	1987	1957 to present	REM95	RCRA	-	-
63	III	-	SWMU	OWS No. 5077c	Actually a sandtrap in washrack floor drain upstream of SWMU No. 61	1987	1957 to present	REM95	RCRA	-	-

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
70	III	-	SWMU	OWS No. 326 and Leach Field	Recovers fuel, oil, and grease from vehicle maintenance operations	1987	1960 to present	REM	RCRA	-	-
71	II	-	-	Recovered JP-4 Tank No. 390	JP-4 fuel UST	1987	Unknown to 1991 Removed 1991	NFA	RCRA	-	-
72	III	-	SWMU	OWS No. 390	2,000-gal. underground JP-4 recovery tank until replaced with oil/water separator in 1991	1987	Unknown to 1991 (Tank) 1991 to present (OWS)	NFA	RCRA	-	-
74	I	LF-01	SWMU/IRP	Landfill No. 1	Domestic solid waste, waste oils and solvents, paint strippers and thinners, pesticide containers, and empty cans/drums	1983	1942 to 1946	Phase I RFI on Burn Pits in FY 1995	RCRA	0.9	2-1-93
75	I	SD-13	SWMU/IRP	Sanitary Sewage Lift Station Overflow Pit	Emergency sewage storage pit. In February 1983, an estimated 100,000 to 150,000 gal. of raw sewage was stored in the pit for one week	1983	Unknown to present (no remnants due to new golf course construction)	NFA	RCRA	2.6	2-1-93
76	I	WP-14	SWMU/IRP	Sludge Weathering Pit	Sludge from JP-4 bulk storage fuel tanks	1983	1960 to 1980	NFA	RCRA	2.1	2-1-93
77	III	-	SWMU	Civil Engineering Container Storage Area, Facility No. 4038	Waste oils and solvents, fuels, PCBs, pesticides	1987	1943 to present	NFA[2]	RCRA	-	-
78	I	FT-06	SWMU/IRP	Fire Department Training Area No. 1	Waste oils and solvents, recovered fuels	1983	1959 to 1968	NFA	RCRA	3.6	2-1-93
79	II	-	SWMU	Underground Tank	Recovered JP-4 (no reference of this tank can be located)	1987	1959 to 1968	NFA	RCRA	-	-
81	I	DP-16	SWMU/IRP	Solvent Disposal Site	Trichloroethylene	1983	Unknown	NFA	RCRA	0.6	2-1-93
82	I	LF-02	SWMU/IRP	Landfill No. 2	Domestic and industrial waste, waste oils and solvents, paint strippers and thinners, pesticide containers, and empty cans/drums	1983	1946 to 1947 1951 to 1959	NFA	RCRA	0.8	2-1-93
83	II	ST-27	SWMU/IRP	Sump	Washdown from flight apron	1987	Unknown to 1993 Removed 1993	NFA[1]	RCRA	0.6	2-1-93

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
85	I	SD-12	SWMU/IRP	Storm Water Collection Point	Receives storm water runoff from flight line	1983	1943 to present	NFA	RCRA	6.9	2-1-93
86	I	SD-11	SWMU/IRP	Engine Test Cell	Fuel, oil, grease, and solvents from aircraft engine cleaning operations (Building 5114)	1983	1965 to 1988	Phase III RFI in FY 1995	RCRA	0.6	2-1-93
87	I	SD-11	SWMU/IRP	Former Overflow Pit	Overflow from Engine Test Cell, SWMU No. 86	1983	1982 to 1985	Phase III RFI in FY 1995	RCRA	0.6	2-1-93
88	I	SD-11	SWMU/IRP	Former Leaching Field	Washdown wastewater from OWS SWMU No. 90 (attached to Engine Test Cell, SWMU No. 86)	1983	1965 to 1985	Phase III RFI in FY 1995	RCRA	0.6	2-1-93
89	I	SD-11	SWMU/IRP	Evaporation Pond	Engine Test Cell wastewater/fuel	1983	1985 to present	Phase III RFI in FY 1995	RCRA	0.6	2-1-93
90	III	SD-11	SWMU/IRP	OWS No. 5114	Engine Test Cell, SWMU No. 86, wastewater/fuel	1983	1965 to 1988	Phase III RFI in FY 1995	RCRA	0.6	2-1-93
91	III	-	SWMU	Recovered Fuel Tank No. 5114	Did not receive waste; functioned as a JP-4 bulk storage facility	1987	1967 to 1988 Removed 1988	NFA	RCRA	-	-
92	III	-	SWMU	OWS No. 5120	Recovered fuel, oil, and grease from aircraft maintenance operations	1987	1957 to 1988	REM95	RCRA	-	-
93	III	-	SWMU	OWS No. 5121	Recovered fuel, oil, and grease from aircraft maintenance operations	1987	1957 to 1988 Removed 1988	NFA[2]	RCRA	-	-
94	III	-	SWMU	OWS No. 5144	Recovered oil and grease from vehicle washrack	1987	1960 to 1988	REM95	RCRA	-	-
95	I	SD-20	SWMU/IRP	NE Storm Water Drainage Area	Storm water runoff from flight line and effluent from flight line oil/water separators	1987	1943 to present	Phase II complete, waiting for EPA decision	RCRA	0.9	2-1-93
96	I	SD-17	SWMU/IRP	Old Entomology Rinse Area	Pesticides	1983	1968(?) to 1983	Phase II complete, waiting for determination of inclusion on NPDES permit	RCRA	5.6	2-1-93

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
97	III	LF-25	SWMU/IRP	Concrete Rubble Pile	Building demolition material, asphalt rubble	1987	Mid-1950s to early 1960s	FE[2]	RCRA	4.4	2-1-93
98	I	-	SWMU	Sanitary Sewerage Line	Sanitary and industrial wastewater	1987	1943 to present	NFA	RCRA	-	-
101	I	SD-21	SWMU/IRP*	Wastewater Treatment System - Lagoons	Sanitary and industrial wastewater	1987	1966 to present	Groundwater monitoring	RCRA	1.2	2-1-93
102	I	SD-21	SWMU/IRP*	Wastewater Treatment System - Effluent Discharge	Sanitary and industrial wastewater (sewage lagoons' outfall)	1987	1966 to present	Groundwater monitoring	RCRA	1.2	2-1-93
103	III	-	SWMU	Wastewater Playa Lake	Sanitary and industrial wastewater (sewage lagoons' outfall)	1987	1943 to present	NFA[2]	RCRA	-	-
104	I	LF-04	SWMU/IRP	Landfill No. 4	Domestic and industrial waste, waste oils and solvents, paint strippers and thinners, pesticide containers, empty cans/drums	1983	1967 to 1968	Monitoring of downgradient well	RCRA	1.5	2-1-93
105	I	LF-03	SWMU/IRP	Landfill No. 3	Domestic and industrial waste, waste oils and solvents, paint strippers and thinners, pesticide containers, empty cans/drums	1983	1959 to 1967	Monitoring of downgradient well	RCRA	1.7	2-1-93
106	I	FT-07	SWMU/IRP	Fire Department Training Area No. 2	Waste fuels, oils, and solvents burned	1983	1968 to 1974	NFA	RCRA	2	2-1-93
107	I	FT-08	SWMU/IRP	Fire Department Training Area No. 3	Waste fuels, oils, and solvents burned	1983	1968 to 1974	NFA	RCRA	1.7	2-1-93
108	II	-	SWMU	Explosive Ordnance Disposal Activities Area	Munitions training site (5-lb. explosive limit)	1987	Early 1970s to present	NFA[1]	RCRA		
109	I	FT-09	SWMU/IRP*	Fire Department Training Area No. 4	Waste fuels, oils, and solvents burned	1983	1974 to present	Phase II RFI in CY 1995	RCRA	31	2-1-93
110	II	-	SWMU	Underground Waste Oil Tank No. 2336	JP-4 fuels storage for training (at SWMU No. 109)	1987	1975 to 1988 Removed 1988	Phase II RFI in CY 1995	RCRA	-	-
111	I	-	SWMU	Unlined Pit	Collection point for unburned fuel, water, and fire-retardant foam runoff from SWMU No. 109	1987	1975 to 1985	NFA	RCRA	-	-

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
112	III	-	SWMU	OWS No. 2336	Unburned fuel runoff from SWMU No. 109	1987	1985 to present	NFA	RCRA	-	-
113	I	LF-05	SWMU/IRP	Landfill No. 5	Domestic and industrial waste, waste oils and solvents, paint strippers and thinners, pesticide containers, and empty cans/drums	1983	1968 to 1988	Phase I RFI under NMED lead scheduled for 1995 to 1997	RCRA	1.8	2-1-93
124	II	ST-30	SWMU/IRP*	Inactive Underground Tank 1	Location and purpose unknown	1987	Unknown	NFA	RCRA	0.2	2-1-93
125	II	ST-31	SWMU/IRP*	Inactive Underground Tank 2	Location and purpose unknown	1987	Unknown	NFA	RCRA	0.2	2-1-93
126	II	ST-32	SWMU/IRP*	Inactive Underground Tank 3	Heating oil UST	1987	Unknown	NFA	RCRA	0.2	2-1-93
127	III	-	SWMU	OWS Near Tank 4095 (#1) and Leach Field	Sandtrap for POL washrack washdown water contaminated with JP-4, grease, and oils	1987	1977 to present	NFA[2]	RCRA	-	-
128	III	-	SWMU	OWS Near Tank 4095 (#2) and Leach Field	Does not exist on Cannon AFB	1983		NFA	RCRA	-	-
AOC A	III	SS-19	SWMU/IRP	MOGAS Spill	Approximately 2,000 to 3,000 gal. of leaded gasoline	1983	Occurred in early 1960s	NFA	RCRA	9.2	2-1-93
AOC B	III	SS-18	SWMU/IRP	JP-4 Fuel Spill	Approximately 400 gal. of JP-4	1983	Occurred in 1980	NFA	RCRA	0.4	2-1-93
AOC C	III	OT-10	SWMU/IRP	Blown Capacitors Site	Approximately 6 gal. of oil thought to contain PCBs	1983	1978	NFA	RCRA/ TSCA	3.1	2-1-93
AOC D	-	-	SWMU/IRP	Nonfriable Asbestos Burial Pit	Asbestos siding material	1993	Unknown	Investigate in 1996	RCRA	-	-
AOC 36	-	-	IRP	Disposal Pit	Possibly fluids from aircraft engine maintenance shop	?	Early 1950s	NFA request sent to EPA in 1994	IRP	-	-
-	-	DP-33	IRP	Disposal Pit	55-gal. drums discovered; 60 to 100 drums	1992	Late 1940s to early 1950s	Interim Removal Action in 1994, NFA expected	IRP	-	-
AOC E	-	-	SWMU/IRP	Rubble Pile	Airfield pavement	1995	Late 1930s(?)	Investigate in 1996	RCRA	-	-
AOC F	-	-	SWMU/IRP	Bore Site Mound	Small caliber munitions	1995	1957-1971	Investigate in 1996	RCRA	-	-

TABLE 3-2
SITE SUMMARY TABLE
SWMUs, AOC, AND IRP SITES

SWMU No.	Appendix	IRP Site I.D.	Site Type	Description	Material Disposed of	Date of Discovery	Date of Operation	Status	Regulatory Mechanism	DPM Score	Date of Scoring
Melrose AFR											
114	-	-	SWMU/IRP*	Expended Ordnance Burial Site	Scrap metal, unexploded ordnance, and possibly unusable paints, solvents, and fuels	1987	1952 to late 1960s	Phase I RFI in 1995	RCRA	-	-
115	-	-	SWMU/IRP*	Explosives Contaminated Burial Site	Unexploded ordnance, training munitions, and metal targets	1987	1952 to 1989	Phase I RFI in 1995	RCRA	-	-
117	-	-	SWMU/IRP*	Domestic Waste Pile	Domestic Waste	1987	1952 to 1980s	Phase I RFI in 1995	RCRA	-	-

AGE = Aerospace Ground Equipment
AOC = Area of Concern
FE = Further evaluation
IRP = Installation Restoration Program
MOGAS = Motor gasoline
NFA = No Further Action at this time
NMED = New Mexico Environment Department
OWS = Oil/Water Separator
PCBs = Polychlorinated biphenyls
POL = Petroleum, oils, and lubricants
RCRA = Resource Conservation and Recovery Act
REM = Pilot bio-venting study is being executed. The OWS will be reviewed following completion of the study.
REM95 = To be removed and inspected in 1995
REP95 = To be removed, inspected, and replaced in 1995
SWMU = Solid waste management unit
UST = Underground storage tank

* Not considered IRP for DERA funding purposes
(1) Per draft Phase II RFI Report, Appendix II SWMUs
(2) Per draft Phase II RFI Report, Appendix III SWMUs

Phase I RFIs have been completed on all SWMUs listed in Appendix II and Appendix III. Except for Oil/Water Separator No. 326 and Leachfield (SWMU 70) and the Wastewater Playa Lake (SWMU 103), the Baseline Risk Assessments (BRAs) from the Phase I RFIs for both Appendix II and Appendix III recommend NFA on all sites. EPA Region VI did not accept all the Phase I NFA recommendations; therefore, Phase II RFIs for some Appendix II and III SWMUs have been conducted in 1994/1995. Interim corrective action projects will remove other Appendix II and III SWMUs.

At the time of the RFA, 32 SWMUs were determined to be IRP sites. As of July 1994, there are 20 IRP investigation sites listed. Thirteen IRP sites were removed from the IRP investigation list because they were ineligible for CERCLA status, were duplications of other IRP listings, or were UST sites. This does not remove them from RCAP under the permit. The UST sites were removed from the IRP list because the USTs were physically removed and the excavations were tested following NMED UST regulations. A letter was submitted to the Headquarters ACC (HQ ACC) requesting and justifying the removal of 10 sites from the IRP list (Appendix D). A Class III RCRA permit modification must also be submitted to NMED and EPA if the Air Force wants to remove these sites from the Part B permit. The Disposal Pit (DP-33) and the Nonfriable Asbestos Burial Pit (AOC D) were added to bring the IRP investigation site total to 21. Because historical research revealed waste management activities occurred at the DP-33 site prior to the RCRA HSWA, this site was not added to the Part B permit as a SWMU. Instead, a removal action was completed in 1994 and NFA is expected for DP-33.

EPA Region VI requires additional work at Landfills 3 and 4 (SWMUs 105 and 104) and Engine Test Cell SD-11 (SWMUs 86-90). The following is the list of work still to be completed on the remaining IRP sites:

Landfill 1 (SWMU 74)	Limited Phase I RFI on the burn trenches discovered on the golf course (1995-1996).
Landfill 3 (SWMU 105)	Monitor downgradient monitoring well.
Landfill 4 (SWMU 104)	Monitor downgradient monitoring well.
Landfill 5 (SWMU 113)	Phase I RFI to be directed by NMED (1995-1997).
Engine Test Cell SD-11 (SWMUs 86-90)	RFI of contamination discovered during removal of the OWS system (1995-1996).

Draft DDs were prepared to close out sites for IRP purposes and remove them from the Part B permit. However, the majority of these DDs need to be modified to incorporate the information from the installation of boundary markers. These DDs are included in the IRP site folders which are located in the Administrative Record in Section 17B.

Removal actions were undertaken in 1988 at Cannon AFB to remove known contamination at two sites, part of Fire Department Training Area (FDTA) No. 4 and the Underground Waste Oil Tank No. 2336 (SWMUs 109 and 110), and the Blown Capacitors Site (AOC C). In 1994, removal actions were accomplished at Engine Test Cell SD-11 (SWMUs 86-90) and Disposal Pit DP-33. An Air Force Center for Environmental Excellence (AFCEE) pilot bioventing system (SWMU 70) began in 1994 and is scheduled to run for at least one year, at which time the associated OWS is scheduled for removal. After the FY95 fire training area is built, a Phase II RFI will be scheduled for FDTA No. 4 (SWMU 109). Information from these RFIs may indicate if any corrective measure is required. Removal actions at Cannon AFB are summarized in Table 3-3. The recently completed Phase II RFI of Appendix II and III may result in NFA for 13 SWMUs.

TABLE 3-3

COMPLETED REMOVAL AND INTERIM ACTION STATUS

Site No.	Action	Objective	Time Frame
SWMU 110 Underground Waste Oil Tank	Tank removal and on-Base land farming of contaminated soils	To remove possible contaminant sources	1988
AOC C (IRP OT-10)	Excavation of approximately 10 yards of soil	Remove soil potentially contaminated with polychlorinated biphenyls	1988
SWMUs 86-90 Old Engine Test Cell (IRP SD-11)	Remove OWS system	Remove OWS instead of investigating	July/August 1994
DP-33 Disposal Pit	Remove buried drums	Remove 28 buried drums. Five contained POL products or glycol	May 1994
Appendix II SWMUs	Removal and selective replacement of OWSs	Removal of potential source of contamination	1995/1996
Appendix III SWMUs	Removal and selective replacement of OWSs	Removal of potential source of contamination	1995/1996

3.4 IRP/RCAP WORK COMPLETED AT CANNON AFB

The following is a list of the major investigations completed on Cannon AFB since the beginning of the IRP/RCAP program as of April 1995. Table 3-4 lists historical IRP deliverables for Cannon AFB. Table 3-5 identifies the sites within each historical deliverable for the Cannon AFB IRP. Table 3-6 provides the historical deliverables for the Cannon AFB RCRA Part B permit appendixes. Table 3-7 provides the historical Cannon AFB IRP cost summary by phase.

IRP Phase I, CERCLA: The IRP Phase I Report is titled, "Installation Restoration Program Records Search," by CH2M Hill. This report generated the beginning of the SWMU list.

IRP Phase II, CERCLA: The IRP Phase II report is titled, "Installation Restoration Program Phase II Confirmation/Quantification Stage I."

Appendix I, Phase I, RCRA: Work completed for the Appendix I, Phase I, RFIs consists of the following five reports.

1. Remedial Investigation Report for 18 Solid Waste Management Units, Cannon AFB, Clovis NM. Woodward-Clyde Consultants, October 1992.

2. RCRA Facility Investigation at Landfill No. 1 (SWMU 74 or IRP LF-1) and Landfill No. 2 (SWMU No. 82/IRP No. LF-2), Woodward-Clyde Consultants, January 1993.

3. RCRA Facility Investigation (RFI) SWMU No. 105, Landfill No. 3, IRP Site LF-3 Final Report, Radian, February 1994.

4. RCRA Facility Investigation (RFI) SWMU No. 104, Landfill No. 4, IRP Site LF-4 Final Report, Radian, March 1994.

5. Work plan for the RFI Phase I for Landfill No. 5 Draft, Woodward-Clyde, November 1993.

Appendix I, Phase II, RCRA: Work completed for the Appendix I, Phase II RFI consists of one report titled, "RCRA Facility Investigation Activities, Phase II to Appendix I, Supplemental RFI Report," Woodward-Clyde, January 1995.

Appendix II, Phase I, RCRA: Work completed for the Appendix II, Phase I Investigations consists of one report titled, "Appendix II RCRA Facility Investigation Project 909012," LRL Sciences 1994.

Appendix III, Phase I, RCRA: Work completed for the Appendix III, Phase I, RFI consists of the following two reports.

1. RCRA Facility Investigation (RFI) Landfill No. 25, SWMU 97, IRP Site LF-25, Draft Report, Radian, August 1993.

2. RCRA Facility Investigation Appendix III SWMUs, Phase I, Cannon AFB, NM, Woodward-Clyde, February 1994.

Appendix II and Appendix III, Phase II, RCRA: Work completed for the Appendix II and Appendix III Phase II RFI consists of the following two reports.

1. Pre-Draft RFI Report, RCRA Facility Investigation, Appendix II SWMUs - Phase II, Cannon Air Force Base, New Mexico. Woodward-Clyde, April 1995.

2. Pre-Draft RFI Report, RCRA Facility Investigation, Appendix III SWMUs - Phase II, Cannon Air Force Base, New Mexico. Woodward-Clyde, April 1995.

Melrose AFR, Phase I, RCAP: Work completed for the Phase I RFI of Melrose AFR SWMUs consists of one report titled, "Draft Melrose RFI Workplan," April 1995.

TABLE 3-4

HISTORICAL DELIVERABLES FOR CANNON AFB IRP/RFI PROGRAM

Report Number	Year	Phase	Project Title	Sites Examined	Deliverable Date/By Whom
1	1983	PA (Pre-RCRA)	Records Search	LF-1, LF-2, LF-3, LF-4, LF-5, FT-6, FT-7, FT-8, FT-9, OT-10, SD-11, SD-12, SD-13, WP-14, SD-15, DP-16, SD-17, SS-18, SS-19, SD-20, WP-21, ST-22, OT-23, OT-24, LF-25, ST-26, ST-27, ST-28, ST-29, ST-30, ST-31, ST-32	August 1983/ CH2M Hill
2	1986	IRP-RI Phase 2 (Pre-RCRA)	IRP Phase 2 Confirmation/ Quantification Stage 1	LF-1, LF-2, LF-3, LF-4, LF-5, FT-6, FT-7, FT-8, FT-9, SD-11, SD-12, SD-13, SD-15, DP-16, SD-17, SS-18	September 1986/ Radian Corporation
3	1987	RCRA RFA	Preliminary Review/VSI Report RCRA Facility Assessment	LF-1, LF-2, LF-3, LF-4, LF-5, FT-6, FT-7, FT-8, FT-9, OT-10, SD-11, SD-12, SD-13, WP-14, SD-15, DP-16, SD-17, SS-18, SS-19, SD-20, WP-21, ST-22, OT-23, OT-24, LF-25, ST-26, ST-27, ST-28, ST-29, ST-30, ST-31, ST-32, Appendixes I, II, and III	July 1987/AT Kearney, Inc.
4	1990	RI	Remedial Investigation	FT-9, SD-11, SD-12, SD-20	January 1990/ Walk Haydel & Assoc., Inc.
5	1990	DD	Decision Documents	LF-2, LF-3, LF-4, LF-5, FT-6, FT-7, FT-8, OT-10, SD-11, SD-12, SD-13, WP-14, SD-15, DP-16, SD-17, SS-18, SS-19, SD-20, OT-23, OT-24	November 1990/EA Engineering Science and Technology, Inc.
6	1991	EA	Environmental Assessment	LF-25	February 1991/USACE, Tulsa District
7	1991	RFI	RCRA Facility Investigation	LF-5, FT-6, FT-7, FT-8, FT-9, SD-11, WP-14, SD-15, DP-16, SD-17	May 1992/ Woodward-Clyde Consultants
8	1992	RFI	RFI Work Plan Appendix II	OT-10, SS-18, SS-19, SD-22, DP-25	August 1992/ Woodward-Clyde Consultants
9	1992	RFI	RFI Work Plan Appendix III	Appendix III SWMUs	December 1993/ Woodward-Clyde Consultants
10	1992	RI	RI Multi-Sites	LF-1, LF-2, LF-3, LF-4	April 1992/ Woodward-Clyde Consultants/ Radian Corporation
11	1992	RI	Remedial Investigation Report for 18 SWMUs	Appendix I SWMUs	October 1992/ Woodward-Clyde Consultants
12	1993	RFI	RFI at Landfill Nos. 1 and 2	LF-1, LF-2	January 1993/ Woodward-Clyde Consultants

TABLE 3-4

HISTORICAL DELIVERABLES FOR CANNON AFB IRP/RCAP PROGRAM

Report Number	Year	Phase	Project Title	Sites Examined	Deliverable Date/By Whom
13	1993	RFI	RFI Draft Report	LF-25	August 1993/ Radian Corporation
14	1993	RFI	Phase I RFI Work Plan	LF-5	November 1993/ Woodward-Clyde
15	1993	RFI	Phase I RFI	Appendix II SWMUs	1993/LRL Sciences
16	1994	RFI	RFI Final Report	LF-3	February 1994/ Radian Corporation
17	1994	RFI	Phase I RFI, Appendix III	Appendix III SWMUs	February 1994/ Woodward-Clyde
18	1994	RFI	RFI Final Report	LF-4	March 1994/ Radian Corporation
19	1995	RFI	Phase II Supplemental RFI Report, Appendix I	Appendix I SWMUs	January 1995/ Woodward-Clyde
20	1995	RFI	Pre-Draft RFI Report, Phase II, Appendix II	Appendix II SWMUs	April 1995/ Woodward-Clyde
21	1995	RFI	Pre-Draft RFI Report, Phase II, Appendix III	Appendix III SWMUs	April 1995/ Woodward-Clyde
22	1995		Postclosure Care Plan (Draft)	LF-5, Cell 3	1995/Parsons Environmental Science

DD = Decision Document
EA = Environmental Assessment
PA = Preliminary Assessment
RCRA = Resource Conservation and Recovery Act
RFA = RCRA Facility Assessment
RFI = RCRA Facility Investigation
RI = Remedial Investigation
USACE = U.S. Army Corps of Engineers
VSI = Visual Site Investigation

TABLE 3-5

HISTORICAL SITE DELIVERABLES FOR CANNON AFB IRP

IRP Site ID	Report Numbers* RFA PA/SI	RFI/CMS RI/FS	CMD/CMI RD/RA	Closeout
LF-1	1, 2, 3	7, 10, 11, 12, 19		
LF-2	1, 2, 3	5, 7, 10, 11, 12, 19		
LF-3	1, 2, 3	5, 7, 10, 11, 16, 19		
LF-4	1, 2, 3	5, 7, 10, 11, 14, 18, 19		
LF-5	1, 2, 3	5, 7, 11, 19	22	
FT-6	1, 2, 3	5, 7, 11, 19		
FT-7	1, 2, 3	5, 7, 11, 19		
FT-8	1, 2, 3	5, 7, 11, 19		
FT-9[1]	1, 2, 3	4, 5, 7, 11, 19		
OT-10	1, 2, 3	5, 9, 17		
SD-11	1, 2, 3	5, 7, 11, 19		
SD-12	1, 2, 3	5, 7, 11, 19		
SD-13	1, 2, 3	5, 7, 11, 19		
WP-14	1, 2, 3	5, 7, 11, 19		
SD-15	1, 2, 3	5, 7, 11, 19		
DP-16	1, 2, 3	5, 7, 11, 19		
SD-17	1, 2, 3	5, 7, 11, 19		
SS-18	1, 2, 3	5, 9, 17		
SS-19	1, 2, 3	5, 9, 17		
SD-20	2	4, 5, 7, 11, 19		
SD-21[1]	2	7		
SD-22[1]	3	8		
OT-23[1]		5		
OT-24[1]		5		
LF-25	3, 6	8, 13, 17, 21		
ST-26	1, 2, 3	9, 15, 20		
ST-27	1, 2, 3	9, 15, 20		
ST-28[1]	1, 2, 3	15		
ST-29[1]	1, 2, 3	15		
ST-30[1]	1, 2, 3	15		
ST-31[1]	1, 2, 3	15		
ST-32[1]	1, 2, 3	15		
DP-33	10			

*Report numbers as indicated in Table 3-4.
[1]Not considered IRP for DERA funding purposes
CMD = Corrective Measures Design
CMI = Corrective Measures Implementation
CMS = Corrective Measures Study
FS = Feasibility Study
PA = Preliminary Assessment
RA = Remedial Action
RD = Remedial Decision
RFA = RCRA Facility Assessment
RFI = RCRA Facility Investigation
RI = Remedial Investigation
SI = Site Investigation

TABLE 3-6

HISTORICAL DELIVERABLES FOR CANNON AFB RCRA PART B PERMIT APPENDIXES

	Report Numbers*						
Appendix	RFA	RFI	CMS	CMS Design	CMI	Closeout	Comment
I	3	7, 11, 19					
II	3	8, 15, 20					
III	3	9, 17, 21					

* Report numbers as indicated in Table 3-3.

CMI = Corrective Measures Implementation
CMS = Corrective Measures Study
RFA = RCRA Facility Assessment
RFI = RCRA Facility Investigation

TABLE 3-7

COST SUMMARY BY PHASE FOR CANNON AFB IRP

Year	RFA PA/SI	RFI/CMS RI/FS	CMS Design/RD	CMI/RA	IRA	LTO	LTM	NFRAP	Total
FY 1983	$387,000								$387,00
FY 1984									
FY 1985									
FY 1986		$248,300							$248,300
FY 1987		$754,600					$7,400		$762,000
FY 1988		$29,000			$176,400				$205,400
FY 1989					$356,600				$356,600
FY 1990									
FY 1991	$122,600	$1,245,300					$32,700		$1,400,600
FY 1992		$3,651,600							$3,651,600
FY 1993		$1,151,900							$1,151,900
FY 1994									
FY 1995		$1,395,000							$1,395,000
Total	$509,600	$8,475,700	$0	$0	$533,000	$0	$40,100	$0	$9,558,400

CMI = Corrective Measures Implementation
CMS = Corrective Measures Study
IRA = Interim Remedial Action
LTM = Long-Term Monitoring
LTO = Long-Term Operation
NFRAP = No Further Remedial Action Planned
PA = Preliminary Assessment
RA = Remedial Action
RD = Remedial Design
RFA = RCRA Facility Assessment
RFI = RCRA Facility Investigation
RI/FS = Remedial Investigation/Feasibility Study
SI = Site Investigation

3.5 CANNON AFB RCRA PART B PERMIT STATUS

The RCRA Part B permit was issued in 1989 to Cannon AFB for the DRMO to allow the storage of hazardous waste on Base for up to one year before disposal. This permit requires the USAF to complete the following tasks as part of the Base RCAP:

- Conduct an RFI on each SWMU defined in the permit
- Prepare an Interim Corrective Measures Plan for the SWMUs requiring CMI
- Prepare a CMS for the SWMUs requiring CMI
- Prepare a CMS Proposed Plan for the CMI SWMUs
- Prepare a CMD for the CMI SWMUs
- Implement corrective measures for each SWMU requiring them

The permit also gives the time schedule for the RFI and stipulates that newly identified areas of contamination will be incorporated into the RFI if the areas meet the requirements for a SWMU. However, the schedule has been modified several times due to funding delays at the Base.

Appendix I site Landfill 5 (SWMU 113) includes a Cell 3 that was capped in 1989. A draft postclosure care plan is currently under review by NMED. A Phase I RFI of the other Landfill 5 disposal cells is currently ongoing, with a final report due in January 1997.

Melrose AFR RCRA Subpart X permit status was approved in December 1994. This permit requires an RCAP for three SWMUs. The initial RFI work plan is due to EPA in May 1995.

3.6 KEY REGULATORY DATES AND ACTIONS

Key regulatory actions and dates for the Cannon AFB environmental program, beginning with the IRP Phase I Records Search, are listed below.

1. August 1983 IRP Records Search conducted by CH2M Hill.

2. November 1987 PA/Visual Site Inspection (VSI), RFA.

3. November 1989 RCRA Part B storage permit issued to Cannon AFB by EPA Region VI and NMED. The HSWA section lists SWMUs and AOCs requiring investigations in Appendix I, II, and III.

4. February 1991 Environmental Assessment Concrete Rubble Pile Landfill 25 (SWMU 97) completed.

5. July 1992 Disposal Pit DP-33 identified and added to the IRP.

6. November 1992 Appendix I RFI data approved by EPA Region VI.

7. January 1994 RFI Appendix II, RFI Phase I Report approved by EPA Region VI.

8. January 1994 RFI Appendix III, RFI Phase I Report approved by EPA Region VI.

9. June 1994 Disposal Pit DP-33 removal action completed.

10. August 1994 Engine Test Cell SD-11 (SWMUs 86-90) interim corrective action completed.

11. September 1994 Appendix I RFI Report approved by EPA Region VI. Survey data for 19 SWMUs supplied to the County Clerk's office.

12. September 1994 Landfill 5 (SWMU 113) RFI Work Plan approved by NMED and EPA Region VI.

13. October 1994 RFI Appendix II and III Phase II Work Plans approved by EPA Region VI.

14. December 1994 RCRA Subpart X Permit for Melrose AFR approved by NMED and EPA Region VI. The HSWA section lists SWMUs requiring investigation.

3.7 COMPLIANCE PROGRAM STATUS

Pollution prevention, natural/cultural resources, and compliance activities at Cannon AFB are conducted in coordination with environmental restoration activities. Compliance activities address USTs, hazardous materials management, polychlorinated biphenyls (PCBs), water discharges, closure of active hazardous waste management units, air quality management, asbestos, and radon. The Cannon AFB UST program is regulated by the NMED UST regulations. The Base has been PCB-free since 1991, when all known transformers containing PCBs were removed and disposed of off Base. The Base is in the process of obtaining a Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit and a Clean Air Act permit. The NPDES permit will set discharge standards for the sewage lagoons. A New Mexico groundwater discharge permit was granted in 1994. It requires monitoring of the Wastewater Playa Lake (SWMU 103) that receives discharge from the Wastewater Treatment System Lagoons and Effluent Discharge (SWMUs 101 and 102). A management plan was developed in 1995 for maintenance of OWSs and sand traps. The plan has been supplied to EPA in response to needs of Appendix II and III sites.

TABLE 3-8

CANNON AFB TANK STATUS

Tank	SWMU #	Removal Date	Capacity	Fuel	Remarks
Building 10		9/23/94	500 gallons	Diesel	Clean
Building 129	6	1992	2,000 gallons	Heating Oil	
Building 130		1/20/95	500 gallons	Diesel	Investigation required
Building 135		1/19/95	500 gallons	Diesel	Clean
Building 163	126		Unknown	Heating Oil	
Building 170	10	1992	2,000 gallons	Heating Oil	
Building 182A		8/22/94	2,000 gallons	Gasoline	Clean
Building 182B		8/22/94	2,000 gallons	Diesel	Clean
Building 187		8/30/94	6,000 gallons	Jet Fuel	Clean
Building 216		11/17/94	250 gallons	Diesel	Clean
Building 368A		1/24/95	10,000 gallons	Gasoline	Investigation required
Building 368B		1/24/95	10,000 gallons	Gasoline	Investigation required
Building 368C		1/24/95	10,000 gallons	Gasoline	Investigation required
Building 368D		1/19/95	150 gallons	Used Oil	Clean
Building 390	72	4/91	2,000 gallons	Jet Fuel	
Building 494		1/19/95	500 gallons	Used Oil	Clean

TABLE 3-8

CANNON AFB TANK STATUS

Tank	SWMU #	Removal Date	Capacity	Fuel	Remarks
Building 600		10/12/94	500 gallons	Diesel	Investigation required
Building 728		9/28/94	1,000 gallons	Diesel	Investigation required
Building 1400A		9/1/94	25,000 gallons	Diesel	Investigation required
Building 1400B		7/26/94	1,000 gallons	Diesel	Clean
Building 1402		8/8/94	200 gallons	Diesel	Clean
Building 2105		11/17/94	1,000 gallons	Diesel	Clean
Building 2110		9/22/94	550 gallons	Diesel	Clean
Building 2282		11/29/94	500 gallons	Diesel	Clean
Building 2285		1/31/95	500 gallons	Diesel	Investigation required
Building 2300		10/28/94	250 gallons	Diesel	Clean
Building 2302		10/12/94	250 gallons	Diesel	Clean
Building 2306		12/1/94	550 gallons	Diesel	Clean
Building 2340		11/28/94	250 gallons	Diesel	Clean
Building 3025		12/2/94	250 gallons	Diesel	Clean
Building 3050		11/3/94	500 gallons	Diesel	Clean
Building 3060A		12/28/94	500 gallons	Diesel	Investigation required
Building 3060B		12/28/94	500 gallons	Diesel	Investigation required
Building 3121A		1/13/95	1,000 gallons	Gasoline	Clean
Building 3122B		1/13/95	1,000 gallons	Diesel	Clean
Building 3121C		12/5/94	550 gallons	Diesel	Investigation required
Building 4048		10/12/94	500 gallons	Diesel	Clean
Building 5038		10/18/94	500 gallons	Diesel	Clean
Building 326		Active	OWS		
Building 680		Active	OWS		
Building 5114		Active	OWS		

Notes:

Facility 3121 Tanks A, B, and C are at Melrose AFR
Tanks at 368 were in one excavation
Tanks at 3060 were in one excavation
OWS = Oil/Water Separator

3.8 STATUS OF COMMUNITY INVOLVEMENT

Community relations activities occurring at Cannon AFB to date include:

1. Publication and release for public comment of the RCRA hazardous waste permit application.

2. Establishment of information repositories. Public repositories for environmental information were established at the Clovis Carver Public Library and in the Base Library (Building 1208) at Cannon AFB. The repository contains fact sheets, technical summaries, site reports, the Cannon AFB Community Relations Plan (CRP), and other information used to support USAF decision-making.

3. Maintenance of a mailing list of all interested parties in the community. The Cannon AFB Environmental Restoration Office has developed an extensive mailing list for Restoration Advisory Board (RAB) activities and distribution of materials to parties interested in Base environmental restoration activities. This list contains names of state and local elected officials, congressional representatives, chambers of commerce, community organizations, other citizens' groups, and various federal and Air Force organizations. Fact sheets and other public information documents will identify a Cannon AFB contact for parties wanting more information. The mailing list should be continually reviewed and updated to add those people requesting information and should reflect changes in elected offices. The list also includes a complete list of local radio stations, local, regional and national newspapers, and other daily and weekly publications for media release distribution.

4. CRP update in 1995. To develop the CRP update, Cannon AFB interviewed community members to solicit perceptions of the Base and its environmental programs, as well as to assess the knowledge of and access to environmental information. Public involvement strategies are based on the interview results.

5. RAB in 1995. Cannon AFB is in the process of establishing its RAB. RABs provide expanded opportunities for ongoing community input and participation in IRP activities. They provide an important mechanism for two-way communication of IRP-related information between base representatives and members of the community. Many stakeholder groups were identified during the community interviews for the CRP. Fact sheets and a RAB membership application have been developed, and the Base is in the process of advertising the development of its RAB. Following the advertisement and solicitation for members, Cannon AFB will seek volunteers to serve on a selection panel to select the members of the RAB. The full RAB should be in place and operational by the end of August 1995.

3.9 ENVIRONMENTAL CONDITION OF PROPERTY

A review of past and current activities related to the issue of hazardous material or other chemicals was conducted during the 1987 RFA. This included a review of historical records and an analysis of historical aerial photographs. In addition, VSIs conducted by Cannon AFB environmental personnel note the condition of existing facilities, topographic patterns, evidence of environmental impacts, or other observations indicative of actual or potential releases. Reports from ongoing RFI efforts are continuously received and reviewed by Base and regulatory personnel.

When contaminated areas are discovered, they are differentiated according to whether the contaminant concentration is above or below action levels. The boundaries of these areas are dynamic and will be adjusted in accordance with the results of ongoing and planned RFI sampling. Discovery of contamination above action levels will result in a corrective measures study.

Characterization of the degree and extent of contamination at Cannon AFB has been ongoing since the early 1980s, and extensive soil sampling has been accomplished at all of the SWMUs. Groundwater sampling has been accomplished around the sewage lagoons and Landfills 5, 25, 3, and 4 (SWMUs 113, 97, 105, and 104, respectively). Based on the current knowledge of the environmental conditions at the Base, Cannon AFB property has been divided into three categories:

1. Areas of Contamination Above Action Levels. As of April 1995, only OWS No. 326 and Leachfield (SWMU 70) is known to fall into this category.

2. Areas of Contamination Below Action Levels. As of April 1995, most SWMUs with known contamination fall into this category.

3. Areas of No Suspected Contamination.

Characterization of contamination at Melrose AFR will begin with the 1995 RFI.

3.10 UNEVALUATED AREAS

As a result of the RFA required by the RCRA Part B permit, there are no unevaluated areas on the Base. The only areas scheduled for RFIs are those industrial activity areas suspected of contamination. Areas where no industrial type of activities took place are not being investigated during the RFI. Site-specific investigations will only be conducted in these areas if and when a specific problem is identified. The current development of a restoration geographic information system includes extensive reviews of historic aerial photographs to determine areas of no suspected contamination.

4.0
BASE-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

This chapter summarizes the Base-wide strategy for conducting the environmental restoration program at Cannon AFB and Melrose AFR. The goals and objectives of the IRP/RCAP strategy are stated in Section 1.2.

4.1 IRP/RCAP PHASE DESIGNATION AND STRATEGY

The HSWA component of the Cannon RCRA Part B permit stipulates that the 74 SWMUs and 3 AOCs listed in the RFA be investigated. EPA Region VI placed these SWMUs into three groups and included them as three separate appendices to the RCRA permit. New SWMUs and AOCs, when found, are investigated under RCAP. Groundwater monitoring and quarterly RCAP status reports are provided to EPA and NMED.

The HSWA component of the Melrose RCRA permit requires investigation of three SWMUs and any potential areas of concern. The list of SWMUs can be found in Table 3-1. This RFI will use a Total Environmental Restoration Contract (TERC) contractor in order to streamline some RCAP actions.

4.2 REMOVAL ACTIONS AND TREATABILITY STUDIES

There have been limited removal actions at Cannon AFB. The leaking fuel tank at FDTA No. 4 (SWMU 109) has been removed and the soil landfarmed on Base. The OWS at Engine Test Cell SD-11 (SWMUs 86-90) was removed during the July/August 1994 time frame with disposal of soil off Base. An interim removal action for Disposal Pit DP-33 was completed in 1994. Currently, the only other removal actions are those associated with USTs being removed following NMED UST regulations. A pilot bioventing study is in place at OWS No. 326 and Leachfield (SWMU 70) and is expected to run at least one year. After the pilot study is complete, the OWS and the associated UST should be removed. Removal/ replacement projects for 19 Appendix II and III OWSs (to include SWMU 70) are planned for 1995 and 1996.

TABLE 4-1

PLANNED REMOVAL ACTIONS AT CANNON AFB

SWMU No.	Site Name	Estimated Cost	Comments
1	OWS No. 119	$12,600	REP95
7	OWS No. 129	$12,600	REM95
8	OWS No. 165	$12,600	REM95
9	Aircraft Washrack Drain System	$12,600	REP95
11	OWS No. 170	$12,600	REM95
32	OWS No. 186 (#1)	$12,600	REM95
33	OWS No. 186 (#2)	$12,600	REM95
38	OWS No. 194	$12,600	REP95
39	OWS No. 195	$12,600	REP95
46	OWS No. 196	$12,600	REM95
47	OWS No. 494	$12,600	REM95
51	OWS No. 375	$12,600	REP95
57	OWS No. 379	$12,600	REP95
61, 62, 63	OWS Nos. 5077a, 5077b, 5077c	$12,600	REM95
70	OWS No. 326 and Leach Field	$564,200	REM
92	OWS No. 5120	$12,600	REM95
94	OWS No. 5144	$12,600	REM95

OWS = Oil/Water Separator
REM = Pilot bioventing study is being executed. The OWS will be reviewed following completion of the study.
REM95 = To be removed and inspected in 1995
REP95 = To be removed, inspected, and replaced in 1995
SWMU = Solid Waste Management Unit

4.3 COMMUNITY RELATIONS STRATEGY

A CRP was drafted by the Base Public Affairs office in 1993 and revised in March 1995 (see Section 3.8). It must be expanded to include Melrose AFR. Only one meeting of the Technical Review Committee (TRC) was ever held, and it was held on Base. During this meeting, only one member of the general public attended. The TRC will be replaced by a RAB in 1995. RAB meetings will be held both on and off Base in an attempt to involve both the public and regulatory agencies.

4.4 REMEDY SELECTION APPROACH

Possible remedies will be selected in accordance with statutory and RCAP guidance protocol. The Cannon AFB project team will involve all relevant public and private parties in the remedy selection process through the RAB and access to information repositories. Particular attention will be given to the following during the evaluation of the alternatives.

1. **Land Use/Risk Assessment.** Where future land uses are known, risk assessment protocols will incorporate future groundwater, surface water, and land use considerations in developing exposure scenarios. The Rational National Standards Initiative (RNSI), an ongoing HQ ACC initiative, utilizes future land use in selecting risk-based cleanup levels and prioritizing their implementation. RNSI details will be incorporated into this MAP after regulatory agency review and approval.

2. **Alternative Concentration Limits.** These limits will be considered during the CMSs as groundwater protection standards to be applied in determining points of compliance, if groundwater contamination is detected.

3. **Treatability/Pilot Studies.** Treatability/Pilot Studies may be incorporated into CMSs where appropriate.

4. **Applicable Remedies.** Focused CMSs will be developed, and innovative technology will be considered for those sites requiring specific action. Presumptive Remedial Engineering Evaluation/Cost Analysis (PREECA), a HQ

ACC initiative, can help minimize the amount of investigation and design required prior to corrective action selection for some sites.

4.5 REMEDY SELECTION APPROACH FOR PETROLEUM-CONTAMINATED SOILS

Cannon AFB has numerous sites where soils are contaminated with POLs. Regulations pertaining to POL contamination have been promulgated by the State of New Mexico, the best known of which is the UST regulations. Basically, petroleum-contaminated soils can be treated as follows:

1. No Further Action. Total petroleum hydrocarbons (TPH) less than 100 ppm or water table greater than 100 feet deep: Leave the contaminated soil in place, as it should pose no risk given the low annual rainfall and local depth to groundwater. The less-than-100-ppm TPH rule is given in the NMED UST regulations.

2. TPH greater than 100 ppm but less than 1,000 ppm: Disposal in a permitted landfill. Most municipal landfills would be permitted to receive such waste, but it would depend on the policy of the landfill operators if they would accept it. Clovis municipal landfill was permitted to take such waste, but the Clovis landfill management personnel no longer allow it. Bioventing and/or on-Base landfarming in lieu of excavation and off-Base disposal will be considered.

3. TPH greater than 1,000 ppm: Treatment at a permitted "landfarm" facility; the nearest locations are in Hobbs, New Mexico. Cannon AFB has the room for such a facility but requires a groundwater discharge permit modification to accomplish it. A landfarm on Base is planned for the Appendix II and III OWS projects.

4. Any TPH levels: *In-situ* treatment by bioventing or other bioremediation techniques. An ongoing AFCEE pilot project is testing the suitability of this approach at Cannon AFB. The water table is so deep at Cannon AFB, the

in-situ option could be negotiated with NMED on almost any site if the AFCEE project data confirm suitability.

5. Institutional controls to limit exposure (e.g., fencing, deed restrictions) should be considered as part of the remedy selection.

4.6 COMPLIANCE STRATEGY

The following are the strategies for compliance activities at Cannon AFB.

1. **USTs:** All USTs have been removed or are being removed following NMED UST regulations. All USTs are being replaced with state-of-the-art aboveground storage tanks or underground vaults.

2. **PCBs:** Cannon was declared PCB-free in 1991.

3. **NPDES Permit:** Cannon AFB is in the process of obtaining an NPDES permit. The NPDES permit will include discharge limits for the Base's sewage lagoons.

4. **Air Permit:** Cannon AFB is in the process of obtaining a Clean Air Act Permit.

5. **Petroleum-Contaminated Soils:** Petroleum-contaminated soils will be dealt with on a site-by-site basis using the remedy selection process as described in paragraph 4.5 above and Table 4-2. Restoration sites will be approved as part of RCAP. Nonrestoration sites (e.g., plane crashes) require approval on a case-by-case basis.

TABLE 4-2

SELECTION APPROACH FOR REMEDIATION OF PETROLEUM-CONTAMINATED SOILS

Treatment Technology	Advantages	Disadvantages
On-Base landfarming	- Cost-effective - Not labor-intensive - Low maintenance	- Space/capacity constraints - Expansion potential questionable - Periodic monitoring
Soil composting (Bioremediation)	- Cost-effective - Not labor-intensive - Batch process can handle thousands of cubic yards - Relatively short duration to effectively treat contaminated soils	- Requires excavation - May be effective only during warmer months
Low temperature thermal incineration	- Proven effective technology	- High capital cost - Public awareness/relations - Complex regulatory permits required
Natural Attenuation	- Cost-effective - Not labor-intensive - Minimal site disturbance	- Long term - May result in the migration of contaminants - Requires long-term monitoring

5.0
ENVIRONMENTAL RESTORATION/COMPLIANCE PROGRAM MASTER SCHEDULE

5.1 INTRODUCTION

This section and Appendix B to the Cannon AFB MAP present estimates of the cost and time necessary for completing the IRP and RCAP work at Cannon AFB. Appendix B presents the detailed schedules and cost estimates for the remaining sites to be studied. The Base's ability to meet the milestones will depend on DoD funding, timeliness of U.S. Army Corps of Engineers (USACE) functions, and timeliness of staff coordination's at Cannon AFB. Deadlines set in the HSWA Permit did not take into account time required for dispute resolutions, the time required to obtain funds for previously unidentified projects, or the contracting times required by the Federal Acquisition Regulations. Because of these problems, requests for extension have become routine at Cannon AFB.

The initial IRP/RCAP work at Cannon AFB is essentially complete. The RCAP work for Melrose AFR will begin in 1995. NMED has RCRA primacy for Landfill 5 (SWMU 113). EPA has primacy for the other Cannon AFB and Melrose AFR sites. NMED has applied for and will probably receive primacy for all sites in 1995. The exact details for this transition are still under negotiation between EPA and NMED. Telephone conversations occur frequently between project team members.

Project team meetings are usually conducted on an as-required basis, usually during a dispute resolution phase or during a response to a Notice of Deficiency (NOD). Items discussed during these meetings usually involve:

- Primary deliverable schedules
- RFI requirements
- Field sampling plan requirements
- Site characterization objectives

5.2 COST AND TIME SCHEDULES

This section presents the remaining estimated cost and time schedules for the active IRP/RCAP sites at Cannon AFB. The initial estimates in previous MAPs were made using the methodology described below with input and review from the Base service center (USACE), their contractor, and ACC. Subsequent updates will be made by the Base as additional information and/or estimating tools become available.

The purpose of this section was to present initial order-of-magnitude estimates of the cost and time required for completion of the IRP/RCAP using a consistent methodology and format. This allowed the Air Force to quickly and efficiently review the IRP at each base. The available information for each IRP site at the Base was reviewed, and reasonable options for investigation and RA were selected.

5.3 METHODOLOGY

Three computer programs were employed to generate the cost and time schedules for previous editions of this report. These programs are Time Line® (project management software), USAF-IRP (IRP cost model, except for RA), and Cost of Remedial Action (CORA) (RA cost model). Both Time Line® and CORA are proprietary software packages that are available commercially. The USAF-IRP cost model was developed by Radian Corporation specifically for this application. Used in conjunction, these three programs provided the tools necessary to estimate the costs and illustrate the time schedules. Cost estimates for the IRP/RCAP program are now being estimated using the estimating software titled Remedial Action Cost Engineering and Requirements System (RACER).

5.3.1 Time Line®

Time Line® is a project management program that allows the tracking of both schedules and resources (costs) associated with a project. The cost estimates and schedules developed for the IRP sites were entered directly into Time Line® so that cost and time schedules could be prepared. Once the data had been entered into Time Line®, both the costs and schedules could be tracked for each site and presented in different formats to aid in management of the projects.

5.3.2 USAF-IRP Model

The USAF-IRP model estimating method was developed by Radian Corporation specifically for use in MAPs to provide a convenient and consistent means of estimating the cost of IRP activities of the various bases for the original edition of the MAP. The USAF-IRP model estimated the costs associated with all stages of the process with the exception of CMI. Therefore, another cost model (CORA, Section 6.2.3) was required to provide an estimate of the CMI costs. The USAF-IRP model is no longer used and has been replaced with RACER.

5.3.3 CORA Model

Most of the CMI costs were estimated using the CORA model. CORA was developed for the EPA, Office of Solid Waste and Emergency Response. The model was designed for the development of order-of-magnitude estimates of remediation costs for budgeting purposes at Superfund sites. The model includes modules for costing a variety of specific remedial alternatives, including containment, removal, treatment, disposal, and miscellaneous technologies.

5.3.4 RACER

DoD and the Air Force now use the RACER cost-estimating system for IRP/RCAP projects.

5.4 GENERAL ASSUMPTIONS

It was necessary to make certain assumptions and interpretations in order to generate the required cost estimates and time schedules with any of the computer programs. These assumptions and interpretations are based upon a review of the available data for each of the IRP/RCAP sites, discussions with knowledgeable Base personnel, experience at similar sites, and engineering judgment. Project schedules and cost estimates will change over time as better information becomes available. Discussions of the assumptions used and the computer models applied are presented below.

The assumptions listed were those necessary to complete the initial cost and time schedules given the available information and limited scope of this project. These assumptions applied only to the initial estimates.

1. Relations between the Base and the regulatory agencies and local communities was assumed to be acceptable, such that there is no detrimental impact on the schedule and cost from these factors.

2. Each SWMU is assumed to be a single entity. The time schedule reflects taking each SWMU through the RCRA process separately. Cost or time savings from combined actions are not factored into the estimates; however, the RFIs completed so far have been completed as combined actions.

3. Budget or staff limitations were not considered. However, delays in funding and staff limitations lengthened the overall schedule.

4. The regulatory agency review and comment period for draft or interim deliverables was assumed to be 45 days, which proved to be incorrect. Regulatory agency review, comment, and approval throughout the initial period took much longer. The time schedule given for draft documents includes time for contractor internal peer review.

5. Weather was not considered in setting the schedules.

6. The CMS process assumed no bench- or pilot-scale treatability studies are performed. As of April 1995, it has not been necessary to perform any CMSs at Cannon AFB.

7. The project close-out period is assumed to be six months for all sites.

5.5 BASE-SPECIFIC ASSUMPTIONS

Base- and site-specific conditions, such as the regulatory environment, nature and extent of contamination, and hydrogeologic conditions, are different at each AFB. Therefore, the following list of assumptions were made during the development of RFI/CMS and CMD/CMI costs for the IRP sites at Cannon AFB.

1. The regulatory authorities will require the construction of a soil cap on each landfill. At Cannon AFB this has not proved necessary, except for the cap on Cell No. 3 at Landfill 5 (SWMU 113).

2. Remediation of soils in the vadose zone by soil vapor extraction was not considered feasible due to the low permeability of the caliche at the Base.

5.6 INDIVIDUAL COST AND TIME SCHEDULES

Detailed schedules and cost estimates for the remaining Cannon AFB sites to be studied are included as Appendix B. Only those projects most likely to be completed are shown. Previous MAPs projected many RD, RA, and CMI projects that so far have proved to be unnecessary; these projects are no longer listed in this MAP. To investigate the rediscovered burn cells at Landfill 1 (SWMU 74), "leftover" money from project 91-7006 is being used. It is anticipated that Disposal Pit DP-33 and Blown Capacitors Site AOC 36 will be closed out; i.e., NFA after regulatory agency review in 1995.

6.0
TECHNICAL ISSUES AT CANNON AFB

6.1 DATA USABILITY

Although all data collected so far during RFIs has been collected following standard Data Management Plans and Quality Control Plans, historical data has not been loaded into the IRP Information Management System (IRPIMS) or supplied to Cannon AFB in the required electronic format. However, data from the recently completed Phase II RFI will be entered. The only formats received by the Cannon AFB IRP office are printed documents backed up with the entire report saved in word processing formats on 3-1/2-inch floppy disks. The manpower has not existed at Cannon AFB to enter data into IRPIMS.

6.2 INFORMATION MANAGEMENT AT CANNON AFB

All work plans, correspondence, and reports concerning the IRP/RCAP program are kept on file in the Administrative Record; as stated before, no data has been entered into IRPIMS.

6.3 DATA GAPS

Data gaps are highlighted in the various NODs received from EPA Region VI. The EPA then directs what action should take place in follow-on investigations to close these data gaps.

6.4 BACKGROUND LEVELS

A document titled "Concentrations of Naturally Occurring Chemical Constituents in Soil and Groundwater at Cannon Air Force Base, Clovis New Mexico," was developed by Woodward-Clyde Consultants in March 1994. This document should be used when assessing the levels of metals at any given site on Cannon AFB. Background levels for Melrose AFR will be determined during the initial RFI.

6.5 RISK ASSESSMENTS

Risk assessments at Cannon AFB have traditionally been completed during the Phase I or Phase II investigative phases when the original data indicated that a risk assessment was warranted or justified. The Lee Wan Work Plan, which was approved by EPA Region VI, gives the timing of when risk assessments will be completed. However, EPA Region VI has not been reviewing or accepting these risk assessments, even though they approved the process in the Lee Wan Work Plan.

6.6 CLEANUP STANDARDS

Table 6-1 was developed to identify for the current treatment standards that may have to be met during anticipated RAs. It lists the cleanup standards for hazardous waste/constituents in groundwater and soils used by the State of New Mexico. These groundwater standards in Table 6-1 are derived from current and proposed Maximum Contaminant Levels (MCLs), MCL goals, and secondary MCLs promulgated under the Safe Drinking Water Act. The concentrations listed are based on issuance of the contamination levels as of 11 February 1992. As EPA continues to develop current and/or proposed levels, new standards may be periodically published in the Federal Register. Considering that most groundwater around this location is used for irrigation, the standards set in Table 6-1 may be overly conservative.

In the absence of federal or state mandated cleanup standards for hazardous wastes or constituents in soils, the approach for providing remediation criteria for contaminated soils is either through conducting site-specific risk assessments or using more generic guidance levels.

The Interim Final RFI Guidance, Volume I of IV, Development of an RFI Work Plan and General Consideration for RFIs (EPA 30/SW-89-031, May 1989) provides health-based guidance for a number of hazardous compounds and elements based on oral and inhalation routes.

As noted in Section 4, RNSI will recommend risk-based cleanup standards based on future land use.

TABLE 6-1

CLEANUP STANDARDS FOR HAZARDOUS WASTE/CONSTITUENTS IN GROUNDWATER AND SOILS

Constituent	Groundwater (ppm)	Soils[2] (mg/kg)
Inorganic Compounds		
Antimony	0.01[b]/0.0005	30
Arsenic	0.05	[c]
Barium	2	4,000
Beryllium	0.001[b]	14.3[c]
Cadmium	0.005	-
Chromium	0.1	Cr^{+3} = 8,000/Cr^{+6} = 400
Cyanide	0.2[b]	2,000
Lead	0.015	-
Mercury	0.002	-
Nitrite (as N)	1	-
Nitrate (as N)	10	-
Selenium	0.05	-
Silver	0.05	200
Organic Compounds		
Aroclor	0.002	-
Aldicarb	0.003	80
Atrazine	0.003	-
Benzene	0.005	24
Carbon tetrachloride	0.005	5.4
Chlordane	0.002	54
2,4-D	0.07	800
1-Dichlorobenzene	0.6	-
p-Dichlorobenzene	0.075	-
1,2-Dichloroethane	0.005	7.7
cis-1,2-Dichloroethene	0.07	-
trans-1,2-Dichloroethene	0.1	-
1,1-Dichloroethene	0.007	12
Dichloromethane (methylene chloride)	0.005[b]	-
Endrin	0.0002	20
Ethylbenzene	0.7	8,000
Heptachlor	0.0004	16
Heptachlor epoxide	0.0002	770

TABLE 6-1

CLEANUP STANDARDS FOR HAZARDOUS WASTE/CONSTITUENTS IN GROUNDWATER AND SOILS

Constituent	Groundwater (ppm)	Soils[2] (mg/kg)
Lindane	0.0002	5.4
Methoxychlor	0.04	-
Polynuclear Aromatic Hydrocarbons		
Benzo(a)pyrene	0.0002[b]	609[c]
Benzo(a)anthracene	0.0001[b]	22.4[c]
Benzo(b)fluoranthene	0.0002[b]	-
Benzo(k)fluoranthene	0.0002[b]	-
Chrysene	0.0002[b]	-
Dibenz(a,h)anthracene	0.0003[b]	-
Indenopyrene	0.0004[b]	-
Phthalates	0.004[b]	-
Polychlorinated biphenyls	0.0005	910
Styrene	0.1	23
Tetrachloroethene	0.005	140
Toluene	1	20,000
2,4,5-TP Silvex	0.05	600
1,1,2-Trichloroethane	0.005[b]	20,000
1,2,4-Trichlorobenzene	0.009[b]	2,000
1,1,1-Trichloroethane	0.2	7,000
Trichloroethene	0.005	64
Vinyl chloride	0.002	-
Xylenes	10	200,000
Radionuclides		
Gross alpha	15 pPi/L	-
Gross beta	4 mrem/year[d]	-

6.7 TOTAL PETROLEUM HYDROCARBON STANDARDS

In general, all sites remediated to date have followed the general guidelines given in the NMED UST regulations. This regulation sets a standard of 100 ppm TPH or less where the water table is less than 100 feet deep. For good management practices, Cannon AFB follows the 100 ppm TPH rule even though the water table is at 270 feet below ground level. As of April 1995, the following five sites have required cleanup or may require cleanup following the 100 ppm TPH standard:

1. The POL tank removal and cleanup at FDTA No. 4 (SWMU 109).

2. The cleanup of the old POL fuel receiving facility so that new construction could take place.

3. The bioventing system installed at OWS No. 326 and Leachfield (SWMU 70). Again, the NMED UST standards of 100 ppm TPH or less should apply, although it should be possible to achieve almost zero TPH.

4. The removal of the OWS at Engine Test Cell SD-11 (SWMUs 86-90). No standards were discussed, although the UST guidelines will be followed. This OWS was removed in lieu of further studies. In 1994, previously undetected POL contamination required further characterization.

5. Possible cleanup at FDTA No. 4 (SWMU 109) when it is closed to further fire training. An RFI is scheduled and a cleanup action is anticipated; cleanup standards will be determined at that time.

6.8 INITIATIVES FOR ACCELERATED CLEANUP

Interim Removal Actions using innovative technologies will be proposed wherever possible. The community will be involved in any cleanup decisions at the earliest possible date through the RAB process and implementation of the CRP.

6.9 OFF-BASE PROPERTY RESPONSE ACTIONS

Cannon AFB is responsible for over 90,000 acres of property that is considered off-site. Some of these areas include housing, Melrose AFR, and various radar sites. Melrose AFR accounts for the biggest percentage of this property. Cannon AFB is responsible for the environmental condition of all off-Base property. During the RFA, only seven potential SWMUs were listed for these areas, and all of these were at the Melrose AFR. RFIs on three of these SWMUs will be done in 1995.

7.0
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8.0
ACRONYMS

ACC	Air Combat Command
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFR	Air Force Range
ANSC	Area of No Suspected Contamination
AOC	Area of Concern
BCP	Base Comprehensive Plan
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMD	Corrective Measures Design
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
CORA	Cost of Remedial Action
CRP	Community Relations Plan
DD	Decision Document
DERA	Defense Environmental Restoration Account
DoD	U.S. Department of Defense
DRMO	Defense Reutilization and Marketing Office
ECP	Environmental Compliance Program
EPA	U.S. Environmental Protection Agency
FDTA	Fire Department Training Area
FS	Feasibility Study
GIS	Geographic Information System
GWEN	Ground Wave Emergency Network
HQ ACC	Headquarters Air Combat Command
HSWA	Hazardous and Solid Waste Amendments of 1984
IRP	Installation Restoration Program
IRPIMS	IRP Information Management System
MAP	Management Action Plan

MCL	Maximum Contaminant Level
MCP	Military Construction Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NMED	New Mexico Environment Department
NOD	Notice of Deficiency
NPDES	National Pollutant Discharge Elimination System
OWS	Oil/Water Separator
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oils and Lubricants
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering and Requirements System
RCAP	RCRA Corrective Action Program
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RNSI	Rational National Standards Initiative
RPM	Remedial Project Manager
SI	Site Investigation
SWMU	Solid Waste Management Unit
TERC	Total Environmental Restoration Contract
TPH	Total Petroleum Hydrocarbon
TRC	Technical Review Committee
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
UST	Underground Storage Tank
VSI	Visual Site Inspection

APPENDIX A
CANNON AFB SITE DESCRIPTIONS

SWMU 1 Oil/Water Separator No. 119, Appendix II Site
DPM Score: None Date of Scoring: N/A

This unit is a three-compartment oil/water separator (OWS) with a 700-gal main compartment and a 260-gal oil compartment. The unit is on the southeast corner of Bldg. 119 and is constructed of concrete. The separator is active and has been active since 1963. It receives wash water containing petroleum and synthetic lubricating oils generated from aircraft maintenance operations. The separator was investigated during the Appendix II, Phase I, RFI Investigation. No further action (NFA) was recommended, however EPA directed a Phase II investigation which will be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMU 2 Recovered Diesel Tank No. 108, Appendix II Site
IRP No. ST-28 DPM Score: 0.2 Date of Scoring: Feb 1993

SWMU 2 was a 2,000-gal underground heating oil storage tank at Hangar 108 which was constructed in WWII. The description given in the May 1, 1987 RCRA Facility Assessment (RFA) is wrong. There was no UST at 108 connected to the OWS. Therefore, this tank was NOT a Recovered Diesel Tank as described in the RFA. See the drawings for Hangars 129 and 170 which were constructed at the same time and were as the same design as hangar 108.

Hangar 108 was demolished in 1989 and replaced with Hangar 125. The tank was removed and the old UST location became covered with the concrete floor of the new hangar. This UST was originally listed as an Appendix II site but was removed from the SWMU list when EPA Region VI approved the Appendix II, Phase I RFI work plan in March 1992. The tank will be officially removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 3 Oil/Water Separator No. 108, Appendix II Site
DPM Score: None Date of Scoring: N/A

The old location of OWS No. 108 is on the west side of Bldg. 125. This location should not be confused with the location of the new OWS located on the east side of 125. The unit was installed in 1943 when Hangar 108 was constructed and initially received wash down water containing oil and grease from Hangar 108. The separator was supposedly a three-compartment unit with a 700-gal main compartment and a 280-gal oil compartment. Drawings detailing the demolition of 108 specify removing all of the old sewer lines up to the main, which would have included this OWS. On site investigations give no evidence of the OWS and therefore it is believed this OWS was removed during the demolition of 108

in 1990. Due to site alterations the exact location of the separator is unknown. The location of the Phase I boreholes were selected by a 27th Civil Engineering civilian employee who worked on base prior to the demolition of 108, and who knew the approximate location of the old OWS. NFA was recommended by the Appendix II, Phase I Investigation. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs.

SWMU 4 Recovered Diesel Tank No. 121, Appendix II Site
IRP No. ST-29 DPM Score: 0.2 Date of Scoring: Feb 1993

SWMU 4 was a 2,000-gal underground heating oil storage tank at Hangar 121 which was constructed in WWII. The description given in the May 1, 1987 RFA is wrong. There was no UST at 121 connected to the OWS. Therefore, this tank was not a recovered diesel tank as described in the RFA. See the drawings for Hangars 129 and 170 which were constructed at the same time and were as the same design as hangar 121.

Hangar 121 was demolished in 1989 and replaced with Hangar 126. The tank was removed and the old UST location became covered with the concrete floor of the new hangar. This UST was originally listed as an Appendix II site but was removed from the SWMU list when EPA Region VI approved the Appendix II, Phase I RFI work plan in March 1992. The tank will be officially removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 5 Oil/Water Separator No. 121, Appendix II Site
DPM Score: None Date of Scoring: N/A

The old location of OWS No. 121 is on the west side of Bldg. 126. This location should not be confused with the location of the new OWS located on the east side of 126. The unit was installed in 1943 when Hangar 121 was constructed and initially received wash down water containing oil and grease from Hangar 121. The separator was supposedly a three-compartment unit with a 700-gal main compartment and a 280-gal oil compartment. Drawings detailing the demolition of 121 specify removing all of the old sewer lines up to the main, which would have included this OWS. On site investigations give no evidence of the OWS and therefore it is believed this OWS was removed during the demolition of 121. Due to site alterations the exact location of the separator is unknown. The location of the Phase I boreholes were selected by a 27th Civil Engineering civilian employee who worked on base prior to the demolition of 121, and who knew the approximate location of the old OWS. NFA was recommended by the Appendix II, Phase I Investigation. However the quality of the Appendix II, Phase I Report was poor and EPA Region VI directed a Phase II Investigation. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs.

SWMU 6 POL Tank No. 129, Appendix II Site
DPM Score: None Date of Scoring: N/A

SWMU 6 was a 2,000-gal underground heating oil storage tank at Hangar 129 which was constructed in WWII. This UST was also incorrectly described in the RFA as a tank that collects recovered diesel fuel from the OWS. (See the problems with SWMUs 2 and 4 above.) This UST was removed following NMED UST regulations in 1992. See the Cannon AFB UST files on 129 for a complete project description. SWMU 6 was originally listed as an Appendix II site but was removed from the SWMU list when EPA Region VI approved the Appendix II, Phase I RFI work plan in March 1992. The tank will be officially removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 7 Oil/Water Separator No. 129, Appendix II Site
DPM Score: None Date of Scoring: N/A

This unit is on the west side of Bldg. 129. The separator is a concrete three compartment underground unit with a 700-gal main compartment and a 280-gal oil compartment. The unit was installed in 1943. It receives washdown water from Bldg. 129. Potential contaminants include JP-4 fuel, solvents, and oil and grease. The unit was investigated during the Appendix II, Phase I RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 8 Oil/Water Separator No. 165, Appendix II Site
DPM Score: None Date of Scoring: N/A

OWS No. 165 is on the south side of the aircraft washrack at Facility 165. This is a three-compartment underground concrete unit with a 4,500-gal main compartment and a 710-gal oil compartment. The aircraft washrack is now closed as a washrack and is now used to store flightline equipment. The unit received washdown water generated from the washing of aircraft and still receives runoff during rainstorms. The separator was installed in 1963 and is still in place. Potential contaminants include JP-4 fuel, PD-680 solvent, and oil and grease. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 9 Aircraft Washrack Drain System, Appendix II Site
DPM Score: None Date of Scoring: N/A

The aircraft washrack (Facility 165) was constructed in 1966 and consists of a concrete pad used to clean aircraft. The pad slopes to a centrally located drain, which discharges to Oil

/Water Separator No. 165 (SWMU 8). Potential contaminants include JP-4 fuel, PD-680 solvent, and oil and grease. Approximately four aircraft were cleaned weekly on the pad when the washrack was in use. The aircraft washrack is now closed and is used to store various equipment for the flightline. The unit was investigated during the RFI Appendix II Phase I Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMU 10 POL Tank No. 170, Appendix II Site
DPM Score: None Date of Scoring: N/A

SWMU 10 was a 2,000-gal underground heating oil storage tank at Hangar 170 which was constructed in WWII. This UST was also incorrectly described in the RFA as a tank that collects recovered diesel fuel from the OWS. (See the problems with SWMUs 2 and 4 above.) This UST was removed following NMED UST regulations in 1992. See the Cannon AFB UST files on 170 for a complete project description. SWMU 10 was originally listed as an Appendix II site but was removed from the SWMU list when EPA Region VI approved the Appendix II, Phase I RFI work plan in March 1992. The tank will be officially removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 11 Oil/Water Separator No. 170, Appendix II Site
DPM Score: None Date of Scoring: N/A

OWS No. 170 is a three-compartment underground concrete unit with a 700-gal main compartment and a 280-gal oil compartment. It is on the west side of Bldg. 170. The unit received washdown water generated from aircraft maintenance operations. Potential contaminants included JP-4 fuel, solvents, and oil and grease. The unit was installed in 1943 and receives washdown water from Bldg. 170. Potential contaminants include JP-4 fuel, solvents, and oil and grease. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 16 Oil/Water Separator No. 680, Appendix II Site
DPM Score: None Date of Scoring: N/A

OWS No. 680 was on the southeast corner of Bldg. 680. The unit was active from 1965 to 1991. The separator was excavated in April 1991 during building renovations and replaced with a new unit approximately 15 ft east of the original separator. The separator was a three-compartment underground concrete unit with a 584-gal main compartment and a 140-gal oil compartment. The unit received washdown water from aircraft maintenance operations. Potential contaminants included JP-4 fuel, solvents, and oil and grease. The separator was

investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs.

SWMU 31 AGE Maintenance Shop Pad, Appendix III Site
DPM Score: None Date of Scoring: N/A

The AGE Maintenance Shop Pad is an open concrete area approximately 50 ft wide by 1,000 ft long that surrounds Bldg. 186. Maintenance on aircraft support equipment is performed in Bldg. 186 and on the open area. A small four-bay equipment washrack is incorporated into the east area of the pad. The pad has received washdown water contaminated with JP-4 fuel, diesel fuel, gasoline, and oil and grease. This unit has been active since 1971. The washdown water flows both into the AGE Drainage Ditch (SWMU 34) and the OWS No. 186 (#1) (SWMU 32). NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 32 Oil/Water Separator No. 186 (#1), Appendix II Site
DPM Score: None Date of Scoring: N/A

The description in the RFA is identical to the one given for SWMU 33. However, SWMU 33 receives fluids from the AGE shop floor drains while SWMU 32 receives washwater from the AGE Washrack.

This unit was referred to as 32a in the Appendix II RFI Report, however there is no official SWMU numbered 32a. During the Appendix II, Phase I investigation both OWSs at facility 186 were investigated, this unit was miss-identified in the report as 32a while the other OWS was miss-identified as 33b. (See the description of SWMU 33.)

This unit receives water primarily from an AGE washrack on the AGE Maintenance Shop Pad (SWMU 31). The separator is between Bldg. 186 and the flightline. It is a single compartment underground concrete chamber with two baffles with a capacity of approximately 300-gallons. Potential contaminants include JP-4 and diesel fuel, gasoline, and oil and grease. The unit was installed in 1971. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended and was accepted by the EPA. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 33 Oil/Water Separator No. 186 (#2), Appendix II Site
DPM Score: None Date of Scoring: N/A

The description in the RFA is identical to the one given for SWMU 32. However, SWMU 33 receives fluids from the AGE shop floor drains while SWMU 32 receives washwater from the AGE Washrack.

This unit was referred to as 33b in the Appendix III RFI Report, however there is no official SWMU numbered 33b. During the Appendix II, Phase I investigation both OWSs at facility

186 were investigated, this unit was miss-identified in the report as 33b while the other OWS was miss-identified as 32a. (See the description of SWMU 32.) This unit is on the southwest corner of Bldg. 186 (between Bldg. 186 and Torch Boulevard). The separator is a two-compartment underground concrete unit with a 540-gal main compartment and a 140-gal oil compartment. The unit was installed in 1971 and receives washdown water generated from AGE maintenance in Bldg. 186. Potential contaminants include JP-4 and diesel fuel, gasoline, and oil and grease. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 34 AGE Drainage Ditch, Appendix I Site
IRP No. SD-15 DPM Score: 7.1 Date of Scoring: Feb 1993

The Aerospace Ground Equipment (AGE) Drainage Ditch is a man-made depression in the maintenance operation area that remained after railroad tracks were removed in the late 1960s. The ditch was originally 1,200 ft long, 12 ft wide (1/3 acre), and approximately 1 ft deep. It originated on the northwest corner of Bldg. 184 and ran northeast parallel to the flightline sides of Bldgs. 186, 191, 192, and 193. In 1991, approximately 400 ft of the ditch in the area of Bldg. 192 were filled and covered with concrete associated with nearby construction. The ditch receives stormwater runoff from several flightline operations and from roads, such as the concrete AGE Maintenance Shop Pad (SWMU 31), Torch Boulevard, and the parking area near Bldg. 189. Water carried by the ditch flows into an open field and evaporates. Potential contaminants carried by surface water runoff include oil and grease, fuels, and solvents.

The Phase II RFI Work Plan was approved by EPA Region VI in March 1992; however, the field investigations have not yet begun. The Phase III RFI Work Plan was submitted in June 1992 to EPA Region VI. Two sampling investigations conducted on the AGE Drainage Ditch in 1987 and 1988 identified oil and grease contamination. The drainage ditch soil was tilled in October 1988 to aerate the soil. Further investigation of the ditch was performed during the RFI Phase 1 study. NFA has been recommended for this site.

SWMU 38 Oil/Water Separator No. 194, Appendix II Site
DPM Score: None Date of Scoring: N/A

This unit is on the northeast corner of Bldg. 194. The separator is a three-compartment underground concrete unit with a 584-gal main compartment and a 140-gal oil compartment. The unit has been active since 1971 and receives washdown water contaminated with oil and grease. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMU 39 Oil/Water Separator No. 195, Appendix II Site
DPM Score: None Date of Scoring: N/A

This unit is on the northeast corner of Bldg. 195. The separator is a three-compartment underground concrete unit with a 584-gal main compartment and a 140-gal oil compartment. The unit has been active since 1971 and receives washdown water contaminated with oil and grease. The separator was investigated during the Appendix II, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMU 46 Oil/Water Separator No. 196, Appendix III Site
DPM Score: None Date of Scoring: N/A

A three compartment underground concrete unit with a 560-gal main compartment and a 135-gal oil compartment. The unit has been active since 1969 and receives washdown water contaminated with oil and grease. The separator was investigated during the Appendix III, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix II, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 47 Oil/Water Separator No. 494, Appendix III Site
DPM Score: None Date of Scoring: N/A

This separator is a concrete underground unit adjacent to the north wall of Bldg. 494 (Auto Hobby Shop). It is a three-compartment unit with a 50-gal main compartment and a 50-gal oil compartment. The separator has been active since 1982 and receives washdown water contaminated with oil and grease. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU Nos. 48a & 48b

SWMU 48a, Underground Waste Oil Tank, Appendix II Site
SWMU 48b, Aboveground Overflow Capacity Tank, Appendix II Site
IRP No. ST-26 DPM Score: 0.8 Date of Scoring: Feb 1993

Due to the multiple uses this location was used for, multiple SWMU numbers were inadvertently assigned to the same UST locations. This site was originally constructed as the base military gas station during WWII. The records are scanty for this location but original drawings do show that two USTs were originally planned to be installed. However, when the location was used as a solvent disposal site only one UST is mentioned. It is unknown at this time when the second tank was removed or if it was ever installed. For further details consult the Cannon AFB UST files on UST 4028.

When a new military gas station was constructed around 1965 the facility was partially demolished and at least one UST of 20,000 gallons was left in place and then used for waste solvent disposal. The location around the 20,000-gal UST was identified as Facility 4028. The Aboveground Overflow Capacity Tank (SWMU 48b) was an adjacent 2,000 gallon tank that was brought in to provide overflow protection for the underground tank.

These tanks were on the northeast lot at the corner of Torch Boulevard and Argentia Boulevard. They were active as solvent disposal tanks from approximately 1965 to 1984. Prior to 1965 the 20,000 gallon tank was used as a fuel tank for the base gas station. Both tanks were removed in 1988, but apparently no soil tests were taken for the UST.

Materials stored in the tanks included waste oils, spent solvents, paint thinners, and recovered fuels. The 20,000 gallon tank would have contained fuel products prior to 1965. Soil staining around the fill pipe was observed during the 1987 RFA field visit. The site was defined during a 1992 site visit by broken areas of asphalt on the ground surface. These units were studied concurrently during the Appendix II, Phase I RFI investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II Investigation under Project CZQZ 94-0135. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs. This site is now covered by asphalt.

SWMU 49 Inactive POL Storage Tank No. 4028a, Appendix II Site
DPM Score: None Date of Scoring: N/A

This SWMU does not exist on Cannon AFB. The RFA description of this site is the same description as that given for the Underground Waste Oil Tank (SWMU 48a). EPA Region VI removed this SWMU from the RFI Phase 2 investigation in its approval of the Phase 2 Work Plan in March 1992. The SWMU will be officially removed from the Part B permit after Cannon submits a Class III permit modification.

SWMU 50 Inactive POL Storage Tank No. 4028b, Appendix II Site
DPM Score: None Date of Scoring: N/A

This SWMU does not exist on Cannon AFB. The RFA description of this site is the same description as that given for the Underground Waste Oil Tank (SWMU 48a). EPA Region VI removed this SWMU from the RFI Phase 2 investigation in its approval of the Phase 2 Work Plan in March 1992. The SWMU will be officially removed from the Part B permit after Cannon submits a Class III permit modification.

SWMU 51 Oil/Water Separator No. 375, Appendix III Site
DPM Score: None Date of Scoring: N/A

This unit is on the northwest side of Bldg. 375. It is a two-compartment underground concrete unit with a total capacity of 1,000 gal. The separator receives washdown water

generated from vehicle maintenance operations. Typical contaminants include oil and grease. The unit has been active since 1968. The separator was investigated during the Appendix III, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix II, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMU 55 Lead Acid Battery Accumulation Point, Appendix III Site
DPM Score: None Date of Scoring: N/A

The Lead Acid Battery Accumulation Point is an area of approximately 8 ft^2 adjacent to the northwest wall of Bldg. 379. The area consists of a concrete apron contiguous with the parking lot at Bldg. 379. Used lead acid vehicle batteries are stored "wet" on pallets until a sufficient number are accumulated for sale to a battery recycler. The batteries are stored after the vent caps and terminals are secured with tape. Potential contaminants include sulfuric acid and lead from battery spills. The SWMU was investigated during the Appendix III, Phase I, RFI Investigation. NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 57 Oil/Water Separator No. 379, Appendix III Site
DPM Score: None Date of Scoring: N/A

OWS No. 379 is an underground concrete unit adjacent to the north wall of Bldg. 379. It is a two-compartment underground unit with a total capacity of 500 gal. The unit has been active since 1965. The separator receives washdown water generated from vehicle maintenance operations. The influent contains oil and grease. The separator was investigated during the Appendix III, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix II, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed, inspected, and replaced in 1995.

SWMUs 61, 62 and 63

SWMU 61, Oil/Water Separator No. 5077a, Appendix III Site
SWMU 63, Oil/Water Separator No. 5077b, Appendix III Site
SWMU 63, Oil/Water Separator No. 5077c, Appendix III Site
DPM Score: None Date of Scoring: N/A

Facility 5077 is a vehicle washrack in the Civil Engineering compound. The unit receives wash water from the washdown of motor vehicles. Potential contaminants from the waste water influent include oil and grease. Although described as OWSs these units are all sandtraps. The facility has two 380-gal sandtraps and one 1,675-gal sandtrap down line of the two smaller sandtraps. These sandtraps have been identified as SWMUs 61 (5077a), 62 (5077b), and 63 (5077c). These three SWMUs were investigated as one unit under the

Appendix III, Phase I, RFI Investigation. NFA was recommended, however EPA directed a Phase II investigation for SWMU 63 be completed in conjunction with the Appendix II, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 70 Oil/Water Separator No. 326 and Leach Field, Appendix III Site
DPM Score: None Date of Scoring: N/A

This SWMU is on the northwest corner of Bldg. 326. The description given in the RFA as a 2000 gallon UST is wrong. It is actually a one-compartment underground separator with a 50-gal main compartment and a detached, 220-gal underground oil storage tank. The separator is constructed of concrete and the tank is constructed of steel. The waste water is discharged to an adjacent leach field. The unit receives washdown water generated from JP-4 fuel truck maintenance. Potential contaminants include JP-4 fuel and oil and grease. The unit has been active since 1960.

The April 1992 site visit revealed oil-saturated soil and stressed vegetation in the vicinity of the leach field. The separator was investigated during the Appendix III, Phase I, RFI Investigation and as expected contamination was discovered in the drain field to a depth of over 70 feet. A pilot bio-venting system was installed in May 1994 to test bio-remediation. The OWS will be reviewed following completion of the study.

SWMU 71 Recovered JP-4 Fuel Tank No. 390, Appendix II Site
DPM Score: None Date of Scoring: N/A

This unit was a 2,000-gal underground JP-4 fuel storage tank at Facility 390. The tank stored JP-4 fuel that escaped through pressure relief valves in the piping attached to the bulk fuel storage tanks. The fuel was periodically removed from the underground tank and returned to the bulk storage tanks.

The underground tank was removed in February 1991 and replaced with an OWS. Following NMED UST regulations two soil samples were collected from the excavation immediately following the tank removal. The samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX). No contaminants were detected. EPA Region VI removed this SWMU from the Appendix II, Phase I investigation in its approval of the Appendix II, Phase I Work Plan in March 1992. This SWMU will be officially removed from the Part B Permit after Cannon submits a Class III permit modification. Cost estimates or a Time Line® were not prepared for this SWMU.

SWMU 72 Oil/Water Separator No. 390, Appendix III Site
DPM Score: None Date of Scoring: N/A

A 2,000-gal recovered JP-4 underground storage tank was mistakenly identified as OWS No. 390 in the RFA. The tank was attached to overflow piping in the bulk fuel storage area. The recovered JP-4 was periodically returned to the bulk storage fuel facility.

The underground tank was removed in April 1991 and replaced with a 2,000-gal steel OWS. The separator is enclosed in a concrete vault. Soil samples were collected from the excavation immediately following the removal of the tank and analyzed for BTEX and total petroleum hydrocarbon (TPH). These analytes were not detected.

The OWS is used as a storage tank. The JP-4 fuel collected in the unit is periodically returned to the fuel storage facility. Because the unit does not store or manage wastes, it is anticipated that EPA Region VI will remove this site from Cannon's Part B permit before it is investigated during the RFI Phase III study. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 74 Landfill 1, Appendix I Site
IRP No. LF-01 DPM Score: 0.9 Date of Scoring: Feb 1993

Landfill 1 is an inactive landfill of approximately 4 acres on the golf course in the northwest corner of the base. The exact location of the landfill is currently unknown, however, it is believed to be located under the area northwest of the hospital (Bldg. 1400). Burn pits were discovered in this location while installing sprinkler lines for hole no 14 in the new section of the golf course. The landfill was reportedly operated from 1942 to 1946. Potential contaminants include spent solvents, oil and grease, paint thinners, herbicides, and pesticides. A soil boring drilled during the IRP Phase 2 study encountered debris both in the topsoil and in the subsurface at 22 ft.

Five borings were drilled during the IRP Phase 2 study in what was believed to be the landfill. The 15 soil samples collected from the borings were analyzed for priority pollutant metals, volatile organic compounds (VOCs), and oil and grease. Elevated levels of oil and grease (from 100 to 850 mg/kg) were detected in samples from two of the boreholes, and slightly elevated selenium concentrations of 2.1 to 2.7 mg/kg were detected in the samples collected from one borehole. Background concentrations of selenium vary from 0.61 to 0.68 mg/kg. This site was investigated during the Appendix I, Phase I RFI investigation by Woodward-Clyde. A limited Phase I RFI of the area around the newly discovered burn pits will be done in 1995 to 1996.

SWMU 75 Sanitary Sewage Lift Station Overflow Pit, Appendix I Site
IRP No. SD-13 DPM Score: 2.6 Date of Scoring: Feb 1993

This unit served as an emergency overflow containment area for a lift station in the northwest area of the base. Since the original IRP investigation this area has been reworked twice since to improve drainage around the old golf course and to create new water hazards for the new section of the golf course. Therefore you will not find any remnants of this pit. The pit was approximately 100 × 600 × 2 to 3 ft, or approximately 6,700 yd^3. The pit was used once in February 1983 when 100,000 to 150,000 gal of raw domestic sewage were bypassed to the pit when the lift pumps failed. The only hazardous wastes would have been from the domestic sewage. The pumps were repaired in approximately one week, and the sewage was cycled through the lift station.

Four soil samples were collected from the pit following the pump malfunction. Six additional samples were collected in 1988 before additional excavation of the pit. No hazardous constituents were detected in any of the samples. However, one sample was hazardous by the EPA ignitability criterion. This analysis was believed to be in error by base personnel.

In October 1990, EPA Region VI concluded that the Sanitary Sewage Lift Station Overflow Pit warrants NFA because this site was an accidental spill and, therefore, did not qualify as an SWMU. Accidental spills are not included in the definition of an SWMU as defined in the following excerpt from the EPA RFA Guidance: "The definition does not include accidental spills from production areas and units in which wastes have not been managed (e.g., product storage areas)." The unit will be removed from the Part B permit after the base submits a Class III permit modification. No cost schedules or Time Line® schedules were prepared for this site.

SWMU 76 Sludge Weathering Pit, Appendix I Site
IRP No. WP-14 DPM Score: 2.1 Date of Scoring: Feb 1993

The Sludge Weathering Pit is a shallow (approximately 10 ft^2) depression near the 20,000 barrel POL number 396 and adjacent to the north installation boundary fence. The pit, last used in 1980, was used to weather sludge from leaded gas storage tanks. The sludge was landfilled after it was judged to be sufficiently weathered. A soil sample collected in 1981 was analyzed for lead and oil and grease. The lead analysis was negative, and 0.012 mg/kg of oil and grease were detected. This unit was investigated during the Appendix I, Phase I RFI Investigation and NFA was recommended and the EPA agreed but required that Boundary Markers be installed. These boundary markers were installed under the Appendix I, Phase II Investigation. The base deed needs to be modified and the Decision Document rewritten to close out this site.

SWMU 77 Civil Engineering Container Storage Area, Appendix III Site
DPM Score: None Date of Scoring: N/A

The Civil Engineering Container Area is an open concrete pad (Facility 4038) approximately 100 by 200 ft and adjacent to the north property boundary fence of the base. An 8-ft chain link fence surrounds the unit.

This unit was a passenger terminal for the civilian Portair Field in the 1930s. The U.S. Army removed the building in 1942. However, historical photographs show the concrete foundation to be vacant until the 1970s, at which time it was used for storage.

The Civil Engineering Squadron stores supplies and used materials, such as transformers, street signs, street lights, and heavy equipment parts, on the concrete. Approximately 25 unmarked 55-gal drums are also stored on the concrete. Preliminary inspection indicates that the drums contain varying amounts of waste products, including water, oil, solvents, and asphaltic material. No evidence of contamination was observed at the site during the April 1992 site visit.

Potential contaminants at this site include waste oil and solvents, aviation fuel, waste paint materials, polychlorinated biphenyls (PCBs), and pesticides. This site was investigated during the Appendix III, Phase I RFI Investigation. NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 78 Fire Department Training Area No. 1, Appendix I Site
IRP No. FT-06 DPM Score: 3.6 Date of Scoring: Feb 1993

Fire Department Training Area No. 1 is in the northeast corner of the base. The facility is an unlined surface approximately 100 ft in diameter and was in use from 1959 to 1968. Approximately 300 gal of waste oils, solvents, and fuels were poured on the ground surface twice monthly to create fires. The area is defined by abundant aluminum slag and slightly stressed vegetation.

Two 50-ft soil borings were drilled in the unit in 1985 during the IRP Phase 2 investigation. The soil samples were analyzed for oil and grease, lead, and VOCs. Oil and grease analyses ranged from 140 to 2,800 mg/kg. Lead was detected in quantities up to 28 mg/kg, which is only slightly above the base's lead background levels of 2 to 20 mg/kg. No VOCs were detected.

This unit was investigated during the Appendix I, Phase I RFI Investigation and NFA was recommended, the EPA agreed but required that Boundary Markers be installed. These boundary markers were installed under the Appendix I, Phase II Investigation. The base deed needs to be modified and the Decision Document rewritten to close out this site.

SWMU 79 Underground Tank, Appendix II Site
DPM Score: None Date of Scoring: N/A

The RFA describes this unit as a 2,000-gal underground storage tank at the Fire Department Training Area No. 1 (SWMU 78). However, a thorough records search and several personnel interviews have failed to document the existence of this tank. Therefore, EPA Region VI removed this SWMU from the RFI Appendix II, Phase I, investigation in its approval of the Appendix II, Phase I Work Plan. The SWMU will be formally removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared.

SWMU 81 Solvent Disposal Site, Appendix I Site
IRP No. DP-16 DPM Score: 0.6 Date of Scoring: Feb 1993

This site was first identified in the 1983 IRP Phase 1 Records Search as consisting of two empty drums labeled "trichloroethylene" laying on the ground. The drums were positioned to drain into a shallow pit. The site was about 300 ft east of Fire Training Area No. 1 and 100 ft south of the north installation fence. The site could not be located during the preparation of the RFA in 1987 or during the site visit for the Appendix I, Phase I RFI Work Plan. A 10,000 ft^2 area of the suspected site was gridded and sampled for total VOCs during the RFI Phase 1 study. This site was investigated during the Appendix I, Phase I RFI study and NFA was recommended. Boundary markers were installed around the suspected location under the Appendix I, Phase II investigation. The base deed needs to be modified and the Decision Document re-written in order to close out this site.

SWMU 82 Landfill 2, Appendix I Site
IRP No. LF-02 DPM Score: 0.8 Date of Scoring: Feb 1993

Landfill 2 was a cut and burn landfill of approximately 4 acres that was active during 1946-47 and 1951-59. The landfill received domestic and industrial wastes including solvents, paint, thinners, waste oils, and peroxide containers. The landfill is on the far northeast corner of the installation boundary. The area is marked by a slightly hummocky ground surface and is covered with prairie grasses. There is no evidence of stressed vegetation.

Four borings were drilled to a depth of 10 ft and one boring was drilled to 53.5 ft during the IRP Phase 2 study. The 11 soil samples collected from the borings were analyzed for priority pollutant metals, VOCs, and oil and grease. No contaminants were detected above background levels in the samples. This site was investigated during the Appendix I, Phase I RFI study and NFA was recommended. Boundary markers were installed around the suspected location under the Appendix I, Phase II investigation. The base deed needs to be modified and the Decision Document re-written in order to close out this site.

SWMU 83 Sump, Appendix II Site
IRP No. ST-27 DPM Score: 0.6 Date of Scoring: Feb 1993

This sump was located just off the south edge of the south ramp. The location for this old sump is now surrounded by concrete pavement or concrete pads on the north, east and south. It is the 22 foot x 22 foot dirt and grass covered area just between the telephone pole to the north and new hazardous waste storage area to the south. The hazardous waste storage area is the small facility covered by a canopy and surrounded by a chain link fence. To the east is the new concrete ramp constructed around the new 3-bay small aircraft maintenance dock and to the north is the old concrete ramp. The area was deliberately left uncovered to facilitate future investigations, otherwise the hazardous waste storage facility would have been constructed over it.

This sump was still in existence when the IRP and RFI programs started, and was described as being located 120 ft west of Bldg. 120. Bldg. 120 along with buildings 113, 114 and 118 and 119 were moved to a new location on base and the new small aircraft maintenance dock constructed over the old sites. The sump was self-contained and measured approximately 6 ft × 8 in. × 5 in. and was constructed in a 12- by 14-ft concrete pad. During the construction of the small aircraft maintenance dock the only thing found to remain was a "French drain" that was apparently constructed in the bottom of the sump. This French drain consisted of a gravel filled pit one foot wide and at least five feet long, the total length was not uncovered and the depth is unknown. The gravel was completely covered with black oily wastes and is now covered with one to two feet of clean soil. This oily gravel could be relocated by digging trenches east to west across the grassy area.

The purpose of the sump, potential contaminants, and the date of construction are unknown however it apparently received drainage off the south ramp. This unit was investigated during the Appendix II, Phase I Investigation. NFA was recommended, however EPA directed a Phase II investigation be completed in conjunction with the Appendix III, Phase II, Investigation under Project CZQZ 94-0135. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs.

SWMU 85 Stormwater Collection Point, Appendix I Site
IRP No. SD-12 DPM Score: 6.9 Date of Scoring: Feb 1993

This unit is commonly called the South-Playa Lake. It is a naturally occurring 9-acre playa in the south-central area of the base. The playa is approximately 15 ft at its deepest point. It receives stormwater runoff from portions of the flightline area. Solvents, fuels, oils and greases are the potential contaminants. The playa has also been a repository for rubble from the destruction of runways. The area is covered with prairie grasses.

Three 5-ft soil borings were drilled in the playa during the IRP Phase 2 study. One soil sample was collected from each boring at 3 to 4 ft. Oil and grease was detected in one sample at 40 mg/kg. No VOCs were detected, and metals remained within the range of

background values. Eight 5- to 70-ft boreholes were drilled in the area during the IRP Phase 4 investigation. Soil samples collected in 2.5- to 5-ft intervals showed no VOCs or acid/base/neutral extractables. Metals were within the range of naturally occurring background levels.

This unit was originally scheduled for investigation during the Appendix I, Phase I RFI; however, in October 1990, EPA Region VI concluded that the Stormwater Collection Point warrants NFA. The unit will be removed from the Part B permit after the base submits a Class III permit modification by the base. No cost schedules or Time Line® schedules were developed for this SWMU.

Since this recommendation of NFA, two items of interest have come to light about this Playa lake.

1. Low levels of pesticides have been discovered in Water Well Number 6 which is down gradient of this Playa Lake.

2. A unverified verbal testimony says that a lot of barrels were removed from around this area in the 1970s.

SWMUs 86, 87, 88, 89 and 90

SWMU 86, Engine Test Cell, Appendix I Site
SWMU 87, Overflow Pit, Appendix I Site
SWMU 88, Leach Field, Appendix I Site
SWMU 89, Evaporation Pond, Appendix I Site
SWMU 90, Oil/Water Separator No. 5114, Appendix III Site
IRP No. SD-11 DPM Score: 0.6 Date of Scoring: Feb 1993

Although these five sites were listed in two different appendices they were all studied during the Appendix I, Phase I, RFI Investigation. The Engine Test Cell, SD-11, was the main component of the entire system and all effluent from that test cell drained through or into the other four SWMUs. The remains of this test cell are located in the central area of the base in the Engine Test Cell Area. The unit was active from 1965 to 1988. The building structure was removed and only the concrete foundation and underground utilities remain. Potential contaminants from the test cell include JP-4 fuel, oils and greases, and solvents mixed with washdown water generated from aircraft engine cleaning operations. The test cell area was covered with prairie grasses until the it became temporarily active which resulted in the grass being killed off due to jet blast. The unit will remain active until a new hush-house is constructed, however the OWS is sealed off and not in use, so none of the SWMUs is receiving any contaminants from the washing down of jet engines. The OWS was removed in 1994.

Several components of the test cell have been identified as SWMUs. The effluent from the test cell was initially discharged to the OWS (SWMU 90) and the associated Leach Field (SWMU 88). A 6 to 8 ft-diameter Overflow Pit (SWMU 87) was added in 1982 to relieve overloading in the OWS caused by reduced hydraulic capacity of the leach field. A second larger OWS was added in 1985. The discharge was directed to a lined Evaporation Pond (SWMU 89) that was constructed in 1985 in the area of the former leach field. The evaporation pond is connected to other oil water separators and is therefore still active. The entire engine test cell area covers approximately 1.5 acres.

A borehole was drilled in the former leach field and in the overflow pit during the IRP Phase 2 investigation. A total of six soil samples were collected to a depth of 47.5 ft. Lead was detected in concentrations ranging from 1.5 to 4.8 mg/kg. Cannon AFB background levels for lead range from 7 to 18 mg/kg. No oil and grease or VOCs were detected.

Five boreholes were drilled to depths of 30 to 60 ft in the area of the evaporation pond and OWSs during the 1989 IRP Phase 4 investigation. A total of 45 soil samples were analyzed for VOCs, base/neutral extractables, and total metals using EPA SW-846 methods. Very low levels (below 1 ppm) of phenol, 2,2_-methylene bis(6-(1,1-dimethylethyl)-4-ethyl-), or Antioxidant 425 were found. Silver was the only metal found to exceed background levels; however, the distribution of silver was uniform and was, therefore, considered to be naturally occurring.

The immediate area around the concrete foundation of the Engine Test Cell (SWMU 86) was investigated during the Appendix I, Phase I study. In October 1990, SWMUs 87, 88, 89, and 90 were considered by EPA Region VI to be sufficiently characterized to warrant NFA. An RFI of contamination discovered during the 1994 removal of the OWS system will be done in 1995 to 1996.

SWMU 91 Recovered Fuel Tank No. 5114, Appendix III Site
DPM Score: None Date of Scoring: N/A

This unit was a 5,000-gal aboveground JP-4 bulk storage tank at the test stand 5114. The RFA incorrectly identified this tank as storing recovered fuel from OWS No. 5114 (SWMU 86). JP-4 was used to fuel engines on the test stand. The tank was removed in 1988 when the test stand was demolished. Because the tank did not store or manage wastes and was, therefore, not an SWMU, it is anticipated that EPA Region VI will remove this site from Cannon's Part B permit. Cost estimates or Time Line® schedules were not prepared for this SWMU.

SWMU 92 Oil/Water Separator No. 5120, Appendix III Site.
DPM Score: None Date of Scoring: N/A

OWS No. 5120 is located on the east edge of Power Check Pad No. 5120. The power check pad is out of service and the separator and leach well are still in place. The location given

in the May 1, 1987 RFA as to where the OWS discharges to is wrong. This OWS never discharged effluent to SWMUs 88 and 89, the OWS discharged directly into an adjacent leach well. It is the current OWS at 5123 which discharges into SWMU 89.

The separator is a two-compartment concrete unit with a detached 100-gal oil storage tank. The unit was active from approximately 1957 to 1988. The recovered oils were directed to the 100-gal holding tank, and the waste water was discharged to a leach well located 40 ft east of the separator. Potential contaminants include JP-4 fuel and oil and grease.

The unit was investigated during the Appendix III, Phase I RFI Investigation. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 93 Oil/Water Separator No. 5121, Appendix III Site
DPM Score: None Date of Scoring: N/A

OWS No. 5121 was on the east side of Power Check Pad No. 5121. The separator was a two-compartment concrete unit with a detached 100-gal oil storage tank. The waste water was directed to a leach field 40 ft east of the separator. The location given in the May 1, 1987 RFA as to where the OWS discharged to is wrong. This OWS never discharged effluent to SWMUs 88 and 89, the OWS discharged directly into an adjacent leach well. It is the current OWS at 5123 which discharges into SWMU 89.

The unit was active from approximately 1957 to 1988. Facility 5121 was dismantled in 1988 and replaced with Facility 5123. OWS No. 5121 and the associated leach field were removed during the demolition of Facility 5121, and Facility 5123 was subsequently constructed on top of the separator's location.

The unit was investigated during the Appendix III, Phase I RFI Investigation. NFA was recommended. NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 94 Oil/Water Separator No. 5144, Appendix III Site.
DPM Score: None Date of Scoring: N/A

SWMU 94 was described as two sand traps and one 1,700-gal OWS that serviced a two-bay vehicle washrack on the corner of Overlord and Argentia streets. However, the OWS is actually another large sandtrap. The unit was active from 1960 to approximately 1988. The large sandtrap is in line with an active sewer line and therefore is still in use. The washrack is out of service although the concrete wash bays and sandtraps remain in place. The covered washrack is being converted to a warehouse for the grounds maintenance contractor. Potential contaminants include oil and grease.

The unit was investigated during the Appendix III, Phase I RFI Investigation. NFA was recommended, however EPA directed a Phase II Investigation be completed in conjunction

with the Appendix II, Phase II Investigation under Project CZQZ 94-0135. Based on the Phase II RFI, it will be removed and inspected in 1995.

SWMU 95 NE Stormwater Drainage Area, Appendix I Site
IRP No. SD-20 DPM Score: 0.9 Date of Scoring: Feb 1993

This area is a natural depression extending approximately 40 ft from the northeast end of Runway 4/22 to an open field. The 3.5-acre area receives water from several OWSs along the flightline and runoff water from runways and stormwater drains in the east area of the base. Water entering this SWMU may contain oil and grease, fuels, solvents, and alkaline-based aircraft cleaning compounds. The area is covered with prairie grasses and grasses associated with wetlands. Due to the volume of water it receives from runoff its vegetation is thicker and remains greener throughout the summer.

In 1989, an IRP remedial investigation (RI) was conducted at the site. Eleven soil borings were drilled in the area to a depth of 61.5 ft. Long-chain organics were detected in the first 3 ft of a borehole drilled at the mouth of one of two culverts that empty into the ditch. The concentrations ranged from 49 to 76 mg/kg. These organics are common constituents in JP-4 fuel. A single occurrence of ethylbenzene (0.37 mg/kg) and total xylene (0.70 mg/kg) was detected in a downgradient borehole at 0 to 1 ft. This analysis was believed to be in error.

Because organics were not detected in any downgradient samples, the investigation concluded that there is no significant lateral or vertical contaminant migration. This site was investigated during the Appendix I, Phase I RFI study and NFA was recommended. Boundary markers were installed around the suspected location under the Appendix I, Phase II investigation. The Phase II investigation is complete, and the site is awaiting EPA decision.

SWMU 96 Old Entomology Rinse Area, Appendix I Site
IRP No. SD-17 DPM Score: 5.6 Date of Scoring: Feb 1993

The Old Entomology Rinse Area was behind pesticide storage Bldg. 2160, approximately 200 ft north of the sewage lagoons. Bldg. 2160 was abandoned in October 1983 and demolished in September 1984. Pesticide and herbicide application equipment was rinsed in a sink behind Bldg. 2160. The sink drained to a shallow depression on the ground surface. Potential contaminants include dieldrin, toxaphene, 2,4-D, and DDT.

An IRP Phase 4-AA investigation was conducted at the site in 1986. The Appendix I, Phase I Work Plan states that the Phase 4-AA investigation resulted in a finding that no RA was necessary at this site. An existing groundwater monitoring well approximately 600 ft downgradient of the site was sampled during the RFI Phase I investigation. Although NFA was recommended, a 100 foot borehole was drilled during the Appendix I, Phase II investigation. The Phase II investigation is complete, and this site is awaiting determination for inclusion on a National Pollutant Discharge Elimination System (NPDES) permit.

SWMU 97 Concrete Rubble Pile, Appendix III Site
IRP No. LF-25 DPM Score: 4.4 Date of Scoring: Feb 1993

This unit is an area of approximately 30 acres adjacent to the perimeter road on the east area of the base. The Rubble Pile dates to the mid-1950s in historical aerial photographs. The rubble consists primarily of construction debris, bricks, concrete blocks, and asphalt road and runway material. Most of the material originated from demolished World War II era facilities.

An Environmental Assessment was performed on the Rubble Pile by the USCOE in February 1991. Material from nine back-hoe trenches dug in the rubble were sampled for asbestos, PCBs, extractable organics, VOCs, herbicides, pesticides, and metals. None of the above parameters were detected in the rubble material. However, at least two cut and burn landfill trenches were discovered under the rubble. The trenches were an unexpected discovery; apparently, a portion of the land where the Rubble Pile now exists was once used as a landfill. A newspaper dating from 1943 was recovered from one of the trenches. Detectable levels of barium, cadmium were found in one trench however, the levels were well below background. Benzidine was also found at extremely low levels.

The Rubble Pile was scheduled for investigation during the Appendix III Phase I RFI Investigation. However, the munitions personnel wanted to construct a facility over the northern half of this rubble pile so this site was investigated along with the Appendix I, Phase I RFI for Landfills 3 and 4. Because of piles of uncovered non-friable asbestos debris and of the unknowns buried under the rubble, Cannon AFB IRP/RFI personnel recommended that this site be left alone. Removing this rubble would turn into an asbestos abatement project.

The Phase I RFI Report recommended NFA but the EPA directed Cannon to reopen monitoring Well K and use it as a down gradient monitoring well. Well K was originally installed to monitor SWMU 96 which is the Old Entomology Rinse Area. Further evaluation was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 98 Sanitary Sewerage Line, Appendix I Site
DPM Score: None Date of Scoring: N/A

The sanitary sewer lines located throughout Cannon AFB transport sanitary and industrial wastewater to the sewage lagoons. However, only the main north-south and east branch trunk lines and the transmission line flowing across the runways to the lagoons could have received hazardous constituents, such as solvents, fuels, paint thinners, and oil and grease, from the flightline operations. The sewage line system has been in operation since 1943 with no significant problems. This line was abandoned in place and replaced with a larger sewer line during base expansion.

The trunk lines and the transmission line were investigated during the Appendix I, Phase I Investigation. Boundary Markers were installed during the Appendix I, Phase II Investigation. Except for base deed modification, NFA is anticipated on this SWMU.

SWMUs 101 and 102

SWMU 101, Wastewater Treatment System-Lagoons, Appendix I Site
SWMU102,Wastewater Treatment System-Effluent Discharge, Appendix I Site
IRP No. SD-21 DPM Score: 1.2 Date of Scoring: Feb 1993

The lagoons consist of two surface impoundments that have been in use since 1966. The sides are lined with concrete and the bottom lined with bentonite clay. The lagoons operate in series and have a combined surface area of 33 acres. The lagoons are active and receive combined sanitary and industrial wastewater.

The Effluent Discharge (SWMU 102) is an integral part of the lagoon treatment system. It consists of a discharge pipe and an inlet chamber equipped with two slide gates. Potential contaminants are similar to the contaminants introduced to the lagoons. The discharge is directed to a self-contained Playa Lake (SWMU 103) located entirely within the base property. At this time the treatment system does not operate with an NPDES permit because it was believed that it did not discharge to waters of the United States. However, a NPDES permit is now being drafted.

One upgradient and three downgradient groundwater monitoring wells were installed around the lagoons. The wells are sampled quarterly and analyzed for temperature, pH, and conductivity. Discussions with base personnel indicated that the sample results have been unremarkable. The lagoons and the effluent discharge were investigated concurrently during the Appendix I, Phase I RFI study. Low levels of contaminants were found in the bottom of the lagoons.

SWMU 103 Wastewater Playa Lake, Appendix III Site
DPM Score: None Date of Scoring: N/A

The Wastewater Playa Lake occupies approximately 13 acres on the east boundary of Cannon AFB. The playa receives effluent from the Wastewater Treatment System-Lagoons (SWMU 101). No natural discharge occurs from the playa; however, the water is used for crop irrigation on farmland adjacent to Cannon's east boundary. The unit has been active since 1943 and only remains full year round because of the water discharging from the lagoons. Since the playa is full year round it has attracted migrating and nesting birds into the area.

Runoff from adjacent farming and ranching properties will drain into this playa during heavy rainfalls. This is also the same situation with the lakes at the golf course. Before CAFB's

impact on the groundwater can be established studies of playa lakes on adjacent properties should be considered.

Potential contaminants include organics, pesticides and herbicides, and metals that may have entered the sewage lagoons in the influent. The playa was investigated during the Appendix III, Phase I RFI Investigation. During this investigation no chemical contaminants were found in the water, but low levels were found in the sludge. NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 104 Landfill 4, Appendix I Site
IRP No. LF-04 DPM Score: 1.5 Date of Scoring: Feb 1993

Landfill 4 is an inactive 7-acre cut and burn landfill that was operated from 1967 to 1968. The landfill is immediately north of Playa Lake on the east boundary of the base. The landfill received domestic and industrial wastes including solvents, paint, thinners, waste oils, and peroxide containers. The area is covered with prairie grasses. There is no sign of stressed vegetation. Munitions personnel want to construct a facility on this site. The sites should be safe to construct on as long as no excavation takes place. The only problem would be a structural one on building over a landfill.

Twenty-one soil samples were collected from seven soil borings placed within the landfill during the IRP Phase 2 study. The samples were analyzed for priority pollutant metals, oil and grease, and VOCs. No VOCs were detected, and the metal concentrations were within the range of background values. Oil and grease was detected in quantities between 18 and 45 mg/kg.

This site was also investigated along with Landfill 3 during the Appendix I Phase I study by Radian. This Phase I RFI report also recommended NFA, however EPA Region VI wanted Boundary Markers and one down gradient monitoring well installed. The Boundary Markers were installed around the suspected location under the Appendix I, Phase II investigation. A down gradient monitoring well is being installed under project CZQZ 94-7001. Aside from monitoring the well and a base deed modification, NFA is anticipated for this site.

SWMU 105 Landfill 3, Appendix I Site
IRP No. LF-03 DPM Score: 1.7 Date of Scoring: Feb 1993

Landfill 3 is an inactive cut and burn landfill that was in operation from 1959 to 1967. The 9-acre landfill is on the east boundary of the base. The ground surface is slightly hummocky and is covered with prairie grasses. The landfill received domestic and industrial wastes including solvents, paint, thinners, waste oils, and peroxide containers. There is no evidence of stressed vegetation.

Twenty-seven soil samples were collected from nine soil borings placed in the landfill during the IRP Phase 2 study. The samples were analyzed for priority pollutant metals (total); total

iron, nickel, and zinc; oil and grease; and VOCs. No VOCs were detected, and metal concentrations were within the range of background values. Oil and grease values varied from <10 to 83 mg/kg.

This site was also investigated along with Landfill 4 during the Appendix I Phase I study by Radian. This Phase I RFI report also recommended NFA, however EPA Region VI wanted Boundary Markers and one down gradient monitoring well installed. The Boundary Markers were installed around the suspected location under the Appendix I, Phase II investigation. A down gradient monitoring well is being installed under project CZQZ 94-7001. Aside from monitoring the well and a base deed modification NFA is anticipated.

SWMU 106 Fire Department Training Area No. 2, Appendix I Site
IRP No. FT-07 DPM Score: 2 Date of Scoring: Feb 1993

Fire Department Training Area No. 2 is a 100-ft-diameter unlined surface area in the southeast area of the base. The facility was active from 1968 to 1974. Approximately 300 gal of fuel were poured on the ground monthly to create fires. The vegetation in the area appears mildly stressed. One deep soil boring was drilled in the area during the IRP Phase 2 study. Oil and grease concentrations ranged from 80 to 3,400 mg/kg; the lead concentrations of 3.1 to 3.9 mg/kg are well within the background levels of 2 to 20 mg/kg. No VOCs were detected. This site was investigated during the Appendix I, Phase I RFI study and NFA was recommended. Boundary markers were installed around the suspected location under the Appendix I, Phase II investigation. The base deed needs to be modified and the Decision Document re-written in order to close out this site.

SWMU 107 Fire Department Training Area No. 3, Appendix I Site
IRP No. FT-08 DPM Score: 1.7 Date of Scoring: Feb 1993

This unit is a circular area approximately 100 ft in diameter in the southeast area of the base. The unit was active from 1968 to 1974. Approximately 300 gal of fuel were poured on the ground monthly to create fires. The area is unremarkable in appearance. One 61.5 ft soil boring was drilled in the facility during the IRP Phase 2 investigation. Oil and grease concentrations from the three soil samples collected from the boring ranged from 1,700 to 3,800 mg/kg, and lead values varied from 1.7 to 3.7 mg/kg. No VOCs were detected. This site was investigated during the Appendix I, Phase I RFI study and NFA was recommended. Boundary markers were installed around the suspected location under the Appendix I, Phase II investigation. The base deed needs to be modified and the Decision Document re-written in order to close out this site.

SWMU 108 EOD Activities Area, Appendix II Site
DPM Score: None Date of Scoring: N/A

The Explosive Ordnance Disposal (EOD) Activities Area is on the southeast corner of the base directly west of the Fire Department Training Area No. 3 (SWMU 107). The

description given in the RFA is misleading. The unit was described as an active ammunition disposal site when actually the site is a proficiency range used for explosive technique training. The range is limited to Class AA explosives with a maximum weight of 5 lb. These small explosives are basically the explosion simulators and smoke bombs used during military training exercises. The technique demonstrates the safe uses of these devices. The detonations occur within a 200-ft-diameter circular area in the center of a 1,000-ft-diameter clear zone.

Potential contaminants include metals and energetic material exhibiting the reactive characteristic. The unit has been active since the early 1970s. The unit was investigated during the Appendix II, Phase I RFI investigation. NFA was recommended, however EPA directed a Phase II Investigation be completed in conjunction with the Appendix III, Phase II RFI Investigation under Project CZQZ 94-0135. NFA was recommended by the draft Phase II RFI report for Appendix II SWMUs.

SWMUs 109, 110, 111 and 112

SWMU 109, Fire Department Training Area No. 4, Appendix I Site
SWMU 110, Underground Waste Oil Tank No. 2336, Appendix II Site
SWMU 111, Unlined Pit, Appendix I Site
SWMU 112, Oil/Water Separator No. 2336, Appendix III Site
IRP No. FT-09 DPM Score: 31 Date of Scoring: Feb 1993

Fire Department Training Area No. 4 is a circular area approximately 400 ft in diameter in the southeast area of the base. The area was used as a fuel truck cleaning facility from 1961 to 1974. The area has been used as a fire training area from 1974 to the present. The site has undergone configuration modifications throughout its history such that several former and present parts of the facility are listed as individual SWMUs. These parts include the Underground Waste Oil Tank (SWMU 110), the Unlined Pit (SWMU 111), and the OWS (SWMU 112). These SWMUs were incorporated into one unit for the purposes of the Appendix I, Phase I RFI Investigation.

The training area incorporates a mock aircraft, an automobile chassis, and an aboveground fuel storage tank. Exercises are conducted in the fire training area on a monthly schedule. Approximately 300 gal of reclaimed JP-4 fuel are sprayed onto the mock aircraft before each exercise. The fuel is typically contaminated with water or solvents. The mock aircraft is on a concrete "pan" that directs the runoff to the OWS via underground piping. Soil staining was observed in and around the area of the concrete "pan."

Fire training exercises are also conducted on the automobile chassis. However, the chassis does not appear to have a runoff collection system. Soil staining was also evident around the chassis.

The Underground Waste Oil Tank (SWMU 110) was used to store JP-4 fuel for use during the training exercises. The tank was removed in 1988 after a leak was discovered in the piping associated with the tank. The contaminated soil associated with the leak was placed on top of heavy gauge plastic and remediated by aeration on a plot of land adjacent to the site.

The Unlined Pit (SWMU 111) collected runoff from the fire training exercises. The runoff consists of water, JP-4 fuel, and fire-retardant foam. The OWS (SWMU 112) was constructed on the site of the pit in 1985. No visible evidence of the pit was observed during the April 1992 site visit. The OWS drains into a leach field immediately north of the SWMU.

Two soil borings were drilled in the facility during the IRP Phase 2 investigation. The borings were drilled to 45 and 11.5 ft. The analytical results from the six soil samples collected from the borings include oil and grease concentrations ranging from no detection to 280 mg/kg and lead concentrations from 1.3 to 39 mg/kg. These SWMUs were also investigated during the Appendix I, Phase I RFI. A Phase II RFI will be done on SWMUs 109 and 110 in 1995. NFA was recommended for SWMUs 111 and 112.

SWMU 113 Landfill 5, Appendix I Site
IRP No. LF-05 DPM Score: 1.8 Date of Scoring: Feb 1993

Landfill 5 is a 33-acre landfill on the southeast corner of the base. The landfill was active from 1968 to 1988 and operated as a cut and burn landfill from 1968 to 1972. Thereafter, the wastes were buried. The landfill received domestic and industrial wastes from 1968 to early 1982. It received only domestic waste from 1982 to 1984, and construction debris from 1984 to 1988, at which time it was deactivated. No closure activities have been conducted at the landfill.

One upgradient and six downgradient groundwater monitoring wells were installed around the perimeter of the landfill. The wells are sampled quarterly and analyzed for Appendix IV constituents. No groundwater contamination has been detected to date.

A RCRA landfill cap was constructed over Cell 3 in 1989. This cell allegedly received RCRA-characteristic wastes, such as spent paint strippers, thinners, and solvents for approximately six weeks following the landfill disposal restrictions on these wastes that became effective on November 1, 1980. A RFI Phase I Work Plan was submitted to NMED in February 1994. NMED will direct a Phase I RFI in 1995 to 1997.

SWMU 124 Inactive Underground Tank 1, Appendix II Site
IRP No. ST-30 DPM Score: 0.2 Date of Scoring: Feb 1993

The RFA states that this unit was near Facility 4028. However, site inspections, record searches, and interviews with facility personnel failed to reveal the existence of another UST

in this area. It is another duplication of SWMU 48a. Therefore, EPA Region VI removed this SWMU from the Appendix II, Phase I RFI Investigation in its approval of the Appendix II, Phase I Work Plan. The SWMU will be formally removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this site.

SWMU 125 Inactive Underground Tank 2, Appendix II Site
IRP No. ST-31 DPM Score: 0.2 Date of Scoring: Feb 1993

The RFA describes this unit as an underground tank of unknown dimensions, capacity, and construction adjacent to Bldg. 357. However, site inspections, record searches, and interviews with facility personnel failed to reveal the existence of this unit. Therefore, EPA Region VI removed this SWMU from the Appendix II, Phase I RFI Investigation in its approval of the Appendix II, Phase I Work Plan. Personal interviews with paint shop personnel indicated this UST was removed a few years prior to the NMED UST regulations becoming effective. However, real property records indicate the tank was abandoned in place. The area has changed so much since it was installed the exact location cannot be determined. See the Cannon AFB UST file for UST 357 for further information. If this tank still exists it may be uncovered during the construction of the new CE compound. This SWMU will be formally removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this site.

SWMU 126 Inactive Underground Tank 3, Appendix II Site
IRP No. ST-32 DPM Score: 0.2 Date of Scoring: Feb 1993

This unit was the heating oil tank for Bldg. 163. This building was demolished in 1985, and Bldg. 164 was subsequently constructed in its place. The location of the underground tank was in front of Hangar 162. Hangar 162 was demolished and this UST was removed following NMED UST regulations and the site was found clean. EPA Region VI removed this SWMU from the Appendix II, Phase I RFI Investigation in its approval of the Appendix II, Phase I Work Plan. The SWMU will be formally removed from the Part B permit after Cannon submits a Class III permit modification. Cost estimates or Time Line® schedules were not prepared for this site.

SWMU 127 Oil/Water Separator and Leach Field-Facility 4095 (#1), Appendix III Site
DPM Score: None Date of Scoring: N/A

At one time this was identified as being as an OWS near tank 4095. However, 4095 is not a tank it is the POL washrack in the POL fuel truck parking area. This unit is a 135-gal sandtrap that serves the petroleum, oils, and lubricants (POL) refueling truck washrack (Facility 4095). An OWS did not exist at this facility when the RFA (1987) was written. The sand trap discharged to a rectangular leach field of approximately 300 ft^2, approximately 60 ft east of the washrack. There are no aboveground or underground tanks at Facility 4095.

The sandtrap has been active since 1977. However, the leach field ceased to function in the late 1980s. An OWS enclosed in a concrete vault was subsequently installed in the washrack's drain pipe downstream of the sandtrap in 1991. The wastewater drains to a new leach field approximately 40 ft southeast of the washrack. The original leach field remains in place. Potential contaminants include JP-4 fuel and oil and grease. All sites associated with this SWMU were investigated under the Appendix III, Phase I RFI Investigation. NFA was recommended by the draft Phase II RFI report for Appendix III SWMUs.

SWMU 128 Oil/Water Separator and Leach Field-Facility 4095 (#2), Appendix III Site
DPM Score: None Date of Scoring: N/A

This unit does not exist on Cannon AFB. Only one OWS is located at Facility 4095. Cost estimates or Time Line® schedules were not prepared for this SWMU.

AOC A MOGAS Spill, Appendix III Site
IRP No. SS-19 DPM Score: 9.2 Date of Scoring: Feb 1993

This is the site of two spills of motor gasoline (MOGAS) from overturned fuel trucks. The site is approximately 400 by 200 ft. Both spills occurred in the early 1960s at the present location of Argentia Avenue southeast of the gymnasium (Bldg. 444). The total quantity of both spills is estimated to have been 2,000 to 3,000 gal. The physical features of the site were changed in 1977 during the construction of Bldg. 444. A portion of the spill site is now under Argentia Avenue.

Two boreholes were drilled to a total depth of 60 ft each at the site during the IRP Phase 2 investigation. None of the soil samples collected from the borings contained oil or grease above detection limits; however, lead was detected in one surface soil sample at 35 mg/kg, and 1,2-dichloroethylene (DCE), a solvent, was detected at 237 μg/kg. The 1,2-DCE is not a component of automotive gasoline.

The IRP Phase 2 investigation results do not warrant further action on this site. Also, sites of accidental spills are not defined by the EPA as an SWMU. Therefore, this site was removed from Cannon's Part B permit and received a final decision of NFA by EPA Region VI. Cost schedules or Time Line® schedules were not prepared for this site.

AOC B JP-4 Fuel Spill, Appendix III Site
IRP No. SS-18 DPM Score: 0.4 Date of Scoring: Feb 1993

The JP-4 Fuel Spill site was on the south apron southwest of Bldg. 120. Bldg. 120 was moved to another location and a new facility constructed over the site. Approximately 400 gal of JP-4 fuel spilled onto the apron from a broken fuel coupling on an aircraft fuel tank in 1980. Although the site was scheduled to be investigated during the Appendix III Phase I, RFI Investigation, 13 soil borings were drilled in the area in February 1992 in anticipation of the construction of the new hangar. The borings were drilled to 20 ft, and one soil sample

was collected from each boring at depths varying from 1 to 20 ft. The samples were analyzed for TPH, total recoverable petroleum hydrocarbon (TRPH), TPH extractables, and total VOCs. TPH was recorded in three samples; the highest recording was 0.120 ppm. TRPH was also found in three samples with the highest being 7,500 ppm. TPH extractables were found in two samples at 8.4 and 65 ppm. VOCs were not detected in the samples.

It is anticipated that this site will be removed from Cannon's Part B permit and will receive a final decision of NFA. This conclusion is based on the results of the February 1992 investigation and the fact that sites of accidental spills are not considered SWMUs. Further investigation or remediation of the site is not anticipated. Cost schedules or Time Line® schedules were not prepared for this site.

AOC C Blown Capacitors Site, Appendix III Site
IRP No. OT-10 DPM Score: 3.1 Date of Scoring: Feb 1993

Three pole-mounted capacitors exploded in 1978 in the northwest area of the base. Approximately 6 gal of oil thought to contain PCBs were released to the ground surface. Approximately 100 yd^3 of soil were excavated and drummed immediately following the incident. The drummed soil was disposed of off-base in a permitted disposal facility. No visible evidence of the spill was observed during the April 1992 site visit.

This site has not been investigated in the past. Because the definition of an SWMU does not include accidental spills, it is anticipated that EPA Region VI will concur that the site was improperly identified as an SWMU in the RFA report. Therefore, NFA is anticipated for this site. Cost schedules and Time Line® schedules were not prepared for this site.

AOC D Non-Friable Asbestos Burial Pits
DPM Score: None Date of Scoring: N/A

These are three disposal pits containing asbestos siding material discovered during the expansion of the golf course. The sites were uncovered by a bulldozer operator while he was pushing top soil into mounds in order to construct tee boxes and bunkers. A six to twelve inch layer of soil was pushed back over the debris piles.

During the Phase I RFI for Landfill 1 a borehole was drilled within 20 feet of one of these pits but did not detect it. It is believed that these pits were excavated for clean fill material or for building material disposal, or both, and not for landfill disposal. The general area was investigated during a Phase RFI investigation for Landfill 1, but no landfill type debris could be located. The site will be investigated in 1996.

AOC 36 Disposal Pit (New AOC added to IRP list)
DPM Score: None Date of Scoring: N/A

This is a possible disposal pit found near the current MWR Outdoor Recreation Center. This facility was originally the MWR auto hobby shop. When a new auto hobby shop was constructed this building was turned into the Outdoor Recreation Center. The operations at the Outdoor Recreation Center should not have created this problem. This pit could be a remnant of the old Auto Hobby Shop or a disposal site for fluids coming from an aircraft engine maintenance shop in the early 1950s. A NFA request was sent to EPA in 1994.

Melrose Bombing Range (OT-23)

Melrose Bombing Range consists of approximately 30,000 acres 25 miles west of Cannon AFB. The range was first activated as a 7,771-acre facility in 1952. The range is currently active and is used by several military units.

Waste disposal units at the range include a septic tank/leach field for disposal of sanitary waste and approximately 10 expended ordnance burial pits, collectively known as the EOD Burial Site. The pit is approximately 20 ft wide × 150 ft long × 15 to 20 ft deep. Approximately 6 to 7.5 LB of scrap ordnance are collected and disposed of monthly in an active pit.

Each month, 20 to 30 LB of unexploded practice munitions are detonated and burned on the range. An open burn/open detonation (Subpart X) permit application for the range was issued in December 1994.

Live ordnance has not been used at the range since 1969. It is possible, however, that live ordnance is buried in an old burial site. The IRP Phase 1 Records Search determined that the potential for hazardous material migration from this site is extremely low. The RFA identified seven potential SWMUs at the range; three of these SWMUs have been incorporated into the Subpart X permit (SWMU Nos. 114, 115, and 117).

SWMU 114 Expended Ordnance Burial Site
DPM Score: None Date of Scoring: N/A

This site consists of eight burial trenches approximately 40 feet wide by 50 feet deep by 150 feet long located north of the main range building. From about 1952 until the late 1960s, these trenches received scrap metal, unexploded ordnance, and possibly unusable paints, solvents and fuels. A potable well supplying water for Melrose AFR is located about one mile to the northeast of the trenches. Proposed field work includes a geophysical investigation, excavation, surface water and soil samples, subsurface soil samples, and sampling of the existing water well. A Phase I RFI will begin in 1995.

SWMU 115 Explosives Contaminated Burial Site
DPM Score: None Date of Scoring: N/A

This site consists of an area that was used for burial of unexploded ordnance, training munitions and metal targets. The site is approximately 40 feet wide by 20 feet deep by 200 feet long located southwest of the main range building. It may have received materials as late as 1989. Proposed field work includes a geophysical investigation, excavation, surface water and soil samples, soil gases and subsurface soil samples. A Phase I RFI will begin in 1995.

SWMU 117 Domestic Waste Pile
DPM Score: None Date of Scoring: N/A

This site consists of an area approximately 50 feet wide by unknown depth by 120 feet long located south of the main range building. It is believed to have received only domestic waste from about 1952 until the 1980s. Proposed field work includes surface soil samples, soil gases, and subsurface soil samples from borings. A Phase I RFI will begin in 1995.

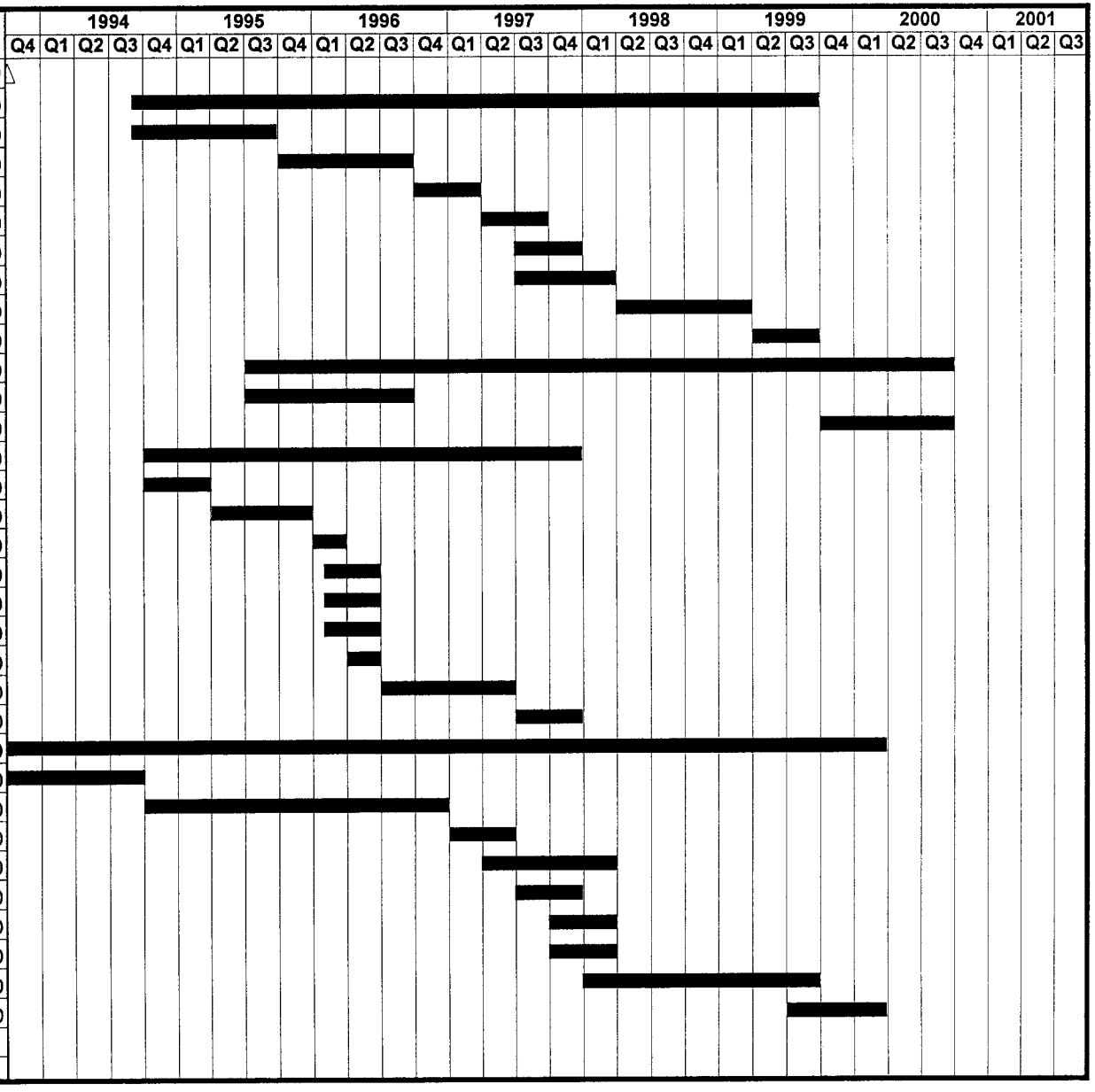
IRP SITE DP-33
DPM Score: None Date of Scoring: N/A

This is one of two IRP sites that do not have SWMU numbers assigned, the other site is AOC 36. This Disposal Pit was discovered in July 1992 just east of the Civil Engineering Container Storage Area, which is SWMU 77. The site was discovered when a bulldozer operator ripped through the top of a barrel containing oily wastes. An Interim Removal Action was initiated which resulted in the removal of some twenty eight barrels during the May to June 1994 time frame. Most of these barrels were crushed and empty. Five barrels POL products or glycol. As of the time of this writing complete lab results have yet to be received. Preliminary results from the excavation indicate NFA may be justified.

APPENDIX B
COST ESTIMATE AND SCHEDULE

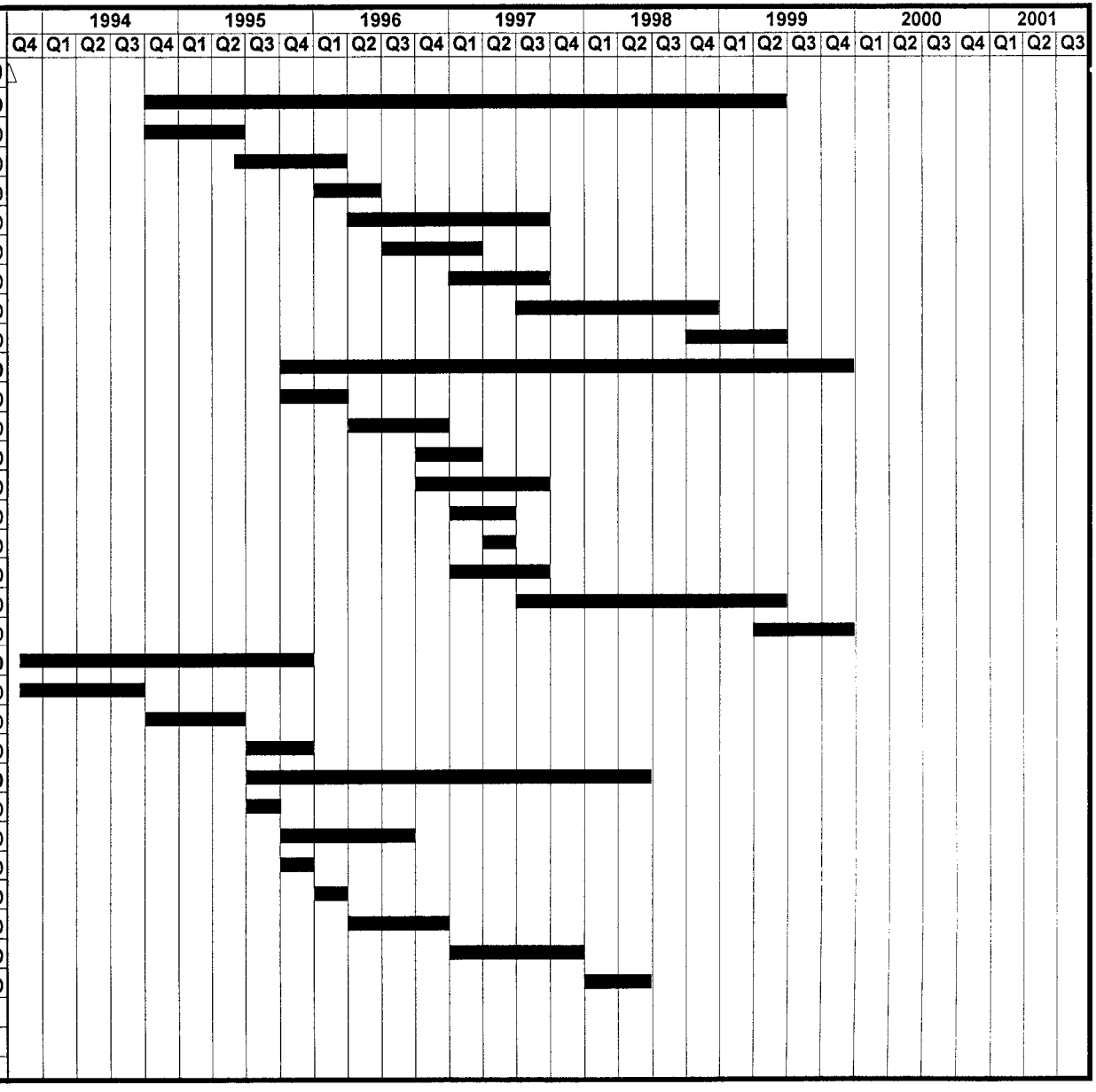
Cannon AFB
Summary Schedule of RCRA Corrective Actions

Task Name	Duration (Weeks)
Cannon AFB IRP	**0.00**
LF-3 & LF-4 Wells	**256.20**
RFI and Report	54.60
Establish Cleanup Requirements	50.60
CMS Work Plan	24.80
CMS Report	25.80
CMS Proposed Plan	25.20
CMS Design	37.60
CM Implementation	50.80
Project Closeout	25.60
LF-3 & LF-4 LTM	**265.40**
Establish Cleanup Requirements	63.00
LTM Implementation	51.20
SD-11	**163.40**
RFI Work Plan (957103)	25.60
RFI and Report	37.80
Establish Cleanup Requirements	12.60
CMS Work Plan (967103)	21.60
CMS Report	21.60
CMS Proposed Plan	21.60
CMS Design	12.80
CM Implementation	49.80
Project Closeout	24.80
LF-5	**327.80**
RFI Work Plan (927007)	50.90
RFI and Report	112.90
Establish Cleanup Requirements	25.20
CMS Work Plan (977505)	50.50
CMS Report	25.00
CMS Proposed Plan	24.90
CMS Design	24.90
CM Implementation	89.00
Project Closeout	38.00



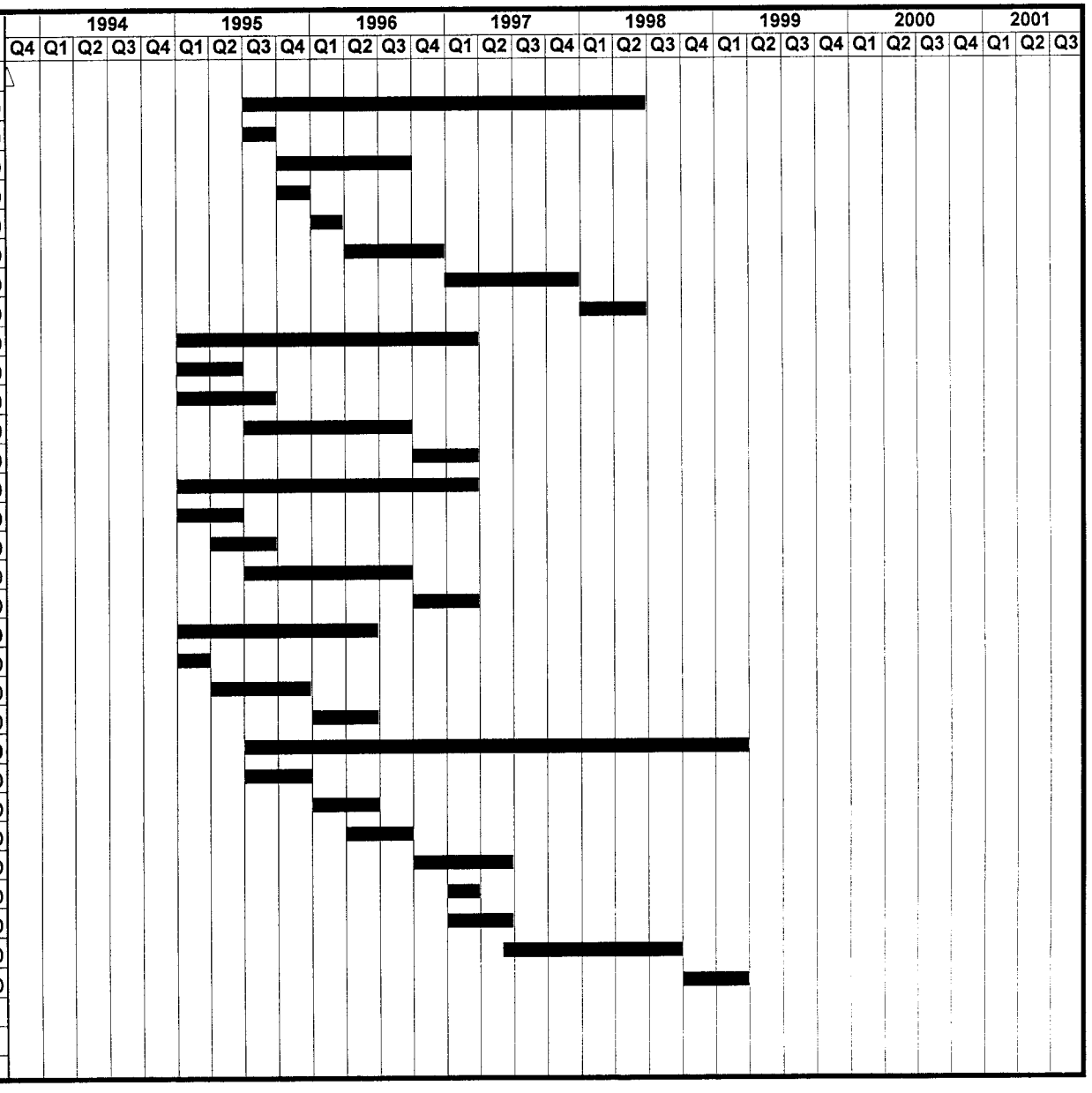
Cannon AFB
Summary Schedule of RCRA Corrective Actions

Task Name	Duration (Weeks)
Cannon AFB IRP (continued)	**0.00**
LF-1 Burn Pits	**239.20**
RFI Work Plan (917006)	38.20
RFI and Report	42.20
Establish Cleanup Requirements	25.00
CMS Work Plan (977001)	76.00
CMS Proposed Plan	37.50
CMS Design	38.20
CM Implementation	75.60
Project Closeout	37.80
(LF-1) AOC-D, E, F	**213.90**
RFI Work Plan (957001)	25.40
RFI and Report	37.40
Establish Cleanup Requirements	24.20
CMS Work Plan (977001)	50.00
CMS Report	25.10
CMS Proposed Plan	13.10
CMS Design	37.80
CM Implementation	100.60
Project Closeout	38.50
Appendix II & III RFI	**109.60**
RFI Work Plan (940135)	46.40
RFI and Report	37.80
Establish Cleanup Requirements	25.40
Appendix II	**150.60**
Establish Cleanup Requirements	13.30
CMS Work Plan (946001)	50.50
CMS Report	12.80
CMS Proposed Plan	12.20
CMS Design	38.00
CM Implementation (976001)	50.00
Project Closeout	25.00



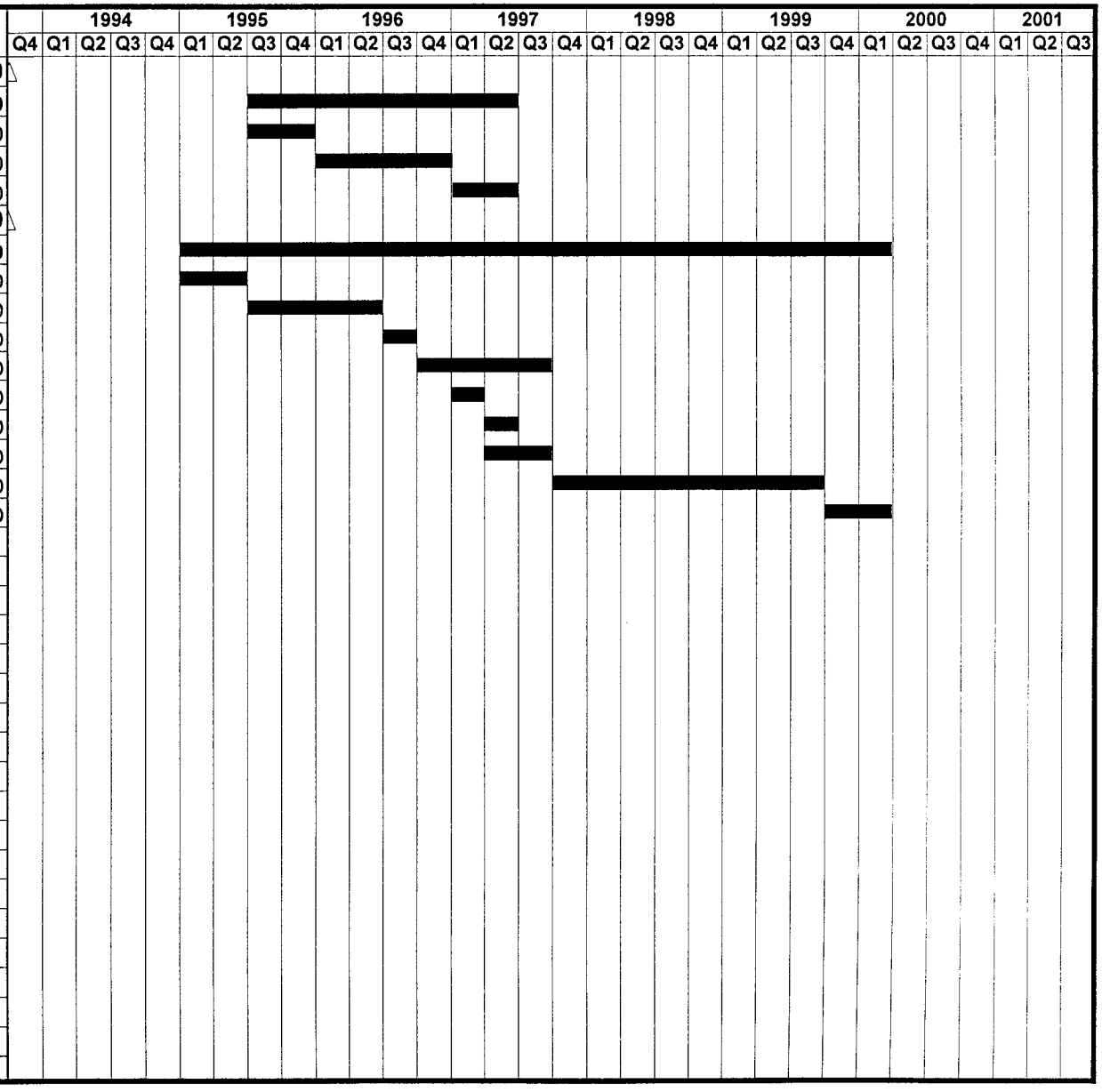
Cannon AFB
Summary Schedule of RCRA Corrective Actions

Task Name	Duration (Weeks)
Cannon AFB IRP (continued)	**0.00**
Appendix III	**150.60**
Establish Cleanup Requirements	13.00
CMS Work Plan (946002)	50.80
CMS Report	12.50
CMS Proposed Plan	12.10
CMS Design	37.70
CM Implementation (976002)	50.20
Project Closeout	25.30
Appendix II ICA	**112.80**
ICA Work Plan (957100)	25.20
CMS Design	37.80
CM Implementation	63.20
Project Closeout	24.40
Appendix III ICA	**112.80**
ICA Work Plan (957101)	25.20
CMS Design	25.20
CM Implementation	63.40
Project Closeout	24.20
REP Monitoring Wells	**75.40**
RFI Work Plan (950020)	12.40
RFI and Report	37.80
Project Closeout	25.20
FTA-4	**188.40**
RFI Work Plan (956003)	25.30
RFI and Report	25.50
Establish Cleanup Requirements	25.70
CMS Report	37.00
CMS Proposed Plan	12.20
CMS Design	25.00
CM Implementation	67.60
Project Closeout	24.60



Cannon AFB
Summary Schedule of RCRA Corrective Actions

Task Name	Duration (Weeks)
Cannon AFB IRP (continued)	**0.00**
LF-5 Upgradient Well	**100.80**
RFI Work Plan (956004)	25.20
RFI and Report	50.80
Establish Cleanup Requirements	24.80
RCRA Subpart X Permit Corrective Actions	**0.00**
Melrose AFR	**264.60**
RFI Work Plan (957102)	25.20
RFI and Report	50.80
Establish Cleanup Requirements	12.60
CMS Work Plan (976102)	49.80
CMS Report	12.10
CMS Proposed Plan	13.00
CMS Design	25.60
CM Implementation (986102)	101.00
Project Closeout	25.20



Cannon AFB
Cost Estimate for RCRA Corrective Action Projects

CANNON AFB, N.M. — AS OF 5 JUL 95

RCRA CORRECTIVE ACTIONS PROJECTS

BASE	FY	BASE PRI	PROJECT #	A-106 #	FUND PRI	WORK PHASE	PROJECT DESCRIPTION	CWE ($000)	EST.AWARD DATE	REMARKS
CAFB	95	1	CZQZ940135			RFI	PH.II,APPD.II&III	1,056	Awarded	
CAFB		2	CZQZ957100			IRA	APP.II INT.CORRECTIVE ACTION	725	Aug-95	
CAFB		3	CZQZ957101			IRA	APP.III INT.CORRECTIVE ACTION	610	Aug-95	
MAFR		4	CZQZ957102			RFI	MAFR RFI	1,550	Jan-95	MIPR to COE,30Jan95
CAFB		5	CZQZ950020			LTM	REPAIR 3 MONITORING WELLS	60	Jun-95	MIPR to COE,30Jan95
CAFB		6	CZQZ957105	OS-005010		LTM	GW MONITORING	110	Feb/Aug	Feb & Aug samples
CAFB		7	CZQZ956003			RFI	FIRE TRAINING AREA 4	525	Jun-95	
CAFB		8	CZQZ947505			LTM	LF-5 POST CLOSURE PLAN DEV.	Awarded		Armstrong Lab
CAFB		9	CZQZ956004			LTM	LF-5 (SWMU113) WELL	170	Aug-95	RFI began Jan95
CAFB		10	CZQZ957002			LTM	LF-5 CELL 3 SOIL CAP	10	Aug-95	
CAFB	96	1	CZQZ946001			CMS	CMS,APPENDIX II SWMUs	560	Nov-95	
CAFB		2	CZQZ946002			CMS	CMS,APPENDIX III SWMUs	845	Nov-95	
CAFB		3	CZQZ957100			IRA	APP.II	Awarded	FY95	
CAFB		4	CZQZ957101			IRA	APP.III	Awarded	FY95	
MAFR		5	CZQZ957102			RFI	MAFR RFI	Awarded	FY95	
CAFB		6	CZQZ966105	OS-005010		LTM	GW MONITORING	180	Nov-95	Feb & Aug samples
CAFB		7	CZQZ956003			RFI	FIRE TRAINING AREA 4	Awarded	FY95	
CAFB		8	CZQZ957002			LTM	LF-5 CELL 3 SOIL CAP		Aug-96	
CAFB		9	CZQZ956004			LTM	LF-5 (SWMU113) WELL	Awarded	Aug-95	
MAFR		10	CZQZ956005			LTM	OB/OD POST-CLOSURE PLAN	200	Feb-96	
CAFB	97	1	CZQZ976001			CMI	CMI, APPENDIX II	750	Oct-96	
CAFB		2	CZQZ976002			CMI	CMI, APPENDIX III	750	Oct-96	
MAFR		3	CZQZ976102			CMS	MAFR CMS	250	Nov-96	
CAFB		4	CZQZ976003			CMS/CMI	FIRE TRAINING AREA 4	850	Jan-96	
CAFB		5	CZQZ976105	OS-005010		LTM	GW MONITORING	190	Nov-96	
CAFB		6	CZQZ976100			LTM	LTM OF APP.II (IRA) SWMUs	100	Oct-96	
CAFB		7	CZQZ976101			LTM	LTM OF APP.III (IRA) SWMUs	100	Oct-96	
MAFR		8	CZQZ976106			LTM	LTM OF OB/OD FACILITY	100	Oct-96	
CAFB		9	CZQZ957002			LTM	LF-5 CELL 3 SOIL CAP	Awarded	Aug-95	
MAFR	98	1	CZQZ986102			CMI	MAFR CMI	1,000	Nov-97	
CAFB		2	CZQZ986105	OS-005010		LTM	GW MONITORING	200	Jan-98	
CAFB		3	CZQZ986100			LTM	APP.II	100	Oct-97	
CAFB		4	CZQZ986101			LTM	APP.III	100	Oct-97	
CAFB		5	CZQZ957002			LTM	LF-5 CELL 3 SOIL CAP		Oct-96	
MAFR		6	CZQZ986106			LTM	LTM OF OB/DO FACILITY	110	Oct-97	
CAFB		7	CZQZ976003			CMS/CMI	FIRE TRAINING AREA 4	Awarded	Jan-96	
MAFR	99	1	CZQZ986102			CMI	MAFR CMI	1,000	Awarded	
CAFB		2	CZQZ996105	OS-005010		LTM	GW MONITORING	210	Jan-99	
CAFB		3	CZQZ996100			LTM	APP.II	100	Jan-99	
CAFB		4	CZQZ996101			LTM	APP.III	100	Jan-99	
CAFB		5	CZQZ997002			LTM	LF-5 SOIL CAP		Jan-99	
MAFR		6	CZQZ996106			LTM	LO/OD FACILITY	110	Jan-99	
CAFB		7	CZQZ996003			LTM	FIRE TRAINING AREA4	50	Jan-99	
MAFR	2000	1	CZQZ006102			LTM	MAFR SITES	250	Jan-00	
CAFB		2	CZQZ006105	OS-005010		LTM	GW MONITORING	220	Jan-00	
CAFB		3	CZQZ007002			LTM	LF-5 SOIL CAP		Jan-00	
CAFB		4	CZQZ006003			LTM	FIRE TRAINING AREA4		Jan-00	

Cannon AFB
Cost Estimate for IRP Projects

CANNON AFB, N.M.

AS OF 5 JUL 95

IRP PROJECTS

IRP SITE	FY	BASE PRI	PROJECT #	A-106 #	FUND PRI	WORK PHASE	PROJECT DESCRIPTION	CWE [$000]	EST.AWARD DATE	REMARKS
	94									
ALL			CZQZ947099							
LF-5			CZQZ927007			DRAFT	COMMUNITY RELATIONS PLAN	50	Awarded	
LF-3 & 4			CZQZ917006			RI/FS	LF-5 RFI (NMED)	700	Awarded	Draft due Jan95
LF-1			CZQZ917006			RI	APP.I,Ph.II RFI (WELLS)		Awarded	Report due Jan97
SD-17plus			CZQZ937017			PA/SI	G.C. BURN PITS		Awarded	
DP-33			CZQZ937033			RI/FS	APP.I,Ph.II		Awarded	
						IRA	REMOVAL			Jan95 revised report
	95									Closure report due
ALL			CZQZ947099							
LF-5			CZQZ927007			DRAFT	COMMUNITY RELATIONS PLAN	50	Awarded	
LF-3 & 4			CZQZ917006			RI/FS	LF-5 RFI (NMED)	1,279	Awarded	Feb95 interviews
LF-1			CZQZ917006			RI	APP.I,Ph.II RFI (WELLS)	182	Awarded	Report due Jan97
AOC-D,E,F			CZQZ957001			PA/SI	G.C. BURN PITS		Awarded	Mar95 report to EPA
SD-17plus			CZQZ937017			PA/SI	G.C. DISPOSAL PIT	520	Mar-95	Feb95 workplan
DP-33			CZQZ937033			RI/FS	APP.I,Ph.II		Awarded	Funds issue
SD-11			CZQZ957103			IRA	REMOVAL		Awarded	Revised report Jan95
						RI/FS	APP.I,Ph.III RFI	180	Dec-94	Closure report to NMED
	96									WP to EPA (Jan95)
LF-5			CZQZ927007							
SD-11			CZQZ967103			RI/FS	LF-5 RFI (NMED)	700	Awarded	
LF-3,4&25			CZQZ967006			RD/RA	INTERIM REMEDIAL ACTION	600	Mar-96	RFI report due Jan97
AOC-D,E,F			CZQZ957001			LTM	LTM OF LF-3,LF-4 AND LF-25	150	Jan-96	Bioventi?
LF-1			CZQZ917006			RI/FS	G.C. DISPOSAL PIT	520	Jan-96	Rpr well,qtr.monitoring
ALL			CZQZ967008			RI/FS	G.C. BURN PITS		Awarded	PREECA?
SD-17 plus			CZQZ967007			PA/SI	CANNON AFB SI	275	Nov-95	
DP-33			CZQZ967033			RI/FS	DECISION DOCUMENTS	100	Jan-96	EPA Ltr.
						IRA	INTERIM REMEDIAL ACTION	300	Jan-96	
	97									If NMED rejects NFA
LF-5			CZQZ977505							
SD-11			CZQZ967103			RD/RA	LF-5 RFI (NMED)	5,000	May97	
LF-3 & 4			CZQZ977006			RD/RA	INTERIM REMEDIAL ACTION	600	Awarded	RFI report due Jan97
LF-1/AOC-D			CZQZ977001			LTM	LTM OF LF-3,-4 AND -25	100	Jun-97	
DP-33 plus			CZQZ977007			RD/RA	G.C. BURN/DISPOSAL PITS	500	Jan-97	
LF-3 & 4						PREP	DECISION DOCUMENTS	100	Jan-97	
ALL			CZQZ977099							
						UPDATE	COMMUNITY RELATIONS PLAN	50		UPDATE FROM 95
	98									
LF-5			CZQZ977505							
SD-11			CZQZ967103			RD/RA	LF-5 REMEDIAL ACTION (NMED)	5,000	Awarded	
LF-3 & 4			CZQZ967006			LTO	LTO of Bioventing	50	Nov-97	
LF-1/AOC-D			CZQZ977001			LTM	LTM of LF-3,4&25	70	Jun-97	LTO or bioventi?
			CZQZ967007			RD/RA	G.C.DISPOSAL/BURN PITS		Awarded	
						PREP	DECISION DOCUMENTS	100	Jan-98	
	99									
LF-5			CZQZ979505							
SD-11			CZQZ997103			RD/RA	LF-5 REMEDIAL ACTION (NMED)	5,000	Awarded	
LF-3 & 4			CZQZ997006			LTM	LTM of site	100	Nov-99	
LF-1/AOC-D			CZQZ997001			LTM	LTM of LF-3,4&25 wells	70		
						LTM		50		
	2000									
LF-5			CZQZ009505							
LF-3 & 4			CZQZ007006			LTM	LF-5 LTM of RA	150		
LF-1/AOC-D			CZQZ007001			LTM	LTM of LF-3,4&25 wells	80		
						LTM		60		

APPENDIX C
REAL PROPERTY RECORDS

TABLE C-1

CANNON AFB REAL PROPERTY RECORDS

Name	Acres	Location	Date Acquired	Dates of Operation	Comments
Melrose Air Force Base	87,925	25 miles west of the main Base	1952	1952 to Present	Subpart X approved Dec 1994
Clovis Housing Area	*40	Clovis, New Mexico	leased 1992	1992 to Present	Housing
Portales Housing Area	*30	Portales, New Mexico	Leased 1993	1992 to Present	Housing
NEXRAD	0.5	Field, New Mexico	1992	1992 to Present	
Walker Air Base	12	Roswell Industrial Air Center, Roswell, New Mexico	Leased 1 Aug 1992 from City of Roswell	1992 to Present	Includes four buildings
Hereford Site - GWEN	10	West of Hereford, Texas, on Texas Hwy. 1058	1991	1991 to Present	Active transmitter
Chaves Manor	*75	North of the Base	1960	1960 to Present	Housing

* Approximation

AFB = Air Force Base
NEXRAD = Next Generation Radar
USACE = U.S. Army Corps of Engineers

APPENDIX D
DECISION DOCUMENTS FOR REMEDIAL RESPONSE ACTIONS

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This appendix provides a summary of remedy selection records, including DDs that describe the selection of corrective actions. These summaries list those sites requiring remediation and include the names of signed DDs for non-NPL sites. Currently, there are no signed DDs for Cannon AFB. However, ten sites were deemed ineligible for the IRP, and the Base sent a letter to HQ ACC requesting that they be removed. Removal from the IRP means the sites are no longer DERA eligible. It does not eliminate them from RCAP under the RCRA permit. A copy of the letter is included in this appendix.

TABLE D-1

RECORDS OF DECISION AND DECISION DOCUMENTS FOR REMEDIAL RESPONSE ACTIONS

WIMS-ES ID	Site Name	Date Written	Date Signed

27 CES/CEV
111 Engineers Way
Cannon AFB NM 88103-5136

Mr David Dentino
HQ ACC CEVR
129 Andrews Street
Langley AFB VA 23665-2769

RE: Removal of IRP Sites from the Cannon AFB IRP Listing

Dear Mr Dentino

There are currently 10 IRP sites at Cannon AFB that should have never been included in the Installation Restoration Program (IRP). Request immediate administrative action be taken to remove these sites from our IRP listing.

The following are "Active" sites and therefore are not DERA eligible:

1. IRP Site FT-09, Fire Department Training Area No. 4
2. IRP Site WP-21, Wastewater Treatment System Lagoons and Effluent Discharge
3. IRP Site OT-23, Melrose Bombing Range

The following were sites of 2,000 gallon underground heating oil storage tanks which were removed under the UST program in accordance with NMED Underground Storage Tank regulations. No action under the IRP was required.

1. IRP Site ST-28, Recovered Diesel Tank # 108
2. IRP Site ST-29, Recovered Diesel Tank # 121

The following was the site of an underground storage tank which was removed under the UST program in accordance with NMED Underground Storage Tank regulations. No action under the IRP was required.

1. IRP Site ST-32, UST Near Bldg 192

The following sites do not exist:

1. IRP Site ST-30, UST Old Service Station
2. IRP Site ST-31, UST Near Bldg 357

The following site is a duplication of IRP Site ST-26, UST Waste Oil & Above Ground Overflow Capacity Tank:

1. IRP Site ST-22, UST Waste Oil

The following site no longer belongs to Cannon AFB as the property was transferred to the Army Corps of Engineers on 31 Mar 92.

1. IRP Site OT-24, Conchas Lake Recreation Annex

Your cooperation in these matters is greatly appreciated. Please direct any questions to Mr John Ekhoff at DSN 681-4348.

Sincerely

MAC A. CRAWFORD, Capt, USAF
Chief, Environmental Restoration

APPENDIX E
NO FURTHER RESPONSE ACTIONS PLANNED

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NO FURTHER RESPONSE ACTIONS PLANNED

This appendix provides the No Further Response Action Planned (NFRAP) DD summaries indexed by site. NFRAP decisions will include those made after the VSI, where no contamination was found; the RFI, where the levels of contamination did not pose risk to human health or the environment; the CMI, where removal, treatment, containment, or other appropriate method was determined to be satisfactory; and long-term monitoring (LTM), where monitoring has confirmed that there is no longer a threat to human health or the environment from contamination left in place. Currently, there are no NFRAP DDs for Cannon AFB.

TABLE E-1

NO FURTHER RESPONSE ACTION PLANNED DOCUMENT STATUS

WIMS-ES ID	Site Name	Date Written	Date Signed