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RCRA FACILITY ASSESSMENT PRELIMINARY REVIEW VISUAL SITE INSPECTION NAS
FORT WORTH TX
3/1/1989
U S EPA REGION VI



**NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS**

**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 30

RCRA FACILITY ASSESSMENT
PR/VSI REPORT

Carswell Air Force Base
Fort Worth, Texas
EPA I.D. Number TXD571924042

Submitted to:

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SWMU's Assessment by TWC & EPA - 16-18 Jan 90

<u>SWMUs #</u>	<u>Site Description</u>	<u>IRP#</u>	<u>Recommendation</u>
5	Bldg 1628 Waste Accumulation	-	No Action
6	Bldg 1628 Wash Rack & Drain	-	No Action
12	Bldg 1619 Waste Accumulation	-	No Action
16	Bldg 1060 Waste Accumulation	-	No Action
17	Landfill No. 7	7	No Action
18	Fire Training Area No. 1	11	Nature and extent of release (Support with IRP investigation)
19	Fire Training Area No.2	12	Investigate soil and groundwater contamination
20	Waste Fuel Storage Tank	-	Investigate soil and groundwater contamination
21	Waste Oil Tank	-	Submit closure details
22	Landfill No. 4	4	Investigate soil and groundwater contamination
23	Landfill No. 5	5	Investigate soil and groundwater contamination
24	Waste Burial Area	10	Investigate soil and groundwater contamination
25	Landfill No. 8	8	No Action
26	Landfill No. 3	3	No Action
27	Landfill No. 10	-	No Action
28	Landfill No. 1	1	Nature and extent of release to soil & Water
29	Landfill No. 2	2	No Action
30	Landfill No. 9	9	No Action
32	Bldg 1410 Waste Accumulation	-	Sample soil east of the concrete wall
33	Bldg 1420 Waste Accumulation	-	No Action
34	Bldg 1194 Vehicle Refueling Accumulation Point	-	No Action
35	Oil/Water Separation System Bldg 1194 -Refueling Maint	-	Determine the fate of supernatant from the separator (e.g. sanitary or storm sewer) Assess env. impact imposed by fuel spills in the parking lot.
36	Bldg 1191 Waste Accumulation	-	RFI - soil & receiving ditch to southeast
51	Bldg 1190 Accumulation Point	-	No Action

SWMU's Assessment by TWC & EPA - 16-18 Jan 90

<u>SWMUs #</u>	<u>Site Description</u>	<u>IRP#</u>	<u>Recommendation</u>
18	Fire Training Area No. 1	11	Nature and extent of release (Support with IRP investigation)
19	Fire Training Area No.2	12	Investigate soil and groundwater contamination
20	Waste Fuel Storage Tank	-	Investigate soil and groundwater contamination
21	Waste Oil Tank	-	Submit closure details
22	Landfill No. 4	4	Investigate soil and groundwater contamination
23	Landfill No. 5	5	Investigate soil and groundwater contamination
24	Waste Burial Area	10	Investigate soil and groundwater contamination
28	Landfill No. 1	1	Nature and extent of release to soil & Water
32	Bldg 1410 Waste Accumulation	-	Sample soil east of the concrete wall
35	Oil/Water Separation System Bldg 1194 -Refueling Maint	-	Determine the fate of supernatant from the separator (e.g. sanitary or storm sewer) Assess env. impact imposed by fuel spills in the parking lot.
36	Bldg 1191 Waste Accumulation	-	RFI - soil & receiving ditch to southeast
53	Storm water drainage system Northeast of Fire Trng Area	13	Determine the nature and Extent of releases conveyed by this unit possibly originating from landfill leachate & other sources.
62	Landfill No. 6	6	Nature and extent of releases to soil & water
63	Entomology Dry Well	15	Nature and extent of releases to soil & water
64	French Underdrain System	-	Sample soil and ground water @ outfall at retired oil/water separator, verify the location and function of underdrain
67	Bldg 1340 Oil Water Separator	-	Drain & check infiltration exfiltration, check integrity of concrete walls
68	POL Tank Farm	17	Investigate nature & extent of soil & water
AOC No.2	Base Service Station	BSS	Nature and extent of release to soil & water
-	Unnamed Steam	-	Study in conjunction with SWMU's 64 and 68.

1.0 INTRODUCTION

This section of the Preliminary Review (PR)/Visual Site Inspection (VSI) report covers the purpose and scope of the RCRA Facility Assessment (RFA) program. The contents of the other sections of this report also are described.

1.1 Purpose and Scope of the RFA Program

The 1984 Hazardous and Solid Waste Amendments (HSWA) provide new authority to the U.S. Environmental Protection Agency (EPA) to require comprehensive corrective actions on solid waste management units (SWMUs) and other areas of concern (AOCs) at interim status hazardous waste management facilities. These corrective actions are intended to address unregulated releases of hazardous constituents to air, surface water, soil, and ground water, as well as the generation of subsurface gas.

One of the major segments of EPA's corrective action program consists of RFAs to identify releases and potential releases, and to determine which of these require further investigation or immediate response. According to EPA's RCRA Facility Assessment Guidance Document, the four purposes of an RFA are to:

1. Identify and gather information on releases at RCRA-regulated facilities;
2. Evaluate solid waste management units and other areas of concern for releases to all media and evaluate regulated units for releases to media other than ground water;

3. Make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility; and
4. Screen from further investigation those SWMUs which do not pose a threat to human health and the environment.

The three basic steps of an RFA consist of a PR of available information, a VSI to verify information collected during the PR, and to obtain additional information on releases, and, if warranted, a sampling visit (SV) to fill data gaps by obtaining field sampling and analytical data.

1.2 Contents of This Report

This report presents the results of the PR and VSI of the Carswell Air Force Base (AFB), west of Fort Worth, Texas. The principal sources of information used in conducting the PR included the facility's Installation Restoration Program (IRP) reports and its correspondence with the EPA, as well as internal Air Force correspondence. These documents were obtained during a search of relevant files at the EPA Region VI office in Dallas and at the office of the Texas Bureau of Solid Waste Management in Austin. This search included relevant files from RCRA, CERCLA, NPDES, and Air Quality Division.

The VSI was conducted on February 13-16, 1989. Carswell Air Force representatives present were Randy Varnard^{er}, Raj Sheth, Frank Grey, and Lance Key. The Kearney Team representatives were Randa Smine and Mark Lane of the Kearney/Centaur Division. Also, Richard Clarke, representing the Texas Water Commission accompanied the team on February 13.

Section 2.0 of this report contains a description of the Carswell Air Force Base facility, including its historical and current operations. Solid Waste Management Units identified during the PR and VSI are outlined in Section 2.0, along with a summary description of the wastes managed by the facility. Section 3.0 provides an overview of the environmental setting at the facility, comprising meteorology, floodplain, surface water, geology, ground water, and receptor information. In Section 4.0, a broad assessment of release pathways is made, covering the potential for releases to air, surface water, soil, and ground water. Section 5.0 contains detailed discussions of each SWMU, while section 6.0 covers other areas of concern (i.e., releases from production areas, spills, and evidence of contamination of unknown origin). Section 7.0 contains suggested further actions for each individual SWMU. The references are listed in Section 8.0. The VSI photograph log is presented as an appendix to this report.

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2.0 FACILITY DESCRIPTION

2.1 Location

Carswell AFB is located on 2,751 acres of land in Tarrant County, Texas, six miles west of the center of Fort Worth (Figure 2-1). The geographical coordinates of the facility are: latitude 32°45'530"N and longitude 97°25'440"W (108). It lies between the communities of White Settlement and River Oaks, within a bend of the West Fork of the Trinity River which flows along the northern part of the eastern boundary of the base. The river is dammed to form Lake Worth, a drinking water supply and recreation reservoir bordering Carswell AFB to the north. To the west, Carswell AFB is neighbored by Air Force (AF) Plant 4 and by the community of White Settlement. General Dynamics Corporation operates AF Plant 4 for the Air Force. It is an aircraft production plant that shares the runway and several facilities with Carswell AFB. Carswell AFB is bordered on the east by the communities of River Oaks, Westworth Village, and other urban areas. The current base boundaries are shown in Figure 2-2.

Two offsite facilities are part of the base; the ILS Marker Beacon west of Carswell AFB and the Weapons Storage Area (WSA), four miles west of Carswell AFB (Figure 2-1).

2.2 Historical and Current Operations

Prior to 1941, the area that is now occupied by Carswell AFB consisted of woods and pasture in an area called White Settlement. In August 1942, the

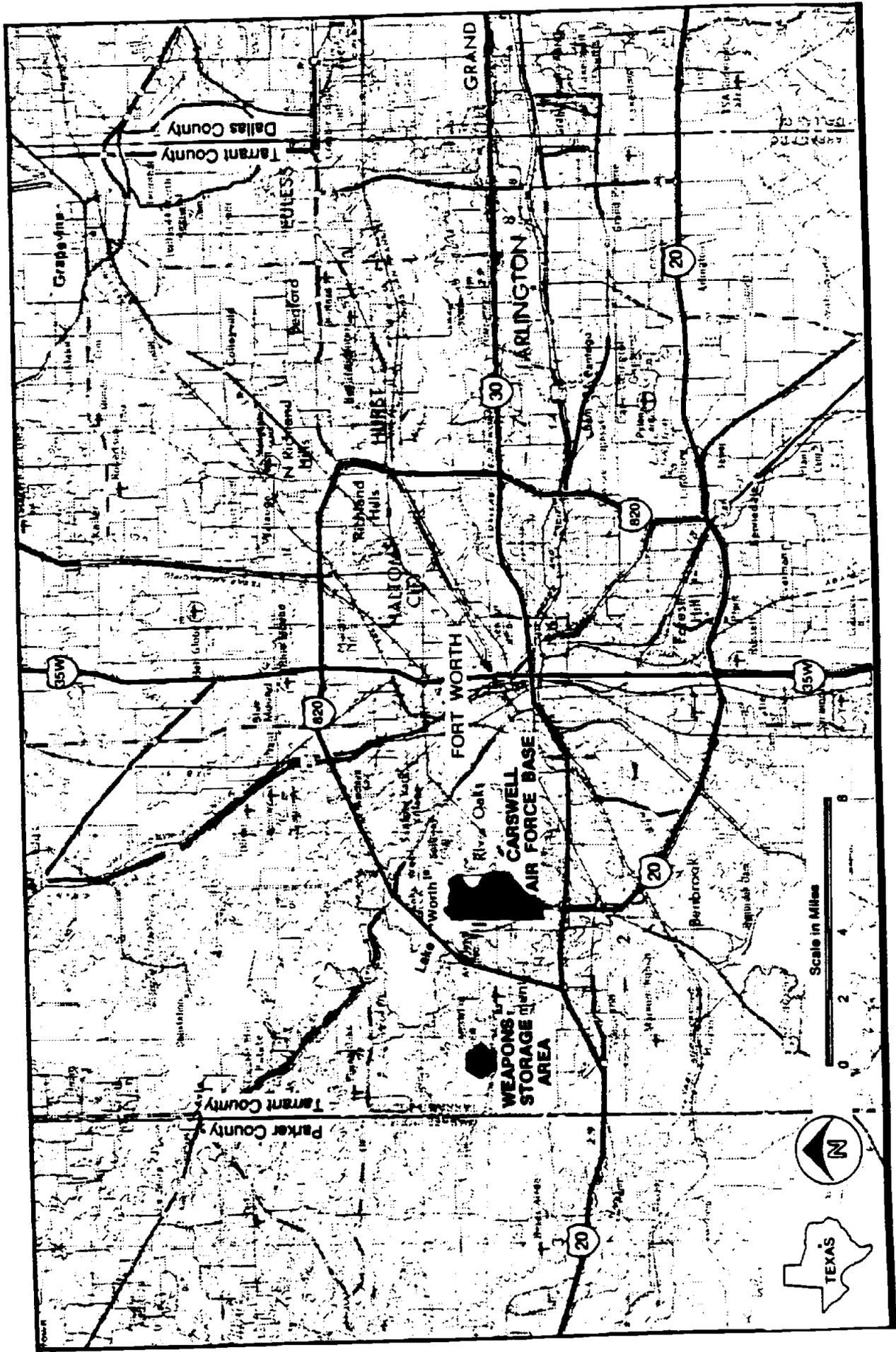
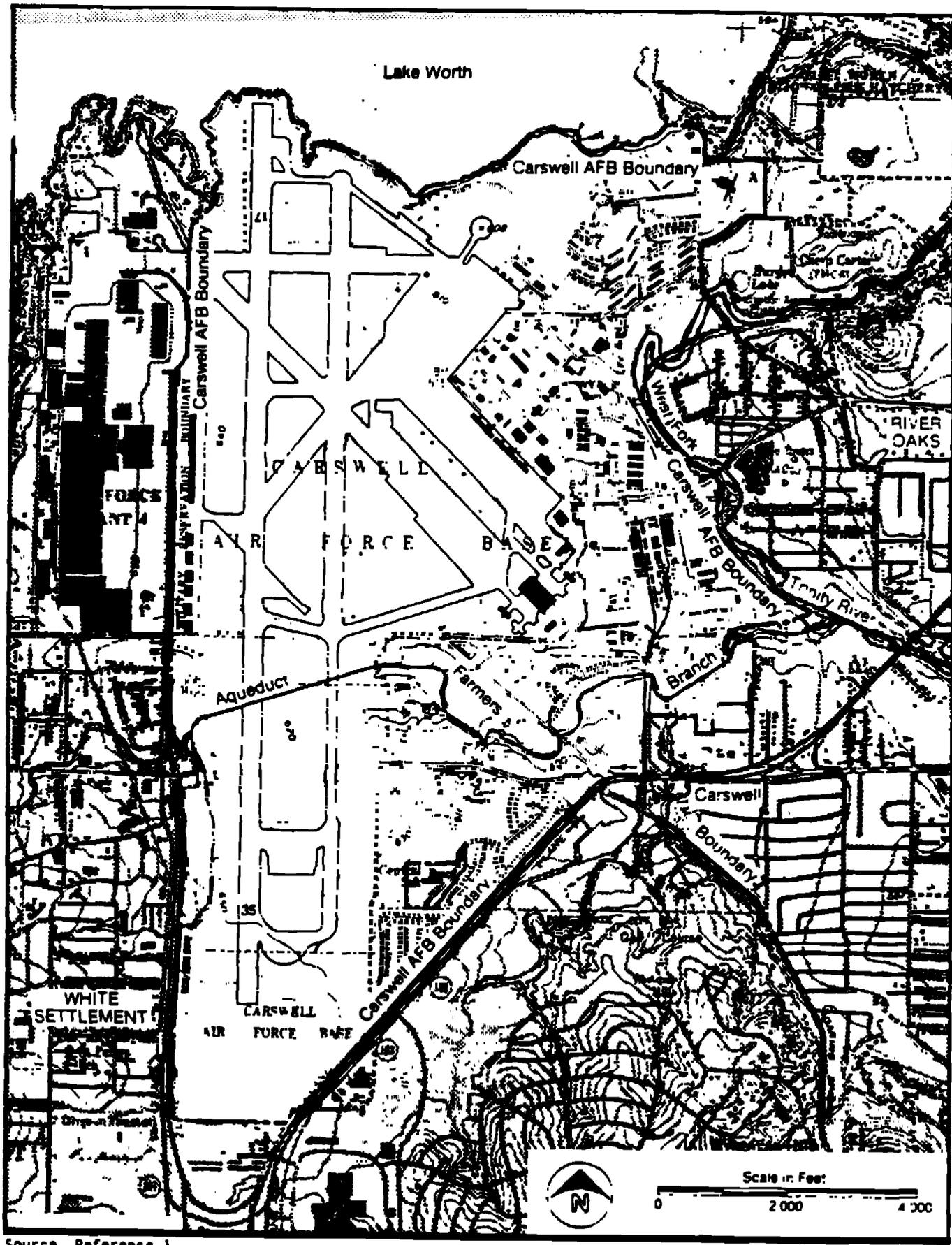


Figure 2-1. Location Map of Carswell AFB.

Source: Reference 1

104-010



Source Reference 1

Figure 2-2. Site Map of Carswell AFB.

base was opened as Tarrant Field Airdrome. The original mission was to train pilots to fly the new B-24 Liberator, which was being constructed across the runway by the Consolidated Aircraft Corporation. (1)

Construction at the airfield continued into 1943, extending the runway and taxiways, and erecting hangars and additional facilities (1). In May 1943, the field was redesignated as Fort Worth Army Air Field. The training mission continued. In January 1945, the Fort Worth Army Air Field began to operate a transition school for the B-32 aircraft, which like the B-24, was manufactured across the runway (1). The 7th Bombardment Group was assigned to the Fort Worth Army Air Field in October 1946 with B-29 aircraft (1).

The facility was renamed Griffiss Air Base, then Carswell Air Force Base in January 1948. The principal activities on the base have been maintaining and servicing bombers, fuel tankers, and fighter jet aircraft. Many of the activities have been in conjunction with the Air Force Plant 4 which has been successively operated by Consolidated Aircraft Corporation, Consolidated Vultec Corporation, and General Dynamics Corporation. The following history summarizes the type of aircraft that have been maintained at Carswell AFB (1):

- 1946 - 1948: B-29 Heavy Bomber
- 1948 - 1958: B-36B (Bomber)
B-36D (Bomber)
- 1958 - 1964: B-52D Stratofortress (Bomber)
B-58 Hustler (Bomber)
KC-135 Stratotanker
- 1964 - 1968: B-52D Stratofortress (Bomber)
KC-135 Stratotanker
- 1968 - 1971: B-52D Stratofortress (Bomber)
KC-135 Stratotanker
FB-111 (Bomber)

- 1971 - 1983: B-52D Stratofortress (Bomber)
 KC-135 Stratotanker
 F-4 Phantom (Fighter Jet)
- 1983 - Present: B-52D Stratofortress (Bomber)
 B-52H Stratofortress (Bomber)
 KC-135 Stratotanker
 F-4 Phantom (Fighter Jet)

The B-29 and B-368 aircraft were powered by reciprocating engines, while the B-36D had both reciprocating and jet engines. The B-52, B-58, KC-135, FB-111, and F-4 aircraft are powered entirely by jet engines. Servicing and maintenance of the engines and equipment of the multi-engined B-52 (eight engines) and the KC-135 (four engines) aircrafts generated the majority of waste liquids at Carswell AFB (1).

Currently, Carswell AFB is the home of the Strategic Air Command's (SAC) 7th Bombardment Wing. As such, the mission of Carswell AFB is to maintain the capability of strategic warfare and air refueling operations. Assigned weapon systems include the Boeing B-52 "H" model bomber and the KC-135A tanker. (1, 149)

As host unit, the 7th Bombardment Wing oversees aircraft operations and maintenance agencies. In addition to maintaining bombers, tankers, and combat crews capable of strategic warfare, Carswell AFB also houses an extensive air training effort which includes the air training requirements of three tactical squadrons. The 7th Combat Support Group and the USAF Regional Hospital support the combat mission of the Wing. The total work force present at Carswell AFB is approximately 5,100 military and 1,000 civilian personnel. (1)

The 19th Air Division ensures that assigned units are capable of conducting strategic warfare, sustained and effective air refueling, missile warfare, and strategic reconnaissance. Meanwhile, the main duty of the 7th Bombardment Wing is to develop and maintain a force capable of conducting strategic warfare. Moreover, the 7th Combat Support Group provides housekeeping and service functions vital to the operation of the installation. On the other hand, the 415th Field Training Detachment trains AF personnel on specific weapons systems, and associated aerospace ground equipment. The 2048th Communications Squadron provides communications-electronics services. Arrangements for aerospace environmental staff and operational support services required by USAF and other U.S. Governmental agencies and activities in the Carswell area are provided by Detachment 22, 26 Weather Squadron. Training to execute directed tactical fighter missions designed to destroy enemy forces, supplies, equipment, communications systems and installations with conventional weapons is provided by the 301st Tactical Fighter Wing. (1)

The USAF Regional Hospital Carswell provides medical service for all authorized personnel, including performing autopsies and histopathology. Training functions at the hospital include medical laboratory and medical radiology. The Defense Reutilization and Marketing Office (DRMO), receives segregates, inspects, classifies, and stores excess, surplus, and scrap property turned in by all organizations at 57 other installations, including hazardous and solid wastes. It disposes of property through redistribution, utilization, transfer, donation, sale, or destruction. Detachment 1, 1365 Photo Squadron operates a color television production facility that provides the Strategic Air Command with instructional television productions and copies of these productions for distribution to the combat aircrews. (1)

2.3 Identification of Solid Waste Management Units

Generation, storage, treatment, or disposal of wastes may occur at either of several areas on the facility grounds. All hazardous wastes handled at this facility are generated on site in support of base operations. Hazardous wastes generated by Carswell AFB can be associated with one of seven groups of activities conducted on base which are summarized below:

1. Industrial Shops

Several industrial shops at Carswell AFB generate hazardous wastes as a result of mission support activities. A summary of these shops and wastes generated are shown in Table 2-1. The table presents a list of buildings, wastes managed/generated, quantities generated, and historic disposal method. This information is based on interviews with base personnel. (1)

2. Fuels Management (POL)

Two major fuel storage areas exist at Carswell AFB--the Bulk Fuel Storage Area and the Diesel Fuel and MOGAS Storage Area, both located on Knights Lake Road. Fuels are primarily received by truck; however, fuels can also be received by railcar. The JP-4 fuel is pumped from the Bulk Fuel Storage Area by pipeline to five flightline fuel pumphouses. From the pumphouses, fuel is pumped to individual hydrants used for aircraft refueling (1). An inventory of major POL storage tanks in Table 2-2 provides the location, type of POL stored, capacity, and type of tank (1). Fuel spills in the flightline area are washed down the storm sewer, and reportedly intercepted at the Storm Water Interceptors (SWMU 54) (149).

100-44

Table 2-1--Continued

Organization and Shop Name	Present Location (Bldg. No.)	Waste Material	Current Estimated Quantity (gal/yr)	Waste Management Methods ^{1/}											
				1940	1945	1950	1955	1960	1965	1970	1975	1980	1985		
Repair and Reclamation Shop	1050	FD-680 (Type II)	1,200				FDT 1	FDT 2	CR	DPDO					
Jet Engine Test Cell	1015	JP-4 7808 Engine Oil Hydraulic Fluid	350 200 25							OMS-Sanitary Sewer					
<u>7th Organizational Maintenance Squadron</u>															
Wash Rack	29	FD-680 (Type II) Aircraft Soap	15,000 5,000							OMS-Sanitary Sewer					
<u>7th Transportation Squadron</u>															
Vehicle Maintenance Shop	1065	Engine Oils Transmission Fluids	3,000						CR					DPDO	
<u>AIR FORCE RESERVS</u>															
<u>301 St. Consolidated Aircraft Maintenance Squadron</u>															
AGE Maintenance Shop	1628	7808 Engine Oil	150 75							FDT 1	FDT 2	CR		DPDO	

Table 2-1--Continued

Organization and Shop Name	Present Location (Bldg. No.)	Waste Material	Current Estimated Quantity (gal/yr)	Waste Management Methods										
				1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	
Engine Shop	1410	Engine Oils Hydraulic Fluids	150 150				FDT 1	FDT 2	CR	DPOO				
		FD-680 (Type III)	100				FDT 1	FDT 2	CR	O/S-Sanitary Sewer				
		JP-4	2,500				FDT 1	FDT 2						
		7808 Engine Oil FD-680 (Type III)	300 300						CR					DPOO
Wash Rack	18	JP-4	125					FDT 1	FDT 2					
		FD-680 (Type III) Aircraft Soap	9,000 3,100						O/S-Sanitary Sewer					

1/

FDT 1 = Fire Department Training Area No. 1 (wastes burned during fire department training exercise)
 FDT 2 = Fire Department Training Area No. 2 (wastes burned during fire department training exercise)
 CR = Contractor removal (wastes sold direct to private contractor)
 DRMO = Defense Reutilization and Maintenance Organization
 O/S--Sanitary Sewer = Wastes discharged to oil/water separator (O/S) with underflow discharged to sanitary sewer.
 Floating materials removed from O/S are disposed of by contractor removal through DRMO.

44-014

Table 2-2

Carswell Air Force Base, Fort Worth, Texas
Existing POL Storage Tanks ^{1/}

<u>Facility Number</u>	<u>Location</u> ^{2/}	<u>Type of POL</u>	<u>Capacity (gal)</u>	<u>Type of Tank</u> ^{3/}
1156	BFSA	JP-4	840,000	AG
1157	BFSA	JP-4	840,000	AG
4150	FFP	JP-4	150,000 ^{4/}	BG
4152	FFP	JP-4	150,000 ^{4/}	BG
4153	FFP	JP-4	150,000 ^{4/}	BG
4154	FFP	JP-4	150,000 ^{4/}	BG
4170	FFP	JP-4	150,000 ^{4/}	BG
1256	DFMSA	MOGAS	5,500	AG
1259	DFMSA	MOGAS	11,580	AG
1261	DFMSA	MOGAS	11,580	AG
1263	DFMSA	MOGAS	11,580	AG
1264	DFMSA	MOGAS	12,032	AG
1265	DFMSA	Diesel	11,580	AG
1411		MOGAS	2,000	BG
1050		No. 2 Fuel Oil	20,000	BG
3000		No. 2 Fuel Oil	20,000	BG
3000		No. 2 Fuel Oil	20,000	BG
--	FTA	Waste Petroleum	10,000	BG
--	FTA	Waste Fuel	8,500	AG

^{1/} Source: USAF (Reference 1).

^{2/} BFSA = Bulk Fuel Storage Area
DFMSA = Diesel Fuel and MOGAS Storage Area
FFP = Flightline Fuel Pumphouses
FTA = Fire Training Area

^{3/} AG = Above ground
BG = Below ground

^{4/} 6 tanks with 25,000 gal. each

REF ID: A66666

REF ID: A66666

REF ID: A66666

REF ID: A66666

3. Pesticides

Pesticides are in common use at Carswell AFB for the control of pests and weeds. Pesticides have been stored at Facility 1217 since 1981. Prior to that time, pesticides were stored at Facility 1338, the old entomology building. The major insecticides currently used at Carswell AFB are shown in Table 2-3.

Used pesticide containers are triple rinsed, punctured, and disposed of in dumpsters. Empty bags are also disposed of in dumpsters. Container and equipment used to handle pesticides are rinsed, and the rinse water is transferred back to application equipment (149). Prior to 1981, rinse waters at the former entomology facility (Building 1338) discharged into a "dry well" sump located outside the facility (1).

4. Base Hospital and Laboratory Operations

A USAF Regional Hospital is operated at Carswell AFB. Toxic materials are used routinely by the hospital. Pathological waste from the hospital is incinerated at the Pathological Waste Incinerator (SWMU No. 1) following a brief accumulation in the Pathological Waste Storage Shed (SWMU No. 2). (1, 149)

5. Wastewater Treatment

The wastewater generated at Carswell AFB has been pumped through a Sanitary Sewer System (SWMU No. 66) to the City of Fort Worth for treatment since the

1442-014

Table 2-3
 Carswell Air Force Base, Fort Worth, Texas
 Pesticide Use ^{1/}

Pesticide	Pests	Usage (lb/yr)
Anticoagulant	Mice Rats	204
Baygon	Cockroaches	15
Chlordane	Termites	92
Diazinon	Cockroaches	100
Malathion	Adult Mosquitoes Ticks	250
Monosodium arsenate	Insects	Not reported
Organophosphate	Cockroaches Fleas Ticks Mosquitoes	760

^{1/} Source: Reference 1; Data **except** for Monosodium arsenate are reported in quarterly "Pest Control Summary Reports" (October 1982 through September 1983).

base was constructed. The estimated discharge is less than one million gallons per day. Most of the wastewater is sanitary sewage but some water from the photoprocessing is also conveyed to the municipal system. (1)

6. Fire Fighting Training

The fire department has conducted training exercises since activation of Carswell AFB. Two locations east of the north-south taxiway have been used for fire fighting training. Both of these sites (SWMU Nos. 18 and 19) are reported to be lined with gravel. The first was used from 1942 to 1963; the other has been in use since 1963. Prior to 1970, waste oils and recovered fuels were burned at both sites; waste solvents also may have been burned at each site. Recovered JP-4 is reported to be the only material burned since 1970 (1). The storage facilities at each site are included in Table 2-2.

7. Polychlorinated Biphenyls

The sources of most of the polychlorinated biphenyls (PCBs) at Carswell AFB are transformers and capacitors. The reported PCB-contaminated material is listed in Table 2-4. All in-service transformers on base have been sampled and analyzed for PCBs. The transformers that contain PCBs are routinely inspected for leakage. No records of PCB spills have been reported at Carswell AFB. (1)

100-100

100-100

Table 2-4

Carswell Air Force Base, Fort Worth, Texas
PCB Sources

<u>Form</u>	<u>Number</u>	<u>Locations</u>
In-service transformers with PCB Oils (1)	7	Facility 4175 and Alert Area
Out-of-service transformers with less than 50 ppm of PCBs (1)*	20-30	DPDO storage yard (under construction)
Out-of-service transformers with more than 50 ppm of PCBs (1)	20	Facility 1269 (SWMU No. 38)
55-gallon drums of liquid and rags (1)	10	Facility 1269 (SWMU No. 38)

* Some non-PCB transformers were held in the Building 1320 Waste Accumulation Area (SWMU No. 61). (2)

- (1) Reference 1
- (2) Reference 149

2.4 Summary of Waste Handled

Sixty-eight solid waste management units (SWMUs) and one area of concern (AOC) have been identified at Carswell AFB as a result of the PR and VSI. A list of SWMUs is presented in Table 2-5, on which RCRA-regulated SWMUs are identified. The locations of these units are shown on Figure 2-3. Since 1942, most hazardous wastes generated by Carswell AFB have been disposed of in landfills, re-used on base, or processed through the Defense Property Disposal Office (DPDO) for off-base recycling or disposal.

Most of the liquid wastes generated by the industrial operations can be categorized as waste oils, recoverable fuels, spent solvents and cleaners. Waste oils generally refer to lubricating fluids, such as crankcase oils and synthetic turbine oils. Hydraulic fluids have also been included in this category. Recoverable fuels refer to fuels drained from aircraft tanks and vehicles, such as JP-4 and MOGAS. Spent solvents and cleaners refer to liquids used for degreasing and general cleaning of aircraft, aircraft systems, electronic components, and vehicles. This category includes PD-680 and various chlorinated organic compounds such as carbon tetrachloride, trichloroethylene (TCE) and 1,1,1-trichloroethane. Specific types of solvents in use by the Air Force have changed over the years. In the 1950s, carbon tetrachloride was in common use. Its use was replaced by TCE about 1960. Since then, TCE and 1,1,1-trichloroethane have been commonly used; however, TCE usage has decreased in favor of 1,1,1-trichloroethane. Today, PD-680 Type II, 1,1,1-trichloroethane and, to a limited extent, TCE are in common use. Waste paint solvents or thinners and strippers are generated by corrosion control activities. Typical thinners include isobutyl acetate, toluene,

Table 2-5

Identification of Solid Waste Management Units at
Carswell Air Force Base

SWMU No.	Description	RCRA- Regulated
1	Pathological Waste Incinerator	No
2	Pathological Waste Storage Shed	No
3	Metal Cans	No
4	Facility Dumpsters	No
5	Building 1628 Waste Accumulation Area	No
6	Building 1628 Wash Rack and Drain	No
7	Building 1628 Oil/Water Separator	No
8	Building 1628 Sludge Collection Tank	No
9	Building 1628 Work Station Waste Accumulation Area	No
10	Building 1617 Work Station Waste Accumulation Area	No
11	Building 1617 Waste Accumulation Area	No
12	Building 1619 Waste Accumulation Area	No
13	Building 1710 Visual Information Center Work Station Waste Accumulation Areas	No
14	Building 1060 Bead Blaster Collection Tray	No
15	Building 1060 Paint Booth Vault	No
16	Building 1060 Waste Accumulation Area	No
17	Landfill No. 7	No
18	Fire Training Area No. 1	No
19	Fire Training Area No. 2	No
20	Waste Fuel Storage Tank	No
21	Waste Oil Tank	No

Table 2-5

Identification of Solid Waste Management Units at
Carswell Air Force Base
(continued)

SWMU No.	Description	RCRA- Regulated
22	Landfill No. 4	No
23	Landfill No. 5	No
24	Waste Burial Area	No
25	Landfill No. 8	No
26	Landfill No. 3	No
27	Landfill No. 10	No
28	Landfill No. 1	No
29	Landfill No. 2	No
30	Landfill No. 9	No
31	Building 1050 Waste Accumulation Area	No
32	Building 1410 Waste Accumulation Area	No
33	Building 1420 Waste Accumulation Area	No
34	Building 1194 Waste Accumulation Area	No
35	Vehicle Refueling Shop (Building 1194) Oil/Water Separation System	No
36	Building 1191 Waste Accumulation Area	No
37	Vehicle Maintenance Shop (Building 1191) Oil/Water Separation System	No
38	Building 1269 PCB Transformers Building	No
39	Building 1643 Waste Accumulation Area	No
40	Building 1643 Oil/Water Separation System	No
41	Building 1414 Oil/Water Separation System, Field Maintenance Squadron Aerospace Ground Equipment	No

44-010

Table 2-5

Identification of Solid Waste Management Units at
Carswell Air Force Base
(continued)

SWMU No.	Description	RCRA- Regulated
42	Building 1414 Waste Accumulation Area	No
43	Building 1414 Non-Destructive Inspection (NDI) Waste Accumulation Point	No
44	Building 1027 Oil/Water Separation System at the Aircraft Washing Hangar	No
45	Building 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	No
46	Building 1027 Waste Accumulation Area	No
47	Building 1015 Jet Engine Test Cell Oil/Water Separator	No
48	Building 1048 Fuel Systems Shop Floor Drains	No
49	Aircraft Washing Area No. 1	No
50	Aircraft Washing Area No. 2	No
51	Building 1190 Central Waste Holding Area	No
52	Building 1190 Oil/Water Separation System	No
53	Storm Water Drainage System	No
54	Storm Water Interceptors	No
55	East Gate Oil/Water Separator	No
56	Building 1405 Waste Accumulation Area	No
57	Buildings 1432/1434 Waste Accumulation Area	No
58	Pesticide Rinse Area	No
59	Building 8503 Weapons Storage Area Waste Accumulation Area	No
60	Building 8503 Radioactive Waste Burial Site	No

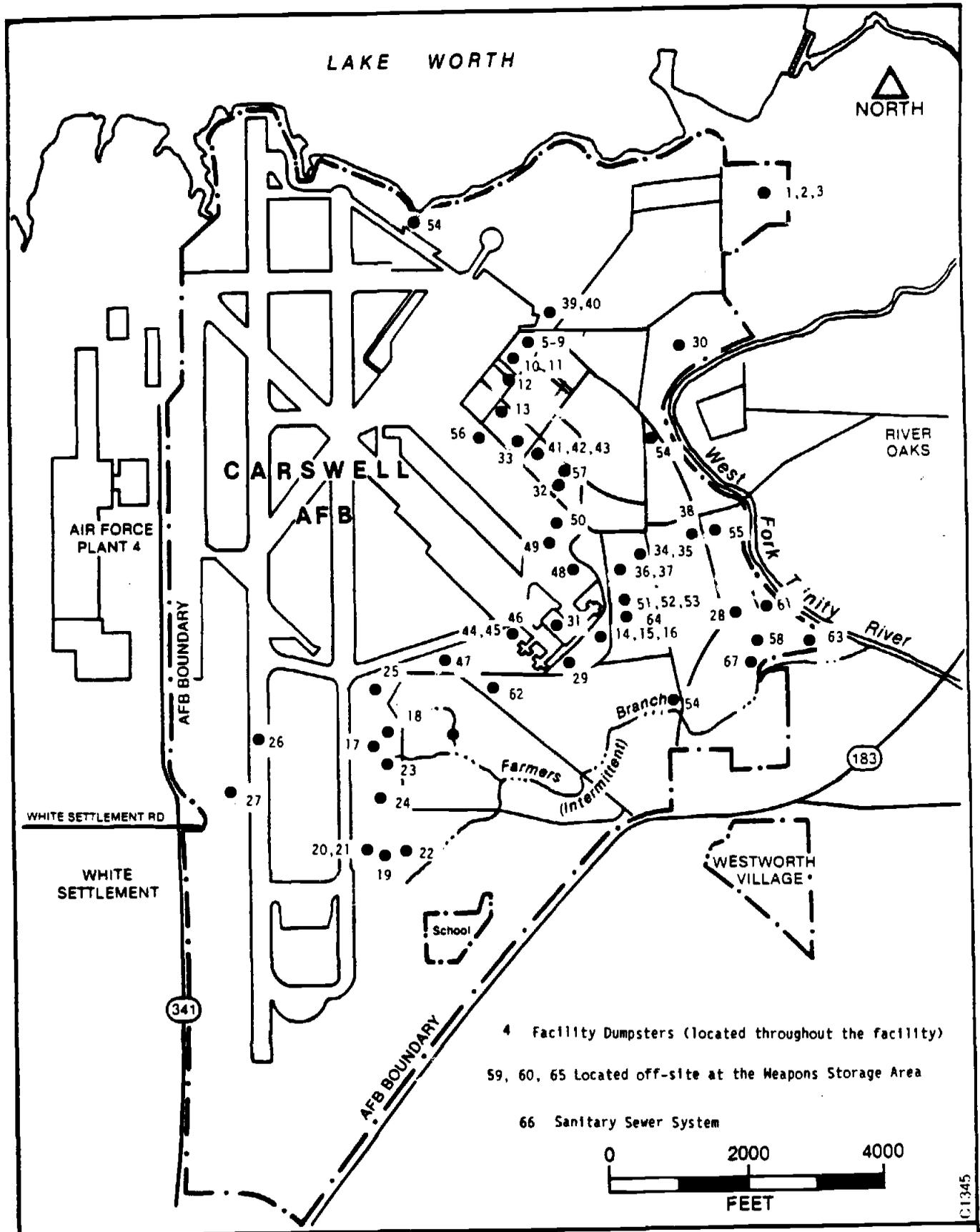


Figure 2-3. Solid Waste Management Units at Carswell AFB, Texas.

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methyl ethyl ketone (MEK), isopropanol, naphtha and xylene. Paint strippers generally contain such compounds as methylene chloride, toluene, ammonium hydroxide and phenolics. (1, 2, 4)

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3.0 ENVIRONMENTAL SETTING

3.1 Meteorology

Climate in the Fort Worth area is subtropical with hot humid summers and dry winters. Tropical maritime air masses control the weather during much of the year; however, during the winter, polar cold fronts and continental air masses create large variations in winter temperatures. Records show temperatures from 2°F to 88°F for January. Also, the reported average daily minimum and maximum temperatures for that month are 35°F and 55°F, respectively. Freezing temperatures occur at Carswell AFB on an average of 33 days per year. In July and August, the average daily maximum temperature is 95°F; the highest temperature recorded at the base was 111°F in the month of June. (1)

Over 33 years of record (1946-1978), mean annual precipitation at Carswell AFB is estimated at 32 inches. Most of it falls between April and October; the wettest month is May, and in July and August. A drop in mean monthly precipitation is observed. The maximum precipitation recorded in a 24-hour period is 5.9 inches in July. During the cold season, a small percentage of the total precipitation between November and March falls as snow. On the average, measurable snowfall occurs on two days per year. (1, 2)

Between April and June, thunderstorms occur at Carswell AFB an average of 45 days per year. Also, hail commonly falls on two to three days each year. Lake evaporation at Carswell AFB is estimated to be approximately 57 inches per year, thus exceeding precipitation by about 25 inches per year. (1, 2)

Mean cloud cover averages 50 percent at Carswell AFB with clear weather common during all months. Some fog is present on an average of 83 days per year. Winds in the area blow from the south all year. Although their monthly speed only varies from five to nine knots, a maximum of 80 knots has been recorded in the month of September. (1)

3.2 Topography, Floodplain and Surface Water

Carswell AFB is located within the Trinity River basin just south of Lake Worth, an artificial reservoir on that river. Most of Carswell AFB is located in an area which is characterized by broad terrace surfaces sloping gently eastward, interrupted by westward-facing escarpments. However, the northwestern part of the base is an area of rolling topography and a heavy growth of post and blackjack oaks. (4)

The base is bordered by a river on the east, and by a lake on the north (Figure 3-1). The west fork of the Trinity River flows along some 1,000 feet of the east side of the base. The river bed is approximately 300 feet wide. An intermittent stream which traverses the facility is tributary to the river. Farmers Branch is a ditch which flows from west to east carrying surface runoff (1, 4, 149). The 100-year floodplain boundaries of the streams spread over 200 to 500 feet across their flowline. The 100-year floodplain of the west fork of the Trinity River stretches in the facility up to 400 feet from the property line. As to the lake, its 100-year floodplain boundary appears to fall outside the property line (149).

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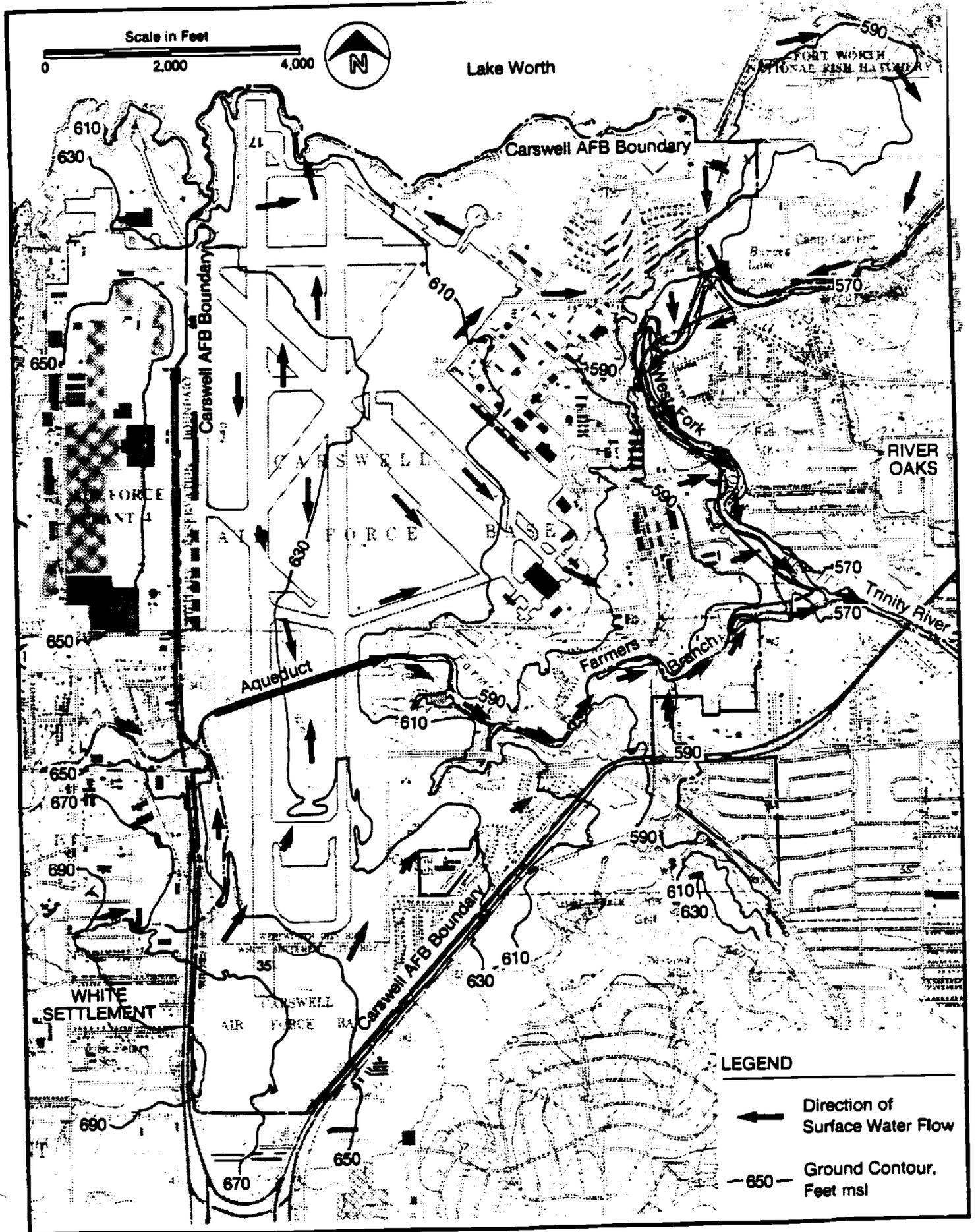


Figure 3-1. Topography and Drainage. (Ref. 1, 2)

Elevations on the base range from approximately 570 feet on the east to about 690 feet mean sea level (msl) of the southwest corner. Generally, the land surface slopes north-northeastward at 50 to 100 feet per mile (1-2%) toward Lake Worth and toward the West Fork of the Trinity River. The lake is situated at an approximate elevation of 594 feet msl. Also, gulleys, or areas of depression, are treated by streamflow in Farmers Branch and its tributary ditches.

In general, surface runoff follows the topography in the gulleys. Most of the facility drains towards the west fork of the Trinity River, with the southern part draining to Farmers Branch and small portion on the north to Lake Worth.

3.3 Geology and Soils

Carswell AFB is located on relatively stable Texas craton. The base and vicinity are underlain by a sequence of limestones, marls, shales, and sandstones of Cretaceous age (1). The regional dip of the rocks beneath the base is between 35 and 40 feet per mile in an easterly to southeasterly direction. The stratigraphy beneath the base is constituted of formations of various ages. This is depicted in Figure 3-2. The topmost and youngest stratum is Quaternary Alluvium. The majority of the base is covered by this alluvium, deposited by the Trinity River during flood stages. The alluvium is composed of gravel, sand, silt, and clay of varying thicknesses and lateral extents. However, average thickness is 30 feet. This is underlain by Cretaceous Goodland Limestone down to about 60 feet. The Goodland Limestone is exposed on the southern portion of the base, south of White Settlement Road. The Goodland is a chalky-white, fossiliferous limestone and marl.

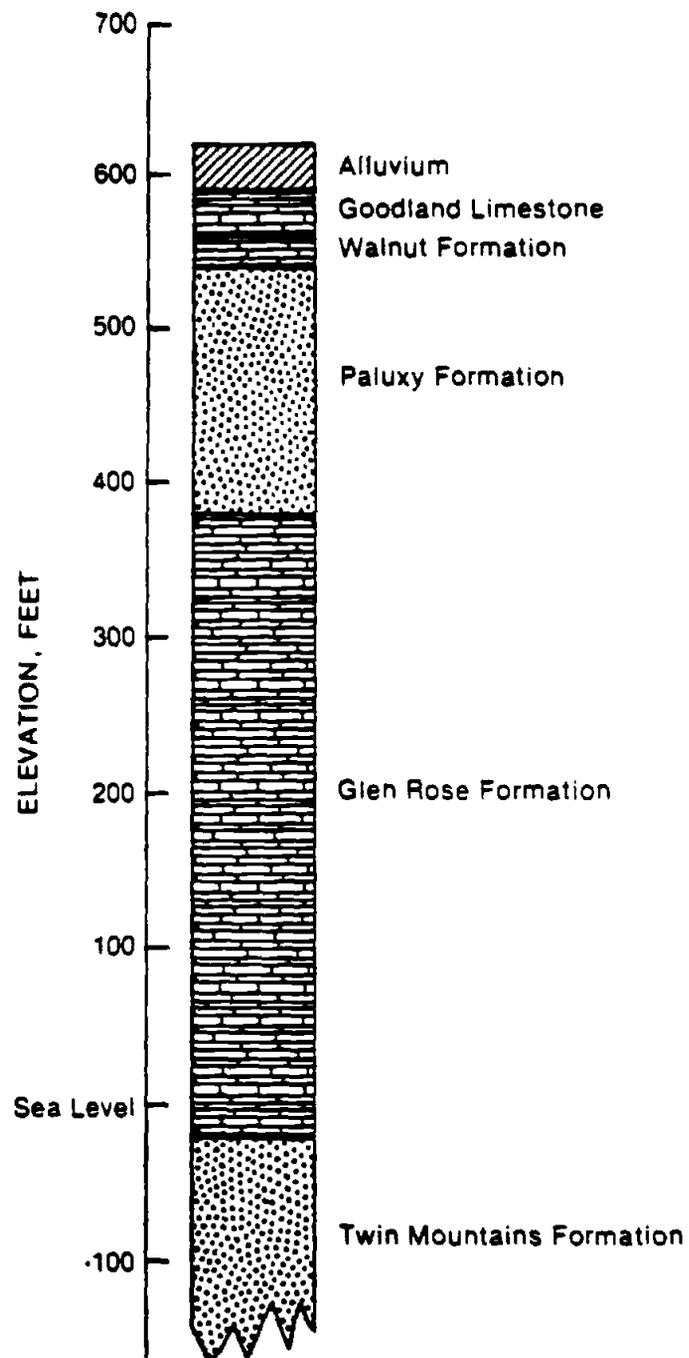


Figure 3-2. Stratigraphic Column at Carswell AFB, Texas. (4)

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The next stratum is the cretaceous Walnut Formation which stretches down approximately 25 feet. It consists of a shell-agglomerate limestone with varying amounts of clay and shale. Three other older cretaceous formations underlie the area. The youngest of these is the Paluxy Formation. It is primarily a fine- to coarse-grained sand with minor amounts of clay, sandy clay, pyrite, lignite, and shale. Both the Walnut and Paluxy Formations are exposed in a small area, in the northwest corner of the base, along the shores of Lake Worth.

The older Glen Rose and Twin Mountains Formations are not exposed at Carswell. Nevertheless, both are important hydrogeological features at the site. Glen Rose is a fine-grained limestone while Twin Mountains consists of sandstones.

An east-west geologic cross section across Carswell AFB exhibits the variation in texture of the various strata (Figure 3-3). (2, 4)

The general soils distribution at the Carswell AFB is illustrated in Figure 3-4. The predominant soil type at the main facility is an unidentifiable unit classified as urban land. This mapping unit designates urban areas where most of the ground surface has been altered (85-100%) by construction (cutting, grading, and filling). The soils have been so obscured that they cannot be classified. Rainfall in those areas runs off rapidly into major drains. (152)

Much of the remaining soils are composed of complexes of urban land and other soil types, intricately mixed in such a way that it is impractical to map them separately. Also, they are mainly constituted by a specific soil series, each with urban land representing 15 to 50 percent of the mapped unit. (152)

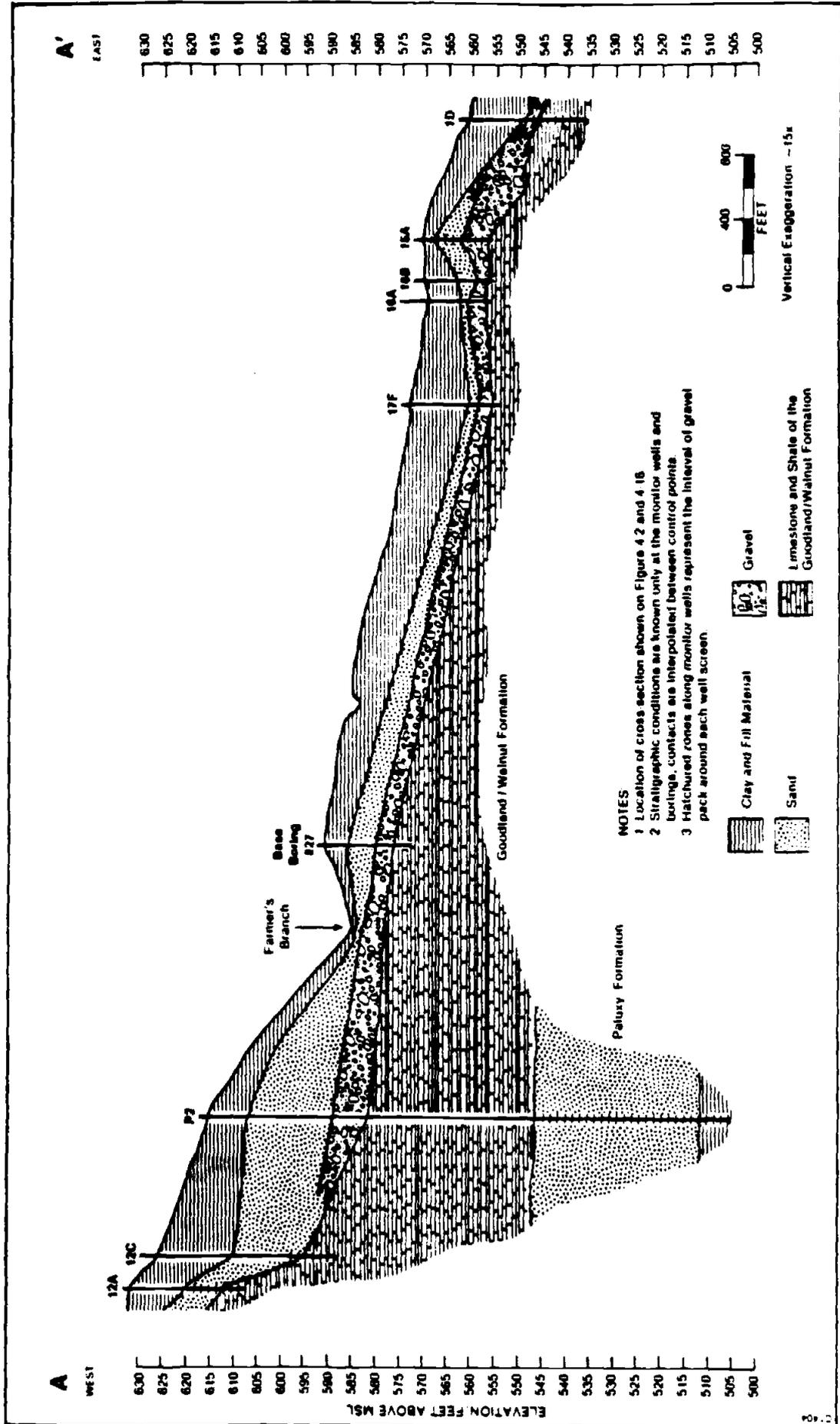


Figure 3-3. Geologic Cross-Section A-A', Carswell AFB, Texas. (4)

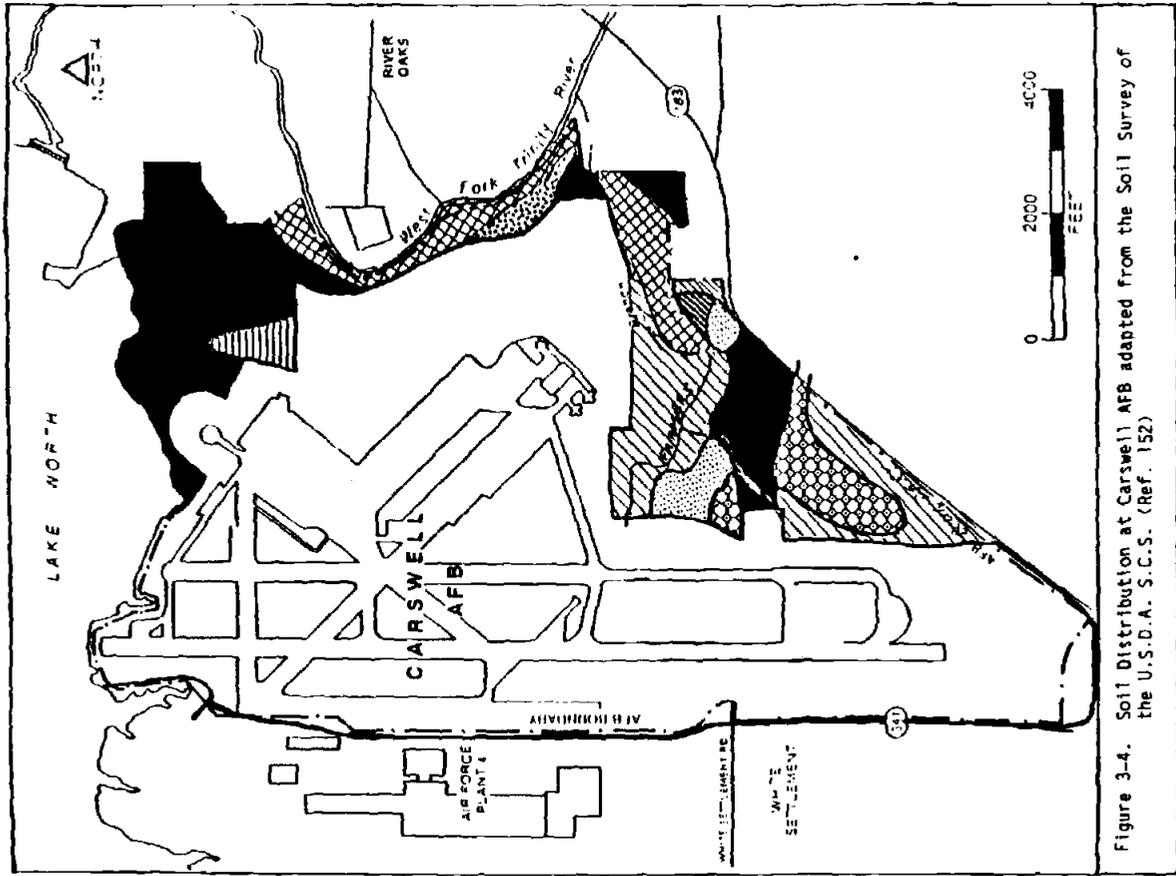


Figure 3-4. Soil Distribution at Carswell AFB adapted from the Soil Survey of the U.S.D.A. S.C.S. (Ref. 152)

LEGEND

- Urban Land
- Bastsil-Urban land complex & Bastsil fine sandy loam
- Bolar-Urban land complex
- Sanger-Urban land complex
- Sunev-Urban land complex
- Wilson-Urban land complex
- Frio-Urban land complex and Frio silty clay
- Alledo-Urban land complex
- Luckenbach-Urban land complex

Within the property line, the Trinity River is bordered on the west by a narrow strip of Frio-Urban land complex which extends into the lower banks of Farmers Branch. This soil occurs in level areas and is subject to brief flooding once every 3 to 20 years if not protected by levees. Frio soils are deep silty clays, moderately alkaline in reaction. They are well drained and their permeability is moderately slow; thus, surface runoff is slow and erosion constituents a slight hazard. (152)

As the land grades up, just south of the east gate, terrace soils of the Sunev-Urban land complex are encountered. These are deep clay loams which cover ancient stream terraces and foot slopes below ridges of limestone outcrop. They follow the contour of the slope. Sunev soils are moderately alkaline and their subsoil contains soft masses of calcium carbonate. They have moderate permeability and are well drained. Surface runoff is medium and the hazard of erosion from these soils is severe. (152)

Further uphill are Bastil-Urban land soils which occur on high terraces, above the floodplains, of major streams. Bastils are deep, slightly acid, fine sandy loams of moderate permeability. They are well drained with medium runoff and a moderate erosion hazard. This soil type covers most of the northeast corner of the base, as well as areas along the sides of Farmers Branch. (152)

In addition, three other upland soil complexes stretch in uneven patches around Farmers Branch. These are Luckenbach-Urban land, Sanger-Urban land, and Bolar-Urban land. All are relatively deep and well drained, with medium runoff and moderate erosion hazard. Luckenbach is a mildly alkaline clay loam

with shrink-swell characteristics. Sanger is a moderately alkaline, calcareous clay which also exhibits high shrinking and swelling capacities with variations in moisture conditions. This results in the formation of wide cracks when the soil is dry. On the other hand, Bolar is a clay loam underlain at a depth of 31 inches by a layer of interbedded fractured limestone and light yellowish brown clayey marl. It is also moderately alkaline and contains calcium carbonate concretions in its subsoil. (152)

A small area, just south of Farmers Branch, was mapped as Aledo-Urban land complex. These are shallow soils on ridgetops underlain by fractured limestone at 17 inches of depth. They are moderately alkaline gravelly clay loams. Their subsoil is mainly constituted of limestone fragments (60% by volume). They are well drained with medium runoff and moderate erosion hazard. (152)

Furthermore, a triangular area on the north side of the facility constitutes another mapping unit: the Wilson-Urban land complex. It is characterized by deep soils occurring in low concave areas and areas above natural drainage ways. Wilson is a slightly acid clay loam, somewhat poorly drained. In depressional areas, water is ponded on the surface for a few hours following heavy rains. Seasonal wetness is a result of the soil's shrink-swell characteristics. (152)

At the approximate location of the offsite Weapons Storage Area, several intertwining soils cover the terrain. This includes upland as well as floodplain soils; namely, Aledo gravelly clay loam, Aledo-Bolar complex, Frio silty clay, Sanger clay, Sunev clay loam, Brackett clay loam, and Malotene,

Aledo and Brackett soils. Most of these, with the exception of the last two, have been previously discussed. Brackett clay loams are shallow and moderately alkaline. They occur on convex ridges and side slopes between 13 and 40 inches of depth, there is an interbedding of pale yellow silty marl and soft weathered chalk. Similarly, the unit referred to as Malotene, Aledo and Brackett is a grouping of shallow calcareous soils developed on limestone, on upland slopes along drainage ways. The Malotene soil is somewhat excessively drained and the Aledo and Brackett soils are well drained. Because they are found on slopes, runoff is rapid and the hazard of erosion is severe. (152)

3.4 Ground Water

Ground water at Carswell AFB occurs under perched water table, water table, and artesian conditions at Carswell. The geologic units can be divided into five hydrogeologic units, based on their water-bearing properties. From the the most shallow to the deepest known water-bearing unit these are: 1) an upper perched zone in the Quaternary Alluvial deposits of the Trinity River; 2) an aquitard composed predominantly of unsaturated limestone in the Goodland and Walnut Formations; 3) an aquifer in the Paluxy Sand; 4) an aquitard composed of limestone in the Glen Rose Formation; and 5) an important aquifer composed of sandstone in the Twin Mountains Formation. (1, 2, 4)

The uppermost alluvial deposits of coarse sand and gravels locally contain ground water but permeable zones are usually limited in areal extent and isolated by surrounding low-permeability clays and silts. The water-bearing alluvial deposits are recharged locally from rainfall and infiltration from stream channels and drainage ditches. Water in the alluvium flows generally

eastward, toward the West Fork of the Trinity River, as it mainly occurs as a perched water table at various depths, up to 2 feet below ground surface.

(4, 4A)

In some parts of Tarrant County, near the Trinity River, water from the alluvium is utilized for irrigation and residential use. However, in general, it is not economical to develop because of the limited distribution of water-bearing strata and the susceptibility to surface/storm water pollution.

(4)

Limestones and shales of the Goodland Limestone and Walnut Formation comprise a hydraulic barrier between the perched water in the alluvium and underlying aquifers. The aquitard is composed of moist clay and shale layers interbedded with dry limestone beds. However, drillers in the area report that small amounts of water enter the borehole while drilling through the Walnut Formation, suggesting that ground water may move through the Walnut Formation along bedding planes. The thickness of the Goodland/Walnut aquitard is approximately 25 feet or more beneath most of Carswell AFB. However, the top of the aquitard is an erosional surface and erosion may have reduced the thickness of the limestone in isolated areas. A soil boring at AF Plant 4, across the runway to the west from Carswell AFB, revealed that the Goodland Limestone had been completely eroded, and only three feet of the Walnut Formation separated the overlying and underlying aquifers. The upper zone is reported to be in contact with the Paluxy Formation at the eastern boundary of AF Plant 4, where both the Goodland and Walnut Formations have been removed by erosion. In areas of similarly extensive erosion, water may flow freely between the upper zone and the Paluxy Aquifer. (4)

The Paluxy Aquifer is the uppermost extensive aquifer beneath Carswell AFB. The aquifer underlies about 5,000 square miles. It is about 1,500 feet thick including upper and lower sections. The upper sand is fine-grained and shaley and the lower sand is coarser; therefore, most wells are completed in the lower section. In most areas east of Carswell AFB, the aquifer is confined except where extensive pumping in the Fort Worth area has lowered the Paluxy potentiometric surface in the Paluxy Aquifer below the top of the formation, resulting in unconfined conditions beneath the base.

Recharge to the Paluxy Aquifer occurs in a northward-trending belt where the formation crops out west of Carswell AFB. The Paluxy Aquifer also crops out north of the base in the bed of Lake Worth so that the lake also recharges the aquifer. Regional ground-water flow within the Paluxy Aquifer is eastward, in the direction of the regional dip. At Carswell AFB, ground-water flow is influenced by the potentiometric high at Lake Worth and by a potentiometric low created by the ground-water withdrawals of the community of White Settlement, resulting in a more south-eastward flow. (2, 4)

The transmissivity in the Paluxy Aquifer ranges from 1,250 to 13,800 gallons per day per foot (gpd/ft) and averages 3,700 gpd/ft. In the vicinity of Carswell AFB, the estimated permeability ranges from 13 to 140 gpd/ft² (based on an approximate thickness for the aquifer of 100 ft.). Well yields within the Paluxy Aquifer range from 10 to 480 gallons per minute (gpm) and average approximately 100 gpm. Water quality in the Paluxy Aquifer is generally good and is satisfactory for potable use (1, 2, 4). Consequently, this aquifer is an important source of potable water in the Fort Worth area. Communities surrounding Carswell AFB, especially White Settlement, use the

potentiometric surface of the aquifer dropped approximately 250 feet. Water quality in the Twin Mountains Aquifer is suitable for potable use throughout the Fort Worth area. Water in the upper sands east of Fort Worth may be too mineralized for human consumption. (4)

3.5 Receptor Information

Carswell AFB is located in an urban area that has been extensively developed for residential, industrial, and recreational uses. The base is 6 miles west of downtown Fort Worth. The communities of River Oaks and White Settlement abut the base to the northeast and southwest. Also, at the time of the VSI, much of the area south of the base was developed with residences and shopping centers. The total population within a three-mile radius from the installation was estimated at 50,000 by a facility representative (149). This includes the work force present at Carswell AFB, approximately 5,100 military and 1,000 civilian personnel (1, 2).

The principal industrial area in the vicinity of the base is Air Force Plant 4, an aircraft production plant operated by General Dynamics Corp. The plant lies along the western border of Carswell AFB and shares the runway with the base.

Lake Worth, which forms the northern border of the base is used extensively for recreation as well as being the water source for Fort Worth and Carswell AFB. Several city parks, beaches, marinas, and a Boy Scout camp are located along the lake shore. Camp Carter and the Fort Worth National Fish Hatchery are potential receptors immediately below the Lake Worth spillway. The waters

of the West Fork of the Trinity River and the Trinity River are used for a wide variety of purposes in the 200 miles between the airbase and the Gulf of Mexico.

Two aquifers that underlie Carswell AFB are extensively utilized for domestic and industrial use in the Fort Worth area downgradient of the base.

4.0 RELEASE PATHWAYS

4.1 Air Release Pathway

The overall potential for releases to air from the base is low to moderate. There are only three potential sources of direct release to air (the Pathological Waste Incinerator, SWMU No. 1, and the Fire Training Areas, SWMU Nos. 18 and 19) at Carswell. Also, indirect releases by waste volatilization from open containers and spills may be significant due to two factors, climate and waste type. As discussed earlier (Chapter 2.1), the area is characterized by high evaporation rates. Moreover, much of the waste handled on base consists of hydrocarbons (solvents, oils, fuels) which can volatilize.

4.2 Surface Water Release Pathway

In the major areas where maintenance is carried out, runoff washes down the pavement into drains which discharge to the Storm Water Drainage System (SWMU No. 53). This runoff flows through a network of oil/water separators, pipes and Storm Water Interceptors (SWMU No. 54) prior to discharge to surface water bodies. Discharges from the base are regulated by NPDES permits. Of a total of four NPDES outfalls, only three are presently functioning: Outfall 001 is off of the lake shore, slightly to the west, Outfall 002 is on the west fork of the Trinity River, near the base hospital (at the northeast corner of the base), and Outfall 004 is at the east gate, also discharging to the river. The presently unoperational Outfall 003 is located off of Farmers Branch.

On the other hand, the south part of the facility is drained by Farmers Branch. There, surface runoff follows the topography, in ditches and directly discharges to the stream. Thus, releases occurring in this part of the facility are uncontrolled. There is a potential such a release could occur from the Fire Training Areas (SWMU Nos. 18 and 19).

4.3 Soil and Ground-water Release Pathway

Soil is a pathway of importance for contaminant migration to the water-bearing strata. Although many of the waste handling operations take place in paved areas, the overall potential for release to the soil from the facility is moderate to high. Evidence of contaminant release to soils has occurred in the past and has been documented for many units. In addition, evidence of release was observed at some waste accumulation areas adjacent to bare ground. Also, information on the construction details and structural integrity of most below ground units is lacking.

Due to the high water table and the good drainage of the soils at the facility, releases to soil would directly contaminate ground water in the uppermost alluvial aquifer. Therefore, the ground-water pathway is directly linked to the soil pathway, and releases to ground water can be considered to share the same potential as those to soil.

4.4 Subsurface Gas Release Pathway

Much of the waste handled at the facility is organic, consisting of hydrocarbons. These have a high viscosity, and under anaerobic conditions,

their decomposition generates subsurface gas. Considering the ease of fluid movement through the soil, surface contamination can be transmitted to the lower strata. However, this is unlikely to occur in paved areas where spills do not reach the soil and where most of the maintenance operations take place. Some of the old and active landfills received organic waste such as tree prunings and miscellaneous domestic products. These are also capable of generating subsurface gas. In conclusion, the overall potential for subsurface gas generation at the facility is moderate.

5.0 DESCRIPTION OF SOLID WASTE MANAGEMENT UNITS

5.1 SWMU No. 1 - Pathological Waste Incinerator (Photos 1, 2)

5.1.1 Information Summary

Unit Description: The Pathological Waste Incinerator is composed of a natural gas-fired combustion chamber and exhaust stack. The combustion chamber is approximately 4 feet wide by 10 feet long by 6.5 feet high. The exhaust stack is approximately 20 feet high. The Incinerator rests on a concrete pad and is surrounded by a metal fence; the fence gate is kept locked when the unit is unattended. (149)

The unit receives waste from the base hospital. The waste is brought to the Incinerator in red plastic bags. The bags are stored in Pathological Waste Storage Shed (SWMU No. 2) for a maximum of approximately 48 hours before burning. The unit is in operation five days a week. The operating hours are from 1200 to 1800 hours. The ash from the burning operation is removed from the combustion chamber and placed in Metal Cans (SWMU No. 3), where it is allowed to cool for approximately 48 hours before being dumped into a Facility Dumpster (SWMU No. 4). (149)

The Incinerator was exempted from permitting procedures under Texas Air Control Board Standard Exemption 90. The Incinerator, however, is required to be in compliance with all Rules and Regulations of the Texas Air Control Board at all times. (8)

Dates of Operation: The unit has been in operation from 1985 to the present.

(8)

Wastes Managed: The unit manages pathological solid waste such as syringes, clothing, linens, and surgical masks. The Incinerator burns approximately 350 pounds of solid waste per week. (149)

Release Controls: The unit is situated on a concrete pad.

History of Releases: There is no history of unintentional release associated with this unit. The construction of the unit appeared adequate to prevent inadvertent releases. The unit appeared to be well managed, with no visible signs of release observed during the VSI. (149)

5.1.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is low because wastes are contained in the Incinerator's combustion chamber. The Incinerator rests on a concrete pad.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low because wastes are contained in the combustion chamber, which rests on a concrete pad.
- Air: The past and ongoing potential for release to air from this unit is moderate because the unit is designed to release to the

atmosphere. The unit, however, is required to be in compliance with all Rules and Regulations of the Texas Air Control Board at all times.

- Subsurface Gas: The past and ongoing potential for for generation of subsurface gas is low because wastes are contained in the combustion chamber, which rests on a concrete pad.

5.2 SWMU No. 2 - Pathological Waste Storage Shed (Photo 4)

5.2.1 Information Summary

Unit Description: The Pathological Waste Storage Shed is a four-sided, roofed, wooden structure located next to the Pathological Waste Incinerator (SWMU No. 1). The floor of the shed is wood. The shed is situated on a concrete pad and is approximately 10 feet long by 8 feet wide by 7 feet high. The unit is used to store plastic bags containing pathological waste generated from hospital activities prior to incineration. According to base personnel, the waste is stored inside the shed for a maximum of approximately 48 hours before incineration. (149)

Dates of Operation: The unit has been in operation from 1985 to the present. (149)

Wastes Managed: The unit manages pathological solid waste such as syringes, clothing, linens, and surgical masks. The waste is stored in red plastic bags.

Release Controls: The unit is constructed with a concrete pad as its base, as well as four walls and a roof.

History of Releases: There is no documented history of release from this unit. The unit appeared to be well constructed and well managed, with no visible signs of release observed during the VSI. (149)

5.2.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is low because the wastes are contained within plastic bags inside the wooden shed, which is situated on a concrete pad.
- Surface Water: The past and ongoing potential for release to surface water is low because the wastes are contained within plastic bags inside the wooden shed, which is situated on a concrete pad.
- Air: The past and ongoing potential for release to air is low because the wastes are not volatile, and they are stored in plastic bags inside the shed.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low. The waste is stored in plastic bags, inside a shed situated on a concrete pad.

5.3 SWMU No. 3 - Metal Cans (Photo 3)

5.3.1 Information Summary

Unit Description: Three Metal Cans are used to store the ash removed from the Pathological Waste Incinerator (SWMU No. 1) prior to disposal in a Facility Dumpster (SWMU No. 4). The capacity of each Metal Can is approximately 35 gallons. During the VSI, two of the three cans were uncovered and one can rested on bare ground. The ash in the cans is allowed to cool for approximately 48 hours prior to being disposed of in a dumpster. (149)

Dates of Operation: The unit has been in operation from 1985 to the present.

Wastes Managed: The Metal Cans managed ash and other debris such as small vials and bottles that is generated after a burn episode by the incinerator.

Release Controls: At least one of the three cans was situated on a concrete pad. At the time of the VSI, one can was resting on bare ground.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.3.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil is moderate. One of the cans rested directly on bare ground. During the VSI, the condition of the Metal Cans appeared adequate

to prevent a release of waste to the soil. The past and ongoing potential for release to ground water is low. The condition of the cans appeared adequate to prevent a release to ground water.

- Surface Water: The past and ongoing potential for release to surface water is low. The unit appeared to be well managed, with no visible signs of release observed during the VSI.
- Air: The past and ongoing potential for release to air is low. Although two of the three cans were not covered during the VSI, the unit does not manage volatile wastes.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low due to the nature of the wastes managed, and the relatively short time period (approximately 48 hours) that the waste remains in the cans.

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5.4 SWMU No. 4 - Facility Dumpsters (Photo 22 - right central portion)

5.4.1 Information Summary

Unit Description: These units are typical rectangular steel dumpsters, approximately 6 feet long by 5 feet wide by 6 to 7 feet high. The units may be situated on concrete, asphalt or bare ground. They are located throughout the facility, primarily in close proximity to the various buildings. The waste from the Facility Dumpsters is disposed of in an offsite landfill by a private contractor. Generally, the units appeared to be in adequate condition at the time of the VSI. (149)

Dates of Operation: No startup date is available for these units. The units are active.

Wastes Managed: The units manage miscellaneous nonhazardous solid waste such as waste paper, cardboard, food scrap, and plastic containers. Ash from the Pathological Waste Incinerator (SWMU No. 1) is also managed by these units. (149)

Release Controls: Some of the Facility Dumpsters are covered with lids. It is not known if all Dumpsters have lids and remain covered except during disposal activities. Except for routine emptying of the Dumpsters by the private contractor, no other release controls are associated with these units.

History of Releases: There is no documented history of releases for these units. No evidence of release was noted during the VSI.

5.4.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is low since the units manage nonhazardous solid wastes such as paper and cardboard. The units appeared in suitable condition, capable of retaining liquid wastes inadvertently disposed in them.
- Surface Water: The past and ongoing potential for release to surface water is low. The conditions of the units were adequate to prevent releases to surface water.
- Air: The past and ongoing potential for release to air is low because the units do not manage volatile wastes.
- Subsurface Gas: The past and ongoing potential for for generation of subsurface gas is low. The units manage nonhazardous solid wastes such as paper and cardboard. The units appeared in adequate condition to prevent the release of wastes to the subsurface.

5.5 SWMU No. 5 - Building 1628 Waste Accumulation Area (Photos 5, 7, 8, 9)

5.5.1 Information Summary

Unit Description: Building 1628 is the Aerospace Ground Equipment (AGE) Maintenance Shop. The main industrial operation within this building is corrosion control. A paint stripper vat utilizes an epoxy stripper to remove paint from small aircraft parts. A solvent tank utilizing methyl ethyl ketone (MEK) is used to degrease small aircraft parts. The Waste Accumulation Area is an outdoor container storage area within a four-sided, roofed, metal shed. The shed is approximately 15 feet long by 10 feet wide by 15 feet high. The waste is stored in 55-gallon drums on wooden pallets. Recyclable oils are stored in a 500-gallon tank. The base of the structure is concrete. Outside the unit were six lead acid batteries on a wooden pallet. The pallet was located on bare ground. (149)

The waste originates from the corrosion control activities conducted within Building 1628. The containerized waste is transported by truck to the Central Waste Holding Area (SWMU No. 51). The batteries are considered salvagable and are transported to the Defense Reutilization and Maintenance Organization (DRMO) facility on base. The recyclable oils stored in the tank are pumped out by a private contractor. (149)

Runoff from the unit flows to the Building 1628 Wash Rack and Drain (SWMU No. 6), where it eventually may reach the Storm Water Drainage System (SWMU No. 53). (149)

NO. 014

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18000011

Dates of Operation: The startup date for this unit is unknown. The metal shed was erected in November 1988. The unit is currently operating.

Wastes Managed: The unit manages antifreeze (ethylene glycol), methyl ethyl ketone (MEK), epoxy paint stripper, and epoxy paint thinner. Shop operations generate approximately 100 gallons per year of antifreeze, 55 gallons per year of MEK, and 25 to 30 gallons per year of paint stripper and paint thinner. Approximately 400 to 500 gallons of recyclable oil is generated every three months. (1)

Release Controls: The base of the unit is concrete, except the pallet containing the lead acid batteries was resting on bare ground.

History of Releases: At the time of the VSI, the vegetation surrounding the pallet containing the lead acid batteries appeared to be stressed, the soil appeared to be stained, and the concrete outside of the shed was stained. (149)

5.5.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high because stains were observed on the concrete outside of the shed, and the vegetation surrounding the pallet containing the lead acid batteries appeared stressed.

- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate because runoff from a heavy rain would flow to the Building 1628 Wash Rack and Drain (SWMU No. 6) where it eventually may reach the Storm Water Drainage System (SWMU No. 53) which discharges to the West Fork Trinity River.
- Air: The past and ongoing potential for release to air from this unit is moderate. Although volatile wastes are managed by this unit, the wastes are stored inside the shed in sealed containers.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low. The wastes, except for the batteries, were contained in sealed containers inside a shed which had a concrete base.

5.6 SWMU No. 6 - Building 1628 Wash Rack and Drain (No photo taken)

5.6.1 Information Summary

Unit Description: The Building 1628 Wash Rack and Drain is a section of concrete outdoors used to clean parts from aircraft engines. The primary cleaning agent used at this unit is PD-680 (Type II), a petroleum naphtha solvent (flash point 140°F). The waste from the Wash Rack and Drain flows via underground piping to the Building 1628 Oil/Water Separator (SWMU No. 7). The oily fraction of the waste in the Oil/Water Separator flows to the Sludge Collection Tank (SWMU No. 8) and the wastewater fraction flows to the Storm Water Drainage System (SWMU No. 53). The concrete Wash Rack appeared intact; the structural integrity of the subsurface ancillary piping could not be verified at the time of the VSI. (149)

Dates of Operation: The unit has been in operation since 1979. It is currently operating.

Wastes Managed: The unit receives wastewater containing fractions of aircraft engine hydraulic fluid, aircraft engine oil, and PD-680 (Type II). (1)

Release Controls: The concrete is curbed and sloped so that runoff from the wash operations flows toward the drain system. The drain is plumbed to an Oil/Water Separator (SWMU No. 7) to separate the oily fraction of the wastewater from that which is released to the Storm Water Drainage System (SWMU No. 53). The Storm Water Drainage System discharges to the West Fork Trinity River.

History of Releases: The unit discharges wastes directly into a storm water drain.

5.6.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is high since the unit releases to a storm water drain which is below grade.
- Surface Water: The past and ongoing potential for release to surface water from this unit is high. The unit is plumbed to an Oil/Water Separator (SWMU No. 7). The non-oily fraction of wastewater from the Oil/Water Separator is discharged to the Storm Water Drainage System (SWMU No. 53) which discharges to the West Fork Trinity River. During heavy rain, the Oil/Water Separators and Storm Water Interceptors (SWMU No. 54) become overloaded, resulting in releases of oily waters to surface water.
- Air: The past and ongoing potential for release to air from this unit is low because the small quantity of volatile wastes managed by this unit would be diluted by the wastewater.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low for the Wash Rack since the unit is constructed of concrete which appeared intact, and low for the Drain since the fraction of organic constituents within the waste stream should be extremely diluted in a wash rack plumbing system.

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5.7 SWMU No. 7 - Building 1628 Oil/Water Separator (Photos 10, 11)

5.7.1 Information Summary

Unit Description: The Building 1628 Oil/Water Separator is an outdoor, below ground, L-shaped, concrete structure. The unit is approximately 12 feet wide by 15 feet long. Facility representatives did not know the depth of the unit. The unit receives waste from the Building 1628 Wash Rack and Drain (SWMU No. 6). The Separator is designed such that the oily sludge material flows via below ground piping to a Sludge Collection Tank (SWMU No. 8). The wastewater fraction in the Oil/Water Separator is discharged to the Storm Drainage System (SWMU No. 53), which discharges to the West Fork Trinity River. (149)

Dates of Operation: The Building 1628 Oil/Water Separator has been in operation since 1979. The unit is currently in use.

Wastes Managed: The unit receives wastewater containing fractions of aircraft engine oil, aircraft engine hydraulic fluid, and PD-680 (Type II). (1)

Release Controls: The unit is plumbed to the Building 1628 Sludge Collection Tank (SWMU No. 8) for the retention of the oily fraction of the wastewater. The Sludge Collection Tank receives the oily fraction of the wastewater via gravity flow through subsurface piping. The Tank prevents oils from entering the Storm Water Drainage System.

History of Releases: There is no documented history of release from this unit. Since the unit is primarily below ground, the integrity of the structure could not be verified at the time of the VSI.

5.7.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water could not be evaluated because the unit is below ground. The integrity of the unit could not be verified at the time of the VSI.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate since the unit can become overloaded during heavy rains thus releasing oily wastewater to the Storm Water Drainage System (SWMU No. 53) which discharges to the West Fork Trinity River.
- Air: The past and ongoing potential for release to air from this unit is low since the small quantity of volatile wastes managed by the unit would be extremely diluted in this system.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low since the organic constituents would be diluted by the wastewater in this unit.

NO. 53

FIG. 3

WEST FORK TRINITY RIVER

NO. 53

5.8 SWMU No. 8 - Building 1628 Sludge Collection Tank (Photo 12)

5.8.1 Information Summary

Unit Description: The Building 1628 Sludge Collection Tank is a below ground tank that is connected via pipeline to the Building 1628 Oil/Water Separator (SWMU No. 7). Reportedly, the unit is a carbon steel tank installed in concrete. The tank holds approximately 500 gallons of waste liquid and sludges. At the time of the VSI, the tank gauge at ground level showed the tank to be one-half full. The facility representative stated that the tank is pumped out once every two or three years. The sludge material is removed by a contractor arranged by the base Civil Engineering department. The structural integrity of the unit could not be verified at the time of the VSI since the entire unit is below ground. (149)

Dates of Operation: The unit has been operating since 1979 and is currently in use.

Wastes Managed: The tank manages the oily liquid material that has separated from the waste material within the Building 1628 Oil/Water Separator. Eventually, the heavier oily fractions settle to the bottom of the tank forming a sludge. The sludge is composed of aircraft engine hydraulic fluid, aircraft engine oil, and PD-680 (Type II).

Release Controls: No known release controls are associated with this unit. The facility representative was not aware of any secondary containment feature for this unit.

History of Releases: There is no documented history of release associated with this unit.

5.8.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water could not be evaluated because the unit is below ground. The integrity of the unit could not be verified at the time of the VSI.
- Surface Water: The past and ongoing potential for release to surface water is low because the unit is below ground.
- Air: The past and ongoing potential for release to air from this unit is moderate. Although the unit is below ground, a vent pipe extends above the ground surface and the unit does manage volatile wastes.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas could not be evaluated because the unit is below ground. The integrity of the unit could not be verified at the time of the VSI.

5.9 SWMU No. 9 - Building 1628 Work Station Waste Accumulation Area (Photo 16)

5.9.1 Information Summary

Unit Description: The Building 1628 Work Station Waste Accumulation Area consists of a 5-gallon metal can. The unit receives rags used to wipe off aircraft parts that have been soaking in the epoxy stripper vat and/or the MEK solvent tank. When the can is full, the rags are dumped into a Facility Dumpster (SWMU No. 4) for disposal. (149)

Dates of Operation: The unit has been in operation for at least the past ten years, and is currently in use.

Wastes Managed: Rags containing MEK, epoxy stripper, aircraft engine hydraulic fluid, and/or aircraft engine oil.

Release Controls: The unit is located inside Building 1628 on a concrete floor.

History of Releases: There is no history of release from this unit.

5.9.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is low. The waste is contained within a metal can inside a building.

- Surface Water: The past and ongoing potential for release to surface water is low. The waste is contained within a metal can inside a building.
- Air: The past and ongoing potential for release to air from this unit is low since the unit is inside a building.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low because the waste is contained within a metal can inside a building.

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5.10 SWMU No. 10 - Building 1617 Work Station Waste Accumulation Area (Photos 17, 18)

5.10.1 Information Summary

Unit Description: Building 1617 is the Plastic and Paint Shop. The main operation conducted inside this shop is the cleaning and painting of printed circuit boards. The printed circuit boards are used for aircraft training panels in the cockpit. Ink is applied to silk screens to outline the printed circuits. The ink eventually has to be removed from the silk screens with a lacquer thinner. The Work Station Waste Accumulation Area consists of two containers associated with a steel work bench where the silk screens are sprayed with lacquer thinner to remove the ink. The waste from this operation drains to a 5-gallon metal can. The waste in the can is then poured into a 55-gallon drum at the Waste Accumulation Area (SWMU No. 11). Approximately five gallons of this waste is generated every three months. The other metal can is for the storage of dirty rags. The rags are disposed of in a Facility Dumpster (SWMU No. 4). (149)

Etching machines are also used in the overall manufacturing process to remove copper from the printed circuit boards. Depending on how often the etching machines are used, a variable quantity of spent etchant is generated every six months to a year. The etchant is drained from the machines into containers and transferred to the Waste Accumulation Area (SWMU No. 11).

Dates of Operation: The startup date for this unit is unknown. The unit is currently being used.

Wastes Managed: This unit manages a lacquer thinner/ink residue, and rags containing lacquer thinner and ink.

Release Controls: The unit is indoors. The metal can containing the lacquer thinner/ink residue rests in a metal pan providing secondary containment. Both cans rest on a concrete floor.

History of Releases: There is no documented history of release from this unit. The can containing the lacquer thinner/ink residue did not have a lid at the time of the VSI.

5.10.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is low since the unit is indoors and rests on a concrete floor.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low since the unit is indoors and rests on a concrete floor.
- Air: The past and ongoing potential for release to air from this unit is low since the unit is indoors.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low since the waste is contained within a metal can inside a building on a concrete floor.

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5.11 SWMU No. 11 - Building 1617 Waste Accumulation Area (Photo 20)

5.11.1 Information Summary

Unit Description: This unit is an outdoor container storage area for the waste generated by the industrial operations inside Building 1617. The unit consisted of a concrete pad, approximately 8 feet long and 5 feet wide, surrounded by a wooden fence. At the time of the VSI, the pad was not covered. Resting on the pad were four sealed 55-gallon drums on two wooden pallets. The waste from this unit is transferred by truck to the Central Waste Holding Area (SWMU No. 51). (149)

Dates of Operation: The startup date for this unit is unknown. The unit is currently in operation.

Wastes Managed: The unit manages spent etchant and the lacquer thinner/ink residue from the Work Station Waste Accumulation Area (SWMU No. 10). At the time of the VSI, the unit contained three plastic drums managing spent etchant and one metal drum managing the lacquer thinner/ink residue.

Release Controls: The unit was constructed with a concrete pad as its base. The area was also fenced for additional security. The unit was not constructed with a secondary containment feature.

History of Releases: There is no documented history of release from this unit. No evidence of release was noted during the VSI.

5.11.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is low because the wastes are contained within sealed containers which rest on a concrete pad.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low. The wastes are contained within sealed containers which rest on a concrete pad.
- Air: The past and ongoing potential for release to air is low because the wastes are contained within sealed containers.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low because the wastes are contained within sealed containers which rest on a concrete pad.

5.12 SWMU No. 12 - Building 1619 Waste Accumulation Area (Photos 21, 22)

5.12.1 Information Summary

Unit Description: Building 1619 is devoted to the repair of jet engines. Wastes generated inside Building 1619 include PD-680, jet fuel, and jet engine oil. The fuel and oil is drained from the engines into 3-gallon buckets which are then hand-carried to the Waste Accumulation Area where the waste is poured into 55-gallon drums. Within 90 days, the drums are transferred to the Central Waste Holding Area (SWMU No. 51). The PD-680 is used with rags to clean aircraft engine parts. The rags are placed in a metal can before disposal at a Facility Dumpster (SWMU No. 4). (149)

The Waste Accumulation Area is outside Building 1619 at the edge of the parking lot. At the time of the VSI, the unit consisted of seven 55-gallon drums of waste on wooden pallets, and two 5-gallon cans on a concrete pad. The unit was not fenced, and was not covered. Drums of product were stored adjacent to the drums of waste. The concrete pad was cracked in a number of places. The unit is also located approximately 10 feet from a storm water drainage ditch. (149)

Dates of Operation: The startup date for this unit is unknown. The unit is currently in operation.

Wastes Managed: The unit manages waste jet fuel (JP-4), waste jet engine oil, and PD-680.

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Release Controls: The unit is located on a concrete pad, although the pad is cracked in a number of places. No other release controls are associated with this unit.

History of Releases: At the time of the VSI, the soil adjacent to the unit had been stained by a dark, oily substance, indicating a release from one or more of the drums. The stain covered an area approximately 3 feet in diameter. The asphalt adjacent to the concrete pad was cracked in many places.

5.12.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high. The concrete pad was cracked, with no secondary containment. The unit is adjacent to a grassy area and drainage ditch, and the soil was stained.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate. The soil was stained indicating a release. Runoff flows toward a nearby drainage ditch. All storm water drainage ultimately discharges to the West Fork Trinity River.
- Air: The past and ongoing potential for release to air from this unit is low since the wastes were mostly contained within sealed containers and the amount of spillage would not present a significant air release.

- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is moderate. The unit manages wastes containing organic compounds capable of generating subsurface gas, and a release to soil was evident during the VSI.

02/03

5.13 SWMU No. 13 - Building 1710 Visual Information Center Work Station Waste Accumulation Areas (Photos 23, 24, 25)

5.13.1 Information Summary

Unit Description: The Visual Information Center is where photographic film developing occurs. Four Work Station Waste Accumulation Areas exist within the building. The four areas are: the versamat processor room, the black and white film processing room, the color print processing room, and the black and white print processing room. The Work Station Waste Accumulation Areas consist of plastic containers plumbed to film processing equipment and sanitary sewer drains. The plastic containers typically contain photo fixer with a silver recovery apparatus and photo developer. The types of waste generated by photographic film developing equipment are spent photo fixer and spent photo developer. The photo fixer, except for that used in color print processing, contains recoverable silver, and is retained temporarily in containers for silver recovery. After the silver is recovered, one part fixer is flushed down the sanitary sewer drain with three parts water. The developer does not contain recoverable silver and is also flushed down the sanitary sewer drain with water. (149)

Dates of Operation: The startup dates for these units is unknown. All four units are currently operating.

Wastes Managed: The Work Station Accumulation Areas managed waste photo fixer. Approximately 50 to 60 gallons of fixer with microscopic metallic silver particles is generated per month. Photographic film developing

solutions typically contain a reducing agent, an accelerator, a preservative, and a restrainer. The reducing agent is typically a phenolic compound, the accelerator is generally an alkaline compound, the preservative is typically sodium sulfite, and the restrainer is almost always potassium bromide. (151)

Release Controls: The four units are located indoors. The photo fixer and photo developer are diluted (1 part waste/3 parts water) prior to discharge to the sanitary sewer.

History of Releases: The wastes are discharged to the sanitary sewer.

5.13.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from these units is low since the units are located inside a building.
- Surface Water: The past and ongoing potential for release to surface water from these units is low because the units are located inside a building and they discharge to the sanitary sewer.
- Air: The past and ongoing potential for release to air is low since the units are covered.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low since the units are located inside a building.

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5.14 SWMU No. 14 - Building 1060 Bead Blaster Collection Tray (Photo 26)

5.14.1 Information Summary

Unit Description: The Bead Blaster is a paint stripping apparatus that uses small plastic beads to strip paint off of small airplane parts. After repeated use, the beads become contaminated with polyurethane paint. The contaminated beads collect in a tray that is approximately 18 inches long by 6 inches wide by 5 inches deep. The beads are scooped out with a small shovel and placed in a 55-gallon drum at the Building 1060 Waste Accumulation Area (SWMU No. 16). (149)

Dates of Operation: The startup date for this unit was 1987. The unit is currently in operation.

Wastes Managed: The unit manages polyurethane paint-laden plastic beads. Approximately one to one and one-half 55-gallon drums of beads are managed by this unit per month. (149)

Release Controls: The unit is located inside the bead blaster, which is located indoors.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.14.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from the unit is low because the unit is located inside a bead blaster which is inside Building 1060.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low since the unit is inside a building.
- Air: The past and ongoing potential for release to air from this unit is low since the unit manages wastes which are nonvolatile.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation from this unit is low because it is located inside a machine which is inside a building.

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5.15 SWMU No. 15 - Building 1060 Paint Booth Vault (Photo 30)

5.15.1 Information Summary

Unit Description: The unit is a concrete vault containing a series of paint filters in a spray paint booth. The concrete vault is located below the floor of the paint booth room. The vault is approximately 10 feet deep. Air circulates from the ceiling down to the Paint Booth Vault. The filters are changed every two months. When removed from the framework within the vault, they are placed in 85-gallon overpack drums. The drums are temporarily stored at the Building 1060 Waste Accumulation Area (SWMU No. 16). Since the vault is located below the floor of the paint room, the structural integrity of the entire unit could not be verified at the time of the VSI. From what could be seen, the unit appeared in good condition. (149)

Dates of Operation: The unit began operating in late 1986. It is currently operating.

Wastes Managed: The unit manages polyurethane paint particles.

Release Controls: The filters are packed in overpack drums for disposal.

History of Releases: There is no documented history of releases for this unit.

5.15.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is could not be evaluated

since the unit is below the floor level and the structural integrity of most of the unit could not be observed.

- Surface Water: The past and ongoing potential for release to surface water from this unit is low since the unit is indoors and below ground level.
- Air: The past and ongoing potential for release to air from this unit is low because the unit is located inside a building.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas from this unit is low due to the nature of the waste managed by this unit.

5.16 SWMU No. 16 - Building 1060 Waste Accumulation Area (Photos 32, 33, 34)

5.16.1 Information Summary

Unit Description: Building 1060 is a Corrosion Control Shop for the Field Maintenance Squadron. The shop operations include paint stripping, cleaning and painting of small aircraft parts. The Waste Accumulation Area is a container storage area for waste generated from shop operations. Waste is stored in 55-gallon drums on wooden pallets in a fenced-off area of the asphalt parking lot. The fenced-off area is approximately 20 feet wide by 40 feet long. The unit is not covered. Waste is transported by truck from this unit to the Central Waste Holding Area (SWMU No. 51). (149)

Dates of Operation: The startup date for this unit is unknown. The unit is currently operating.

Wastes Managed: The unit manages paint lacquer, MEK with polyurethane paint, paint stripper, PD-680, plastic beads contaminated with paint, the filters from the paint booth, and rags containing paint and MEK. The unit manages approximately three 55-gallon drums of paint stripper every three to four months and three 55-gallon drums of PD-680 every three to four months.

Release Controls: The base of the unit is asphalt. No secondary containment was provided.

History of Releases: At the time of the VSI, a dark stain on the soil was observed at the corner of the unit. The stain extended to a shallow storm

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water drainage feature approximately 20 feet from the unit. Staining was also observed near the edge of the drums.

5.16.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high. Soil adjacent to the unit was stained at the time of the VSI.
- Surface Water: The past and ongoing potential for release to surface water from this unit is high. The soil stain extended to a shallow storm water drainage ditch. All storm water ultimately discharges to the West Fork Trinity River.
- Air: The past and ongoing potential for release to air from this unit is low because wastes were contained in sealed containers.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate. Releases to the soil were evident at the time of the VSI and the wastes managed by the unit contain organic compounds capable of generating subsurface gas.

5.17 SWMU No. 17 - Landfill No. 7 (Photo 37)

5.17.1 Information Summary

Unit Description: Landfill No. 7 is located approximately 1,500 feet north of the Fire Training Area No. 2 (SWMU No. 19), east of the north-south Taxiway 197, and south of Taxiway 190. The site appeared mounded at the time of the VSI, as if waste material had been covered, but waste had also been disposed of on top of the mound. Runoff from the site flows to a shallow drainage feature, east of the unit. Landfill No. 7 has been designated Installation Restoration Program (IRP) Site No. 7 by the IRP Phase I Records Search Report. (1)

Dates of Operation: Landfill No. 7 was used from 1978 to 1983. The presence of waste at the surface of the site during the VSI indicates the unit may currently be in operation.

Wastes Managed: Landfill No. 7 was reportedly filled with clean construction rubble, and fill dirt. At the time of the VSI, concrete rubble such as broken speed bumps and parking curbs were observed at the site. Other types of waste observed included steel concrete reinforcement bar and tree limbs. The unit reportedly does not manage hazardous materials, although hazardous constituents may be present. (1)

Release Controls: No release controls are associated with this unit.

History of Releases: There is no documented history of releases for this unit. During the VSI, runoff was noted flowing east toward a shallow drainage ditch.

5.17.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is moderate. The unit reportedly does not manage hazardous materials; however, hazardous constituents may be present within the Landfill.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate. The unit reportedly does not manage hazardous materials, but it may contain materials with hazardous constituents. No release controls were present to contain runoff.
- Air: The past and ongoing potential for release to air from this unit is low. Although the unit may contain hazardous constituents, the wastes are mostly covered.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate. The unit does manage organic material (tree limbs) that potentially may generate subsurface gas if buried.

5.18 SWMU No. 18 - Fire Training Area No. 1 (No photo taken)

5.18.1 Information Summary

Unit Description: Fire Training Area No. 1 was located approximately 500 feet south of Landfill No. 7 (SWMU No. 17), reportedly adjacent to a small tributary to Farmers Branch (1). Farmers Branch discharges to the West Fork Trinity River. This site is suspected of being the primary fire training area prior to 1963. Waste oils, waste fuels, and possibly solvents were poured on the ground inside a pit and ignited for fire-fighting training activities. The pit was reportedly gravel-lined, and had a low concrete curb around its perimeter. Several fire training exercises are suspected to have taken place at this site each month (1). At the time of the VSI, there was no visual evidence of this unit. The site was covered in 1963. Fire Training Area No. 1 has been designated IRP Site No. 11 by the IRP Phase II Records Search, and is a recommended Phase II monitoring site. The site was recommended by the Air Force's consultant for further investigation due to: (1) the confirmed disposal of hazardous wastes, (2) the existence of residential areas within one mile, and (3) the location of a tributary of Farmers Branch approximately 100 feet away (1).

Dates of Operation: The unit is thought to have been in operation from 1942 to 1963. (1)

Wastes Managed: Wastes suspected of being used at this site include waste oils, contaminated fuels, waste polyurethane paint and small quantities of solvents. (1)

Release Controls: The pit reportedly had a low concrete curb around its perimeter; the pit, however, was gravel lined. The curbing was most likely designed to control the fire and water runoff during training exercises, not to prevent releases.

History of Releases: Contamination has been identified at this site from the IRP Phase II Stage 1 investigation. Low levels of TCE (ranging from none detected to 0.249 ug/g) were detected in soil from one monitoring well boring at this site. The well is located just north of Landfill No. 5 (SWMU No. 23) which is south of the site. TCE ranging from none detected to 0.257 ug/g was also detected in soil from a hand-augered boring at the center of the site and at the upgradient monitoring well (150). The herbicide 2, 4, 5-TP (0.2 ug/l) was detected in two samples from the February 1985 sampling event at one monitoring well. Benzene has also been found in ground-water at this unit ranging from not detected to 3.0 ug/l (4A).

5.18.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high. Soil and ground-water contamination at this unit has been documented.
- Surface Water: The past potential for release to surface water from this unit is unknown. It is unknown if the concrete curb was adequate to prevent runoff from flowing to Farmers Branch. The ongoing potential for release to surface water is moderate. Although the unit is no longer operational, contaminants could

potentially reach Farmers Branch via ground-water flow toward Farmers Branch.

- Air: The past potential for release to air was high because the unit managed volatile wastes. The ongoing potential for release to air is low because the site has been covered since 1963.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate. Soil and ground-water contamination has been documented, and the wastes managed contained organic compounds.

NO. 64

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5.19 SWMU No. 19 - Fire Training Area No. 2 (Photos 38, 39, 40, 43, 44)

5.19.1 Information Summary

Unit Description: Fire Training Area No. 2 is located approximately 2,000 feet south of Landfill No. 8 (SWMU No. 25), east of Taxiway 197. The unit is a circular, gravel-lined pit with an inner and outer earthen berm around its perimeter. The inner berm is approximately 2 feet high; the outer berm is approximately 1 foot high. In the center of the pit, a number of charred dumpsters were situated to simulate the shape of an airplane. At the northeast side of the pit are two drainage pipes with valves extending from each of the berms. In the past, another pit was present to collect runoff from the site, but this pit was later filled (1). At the time of the VSI, an oil and/or fuel slick was visible on the ponded water within the pit. At the south side of the pit was a circular burn pan approximately 8 feet in diameter and 1 foot high. At the time of the VSI, the pan contained rain water with an oily layer at the surface. The unit has been designated IRP Site No. 12 by the IRP Phase I Records Search, and is a recommended Phase II monitoring site. The unit is located approximately 200 feet from a tributary of Farmers Branch and within one mile of a residential area (1).

The wastes are stored in the Waste Fuel and Waste Oil Storage Tanks (SWMU Nos. 20 and 21) prior to use. For a training exercise, the waste fuels are discharged into the pit via pipeline from the Waste Fuel Storage Tank. (149)

Dates of Operation: The unit began operation in 1963, and is currently operating.

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Wastes Managed: The unit manages jet fuel (JP-4) and diesel fuel. The unit is also reportedly managing solvents and waste paints from the flightline shops.

Release Controls: The unit is surrounded by two earthen berms. The release of accumulated fluids within the bermed areas is controlled by a discharge pipe and valve. Any liquids discharging from the pipe would flow overland toward a tributary of Farmers Branch.

History of Releases: The results of the IRP Phase II Stage 1 investigation indicate that halogenated and aromatic organic compounds have been introduced into the soil (concentration range from none detected to 752 ug/g) and ground water (concentrations ranged from none detected to 362 ug/l) from the fire training activities. The highest levels of contamination occurred in the center of the site. Benzene, toluene, and ethyl benzene were detected (concentrations ranged from none detected to 752 ug/g, 134 ug/g, and 110 ug/g, respectively, in soil. TCE also occurred downgradient (north and east) of the site (range from none detected to 362 ug/l). Releases to nearby surface water have also occurred. Water samples from a drainage ditch near the site had oil and grease (concentrations ranging from 1 to 84,000 ug/l) and TOC (ranging from 86 to 50,000 mg/l). (150)

5.19.2 Release Potential

- Soil/Ground Water: The potential for release to ground water and soils from this unit is high. The IRP Phase II Stage 1 investigation revealed halogenated and aromatic organic compounds in soil and ground water.

- Surface Water: The potential for release to surface water is high. The unit is located approximately 200 feet from a tributary of Farmers Branch, and analyses of water samples from the nearby ditch have revealed oil and grease contamination and high TOC concentrations.
- Air: The potential for release to air is high since the unit manages volatile compounds and oils and/or fuels were seen floating on ponded rainwater during the VSI.
- Subsurface Gas: The potential for subsurface gas generation is high due to the organic nature of the wastes managed by this unit and the presence of soil and ground-water contamination.

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5.20 SWMU No. 20 - Waste Fuel Storage Tank (Photos 41, 42)

5.20.1 Information Summary

Unit Description: This tank is located approximately 50 feet from the Fire Training Area No. 2 (SWMU No. 19), and approximately 200 feet from a tributary of Farmers Branch (1). The tank is an 8,500-gallon aboveground concrete tank used to store the flammable liquid wastes used for the fire training exercises. The liquid wastes are delivered from this tank to the fire pit by an aboveground pump and pipeline system. The unit is equipped with vents at the top (149).

Dates of Operation: The tank has been in operation since 1963 and is currently operational.

Wastes Managed: The unit manages contaminated (with water) JP-4, diesel fuel, and kerosene.

Release Controls: The aboveground tank is constructed of concrete with walls that extend approximately 5 feet above grade.

History of Releases: At the time of the VSI, the soil adjacent to the aboveground tank and its ancillary pump and piping was extensively stained, indicating spills (possibly from the addition of wastes to the tank) or leaks from the ancillary equipment. Conditions at the unit at the time of the VSI were generally sloppy, suggesting poorly controlled management practices. Water samples collected from this nearby tributary during the IRP Phase II Stage 1 investigation contained oil and grease and TOC concentrations.

5.20.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soils is high due to the visible staining on the soil adjacent to the aboveground tank and the lack of secondary containment for the ancillary pump and piping.
- Surface Water: There is a moderate past and ongoing potential for release to surface water from the tank's ancillary piping. The unit is located approximately 200 feet from a tributary of Farmers Branch. The soil near the ancillary piping was extensively stained at the time of the VSI. Runoff from a heavy rain could carry hazardous constituents from the soil to the tributary of Farmers Branch. Water samples collected from this nearby tributary during the IRP Phase II Stage 1 investigation contained oil and grease and TOC concentrations.
- Air: The past and ongoing potential for release to air is high since the aboveground tank manages volatile compounds and is equipped with vents at its top.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate to high due to the organic nature of the wastes managed and the evidence of staining on the surrounding soil.

5.21 SWMU No. 21 - Waste Oil Tank (No photo taken - tank below ground)

5.21.1 Information Summary

Unit Description: This tank is located at the Fire Training Area No. 2 (SWMU No. 19) as is the Waste Fuel Storage Tank (SWMU No. 20). The tank is a 9,500-gallon underground storage tank for wastes from the flightline shops (1). Reportedly, normal disposition of the underground tank contents has been to off-base contractors, but some facility personnel have indicated that the wastes from this unit were also burned at the Fire Training Area No. 2 for training exercises (1).

Dates of Operation: The tank is reported to have been in operation from 1963 to the present. (149)

Wastes Managed: The unit manages waste oils and solvents from the flightline shops. (1)

Release Controls: There are no release controls associated with this unit.

History of Releases: There is no documented history of releases for this unit.

5.21.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is unknown. The structural integrity of the unit could not be verified during the VSI since the unit is below grade.

- Surface Water: The past and ongoing potential for release to surface water is low since the unit is below ground.
- Air: The past and ongoing potential for release to air is high since the unit manages volatile compounds and is equipped with vents at its top.
- Subsurface Gas: The past and ongoing potential for for generation of subsurface gas is unknown since the structural integrity of the unit is unknown.

NO. 55

5.22 SWMU No. 22 - Landfill No. 4 (No photo taken)

5.22.1 Information Summary

Unit Description: Landfill No. 4 is located approximately 1,000 feet east of Fire Training Area No. 2. The site, approximately 10 acres in size, is now the location of the radar site, which includes three buildings. Landfill No. 4 was the main landfill during much of the history of Carswell AFB. All base refuse was burned and buried at this unit. The Landfill consisted of at least six large pits, approximately 12 feet deep. Ground water occurs in the upper zone materials underlying this unit at depths ranging from 10 feet in one monitoring well to 23 feet in another monitoring well. The upper zone materials consist of clayey silt with variable amounts of fine sand and gravel. Ground water in the Paluxy aquifer occurs at a depth of 73 feet below the land surface approximately 100 feet east of Landfill No. 4. The upper zone water-bearing materials and the Paluxy aquifer are separated by the Goodland/Walnut aquitard. Surface drainage is to the east toward a tributary of Farmers Branch. (4A)

Unknown quantities of hazardous wastes are suspected of being buried here. The unit is approximately 100 feet from a tributary of Farmers Branch and within one mile of residential areas. The unit is also located within 3 miles of White Settlement, a residential area served by a ground-water supply. The unit has been designated IRP Site No. 4 by the IRP Records Search report, and is a recommended Phase II monitoring site. (1)

Dates of Operation: The unit operated from approximately 1956 to 1975.

Wastes Managed: Suspected wastes managed by this unit include: partially full paint cans, cadmium batteries, drums of waste paints, thinners, and strippers; oils, and PD-680 (1). Solid domestic waste was also managed by this unit.

Release Controls: No known release controls are associated with this unit.

History of Releases: Results of the IRP Phase II Stage 1 investigation (field work began in December 1984) revealed organic compounds (oil and grease, phenols, TOC) detected in ground water in the upper zone materials. Purgeable halocarbons were detected in every monitoring well at Landfill No. 4. TCE was the principal purgeable halocarbon detected, with concentrations ranging from not detected to 4,550 ug/l. (4A)

Analyses of ground water at the five upper zone monitoring wells at this unit indicate that the upper zone water has levels of volatile organic compounds (principally TCE) that exceed EPA drinking water guidelines downgradient (east) of this landfill. (4A)

5.22.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soil is high. Contamination of both media has been verified from the IRP Phase II Stage 1 investigation.

- Surface Water: The past and ongoing potential for release to surface water is moderate due to the potential of ground water flowing toward (east and southeast) the tributary to Farmers Branch during the dry months.
- Air: The past potential for release to air was high since the unit is suspected of managing volatile wastes. The ongoing potential for release to air is low since the unit has been covered since 1975.
- Subsurface Gas: There is a high past and ongoing potential for subsurface gas generation due to the suspected presence of oils and other organic liquid wastes. The site is presently occupied by the radar installations.

5.23 SWMU No. 23 - Landfill No. 5 (No photo taken)

5.23.1 Information Summary

Unit Description: Landfill No. 5 is located approximately 800 feet north and slightly west of Landfill No. 4 (SWMU No. 22), east of Taxiway 197. The unit was constructed adjacent to a small tributary to Farmers Branch (1). The Landfill was constructed by building a clay berm adjacent to the tributary and then filling the area behind the berm up to its existing level. The refuse was regularly burned prior to burial. Like other units in this area (SWMU Nos. 17 and 19), the unit is within 3 miles of White Settlement, a community served by a ground-water supply. The unit has been designated IRP Site No. 5 by the IRP Phase II Records Search report, and is a recommended Phase II monitoring site. Ground water occurs in the upper zone materials at this site at depths ranging from less than 2 feet in one monitoring well to 22 feet in another monitoring well. Ground water in the Paluxy aquifer is approximately 75 feet below the ground surface in this vicinity. The two water-bearing strata are separate by the Goodland/Walnut aquitard (4A).

Dates of Operation: The Landfill was reportedly used between 1963 to 1975. (1)

Wastes Managed: The unit received all types of flightline waste, some of which are suspected of being hazardous. Waste managed is probably similar to that managed by Landfill No. 4, i.e., waste paints, thinners, strippers, oils, and solvents.

Release Controls: A clay berm was constructed adjacent to the tributary to Farmers Branch. No other release controls are associated with this unit.

History of Releases: Soil and ground-water sampling conducted at Landfill No. 5 have indicated that the upper zone contains elevated levels of halogenated organic compounds. TCE is the principal contaminant observed in the upper zone at this unit. Soil samples collected in both the unsaturated and saturated zones indicate contamination with trans-1,2-dichloroethane and trichloroethene as well as levels of the aromatic compounds ethyl benzene and toluene. Results of metal analyses and other organic parameters such as oil and grease showed essentially background levels. (4A)

Results of analyses of ground water from one monitoring well which monitors a thin section of the upper zone adjacent to the unnamed tributary to Farmers Branch are similar to results obtained at the surface water sampling point. Elevated levels of vinyl chloride were detected in both ground water from this monitoring well and surface water. It is feasible that the ground-water flow contributes to the base flow of the stream. (4A)

5.23.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soil is high. Contamination of both media has been found from the IRP Phase II Stage 1 investigation.
- Surface Water: The past and ongoing potential for release to surface water is high due to the proximity of the unit (within 100 feet) to a tributary of Farmers Branch, and the suspected contribution of ground water to the base flow of the tributary.

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NO. 10

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- Air: The past potential for release to air was high since the unit is suspected of managing volatile wastes. The ongoing potential for release to air is low since the unit has been covered since 1975.
- Subsurface Gas: There is a moderate past and ongoing potential for subsurface gas generation due to the detection of halogenated organic compounds in the upper water-bearing zone.

NO. 404

5.24 SWMU No. 24 - Waste Burial Area (No photo taken)

5.24.1 Information Summary

Unit Description: The Waste Burial Area is located east of Taxiway 197, between Landfill No. 4 (SWMU No. 22) and Landfill No. 5 (SWMU No. 23). The unit is another site along the flightline where a variety of waste has been buried. The waste was reportedly buried in a natural, impermeable clay strata (1). The unit is located approximately 200 feet from a tributary of Farmers Branch, and within one mile of a residential area. The unit has been designated IRP Site No. 10 by the IRP Phase I Records Search report, and is a recommended Phase II monitoring site. Ground water occurs in the upper zone materials under the unit at depths ranging from 19 feet to 27 feet. Ground water is suspected of flowing east toward Farmers Branch (4A).

Dates of Operation: The unit was operational during the 1960s. It is no longer an operating unit.

Wastes Managed: The unit reportedly manages drums of cleaning solvents, tetraethyl leaded sludge, and possibly ordinance materials. The potential exists for the buried ordinance to be live. (1)

Release Controls: The waste materials were reportedly buried in a natural, impermeable clay strata. (1)

History of Releases: Analyses of soil and ground water collected during the IRP Phase II Stage I investigation revealed the presence of halogenated

organic compounds both upgradient and downgradient of the unit. TCE was the principal contaminant observed in the upper zone monitoring wells.

Concentrations of TCE in saturated soil ranged from 0.014 ug/g to 0.067 ug/g at 29 to 30 feet. Also detected was 1,1,1-trichloroethane (0.044 ug/g) at a depth of 29 to 30 feet. (4A)

TCE has been detected in ground water in all upper zone monitoring wells. Concentrations ranged from 1,870 ug/l to 5,000 ug/l. One upper zone monitoring well also showed low levels of vinyl chloride, trichlorofluoromethane, and 1,1-dichloroethane, as well as higher levels of tetrachloroethylene.

5.24.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soil is high. Contamination of both media has been found from the IRP Phase II Stage 1 investigation.
- Surface Water: The past and ongoing potential for release to surface water is moderate due to the proximity of the unit (within 200 feet) to a tributary of Farmers Branch, and the suspected flow of ground water to the east toward Farmers Branch.
- Air: The past potential for release to air is high since the unit managed volatile wastes. The ongoing potential for release to air is low since the unit has been covered since the late 1960s.

- Subsurface Gas: There is a moderate potential for subsurface gas generation due to the suspected presence of sludge and other organic liquid wastes.

NO. 100

5.25 SNMU No. 25 - Landfill No. 8 (Photo 35 - background)

5.25.1 Information Summary

Unit Description: Landfill No. 8 is located just east of the north-south Taxiway 197 and south of Taxiway 190. The unit was used as a fill area during the 1960s. The unit lies over the culverts carrying Farmers Branch under the runway. At the time of the VSI, the unit appeared as a mounded-grassy area. The unit has been designated IRP Site No. 8 by the IRP Phase I Records Search report. The site was not recommended for monitoring under the Phase II program. (1)

Dates of Operation: The unit was operational during the 1960s; it has not been used since the late 1960s.

Wastes Managed: The unit reportedly managed wood, metal, construction rubble, asphalt, concrete, and trees. No hazardous materials are reported to be buried at this site, although some of the materials may contain hazardous constituents.

Release Controls: No known release controls are associated with this unit.

History of Releases: There is no documented history of releases for this unit.

5.25.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is moderate to high. While no hazardous materials are reported to be buried at this unit, the potential exists that some materials containing hazardous constituents may have been disposed of at this site. The site is located along the flightline and is in the general vicinity of Landfills No. 4 (SWMU No. 22), No. 5 (SWMU No. 23), and the Waste Burial Area (SWMU No. 24) all of which received hazardous materials.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low to moderate. While no hazardous materials are suspected of being buried at this unit, the potential exists that some materials with hazardous constituents may have been disposed of at this site, which is located over the culverts carrying Farmers Branch under the runway.
- Air: The past potential for release to air from this unit is unknown. The unit reportedly did not manage hazardous wastes, but it may have received materials containing volatile hazardous constituents. The ongoing potential is low since the unit has been covered since the late 1960s.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation at this unit is low to moderate due to the reported presence of wood and tree limbs buried at this site.

5.26 SWMU No. 26 - Landfill No. 3 (No photo taken)

5.26.1 Information Summary

Unit Description: Landfill No. 3 is believed to be located under the present north-south Primary Instrument Runway, approximately 600 feet south of the underground aqueduct carrying Farmers Branch (4A). At the time this unit was in operation, the runway ended north of Farmers Branch, and a ravine present at the Landfill No. 3 site was used as a fill area (1). The Landfill is also within one mile of a residential area and within 3 miles of a population greater than 1,000 people (White Settlement) served by a ground-water supply. This unit has been designated IRP Site No. 3 by the IRP Phase I Records Search report, and is a recommended Phase II monitoring site.

Work performed under the Phase II program consisted of geophysical surveys. No monitoring wells were installed nor soil boring activities conducted at this unit.

The depth of geophysical investigation ranged from 10 to 50 feet (4A). Results of the investigation did not provide conclusive evidence of waste materials in the subsurface (150).

Dates of Operation: The unit was in operation from 1950 to 1952. The unit has been covered since 1952.

Wastes Managed: The unit received all types of wastes, but primarily construction rubble. It is reported to have received small quantities of hazardous wastes. (1)

Release Controls: There are no known release controls associated with this unit.

History of Releases: There is no document history of release from this unit. Results of the IRP Phase II Stage 1 geophysical survey at the site did not provide conclusive evidence of the types of waste materials in the subsurface.

5.26.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soils from this unit is moderate since the unit is suspected of managing small quantities of hazardous waste and was not constructed with any release controls.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate due to potential ground-water flow toward Farmer Branch, approximately 100 feet away.
- Air: The past and ongoing potential for release to air from this unit is low. Although the unit is suspected of receiving small quantities of hazardous waste, which may or may not have been volatile, the unit primarily received construction rubble. Also, the unit has been covered since 1952.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low to moderate since the unit is suspected of receiving small quantities of hazardous waste.

5.27 SWMU No. 27 - Landfill No. 10 (Photos 46, 47)

5.27.1 Information Summary

Unit Description: Landfill No. 10 is located in the southwestern portion of the base, south of the culvert carrying Farmers Branch, between the perimeter road and the North-South Primary/Instrument Runway. At the time of the VSI, the unit consisted of one large trench approximately 20 feet wide by 80 feet long by 12 feet deep. Also at the time of the VSI, the trench was filled with several feet of water, and a bulldozer was present at the site. The unit was not designated a site number by the IRP Phase I Records Search report. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: At the time of the VSI, the unit managed concrete rubble and tree limbs. No evidence of hazardous materials was noted during the VSI.

Release Controls: There are no release controls associated with this unit.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.27.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soil from this unit is unknown since the age of

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the unit is unknown, as well as the nature of materials that might have been disposed of at this unit in the past.

- Surface Water: The past and ongoing potential for release to surface water from this unit is unknown since the nature of materials that might have been disposed of in the past is unknown.
- Air: The past potential for release to air is unknown due to the unknown nature of the wastes that may have been disposed of at this unit. The ongoing potential is low due to the lack of evidence of volatile materials at the site during the VSI.
- Subsurface Gas: The potential for the generation of subsurface gas at this unit is low to moderate. The decomposition of tree limbs may generate some subsurface gas.

5.28 SWMU No. 28 - Landfill No. 1 (No photo taken)

5.28.1 Information Summary

Unit Description: Landfill No. 1 is located beneath the present Defense Reutilization and Maintenance Organization (DRMO) storage yard adjacent to the West Fork Trinity River levee. The site is reportedly the original base landfill. This unit is approximately 200 feet from the base boundary and 300 feet from the West Fork Trinity River. Depth to ground water at this unit ranges from 8 feet to 23 feet. Ground-water flow is eastward, directly to the West Fork Trinity River (4A). A population of greater than 100 people reside within 1,000 feet of the site; other residential areas are within one mile of the unit. Ground water near this unit is suspected of existing within 10 feet of the ground surface, and water supply wells serving residents of Fort Worth suburbs are within 3,000 feet of this unit (1). The unit has been designated IRP Site No. 1 by the IRP Phase I Records Search report, and is a recommended Phase II monitoring site. Four monitoring wells were installed at this site in conjunction with Phase II of the IRP.

Dates of Operation: The unit was operated during the 1940s.

Wastes Managed: No information was available concerning the types of wastes managed by this unit. (150)

Release Controls: There are no known release controls associated with this unit.

History of Releases: Results of the IRP Phase II Stage 1 study showed that ground water at this unit contains some elevated levels of oil and grease at concentrations ranging from none detected to 190 mg/l. Elevated levels of heavy metals were also discovered in the ground water, as well as low concentrations of purgeable halocarbons. Some heavy metals exceeded MCLs for sampling rounds in January-February 1988 including arsenic, lead, barium, cadmium, and chromium. (150)

5.28.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to ground water and soils from this unit is high. The IRP Phase II Stage 1 investigation has shown ground water at this unit to be contaminated with heavy metals, oil and grease, and purgeable halocarbons.
- Surface Water: The past and ongoing potential for release to surface water from this unit is high since ground-water movement at this site is toward the adjacent West Fork Trinity River. Ground-water flow toward the river can be a mechanism for contaminant transport to surface water.
- Air: The past potential for release to air was low to moderate. The presence of low concentrations of purgeable halocarbons in ground water indicates that some of the wastes managed by this unit may have been volatile. There is no ongoing potential for release to air since the Landfill has been covered since the 1940s.

- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is high since the presence of purgeable halocarbons in ground water indicates that some organic material was buried at this site. Also, structures (the DRMO storage yard) now occupy the site.

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5.29 SWMU No. 29 - Landfill No. 2 (No photo taken)

5.29.1 Information Summary

Unit Description: Landfill No. 2 is located near Haile Drive and Hobby Shop Road, lying at least partially under Building 1055. The site reportedly was a borrow pit for runway construction during the 1940s and then used as a landfill. Refuse was reportedly buried in shallow trenches (1). The site is approximately 200 feet from a tributary of Farmers Branch. It is also within 1,000 feet of an estimated population of greater than 100 people and within one mile of other residential areas. The unit has been designated as IRP Site No. 2 by the IRP Phase I Records Search report (1).

Dates of Operation: The unit was operational from 1952 until 1956. The unit has been covered since 1956.

Wastes Managed: The unit reportedly managed rubble and construction materials, and is reported to manage moderate quantities of hazardous waste. (1)

Release Controls: There are no known release controls associated with this unit.

History of Releases: There is no documented history of releases for this unit.

5.29.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is high since no known release controls are associated with this unit and the unit is suspected of managing moderate quantities of hazardous waste.
- Surface Water: The past and ongoing potential for release to surface water from this unit is high since the unit is approximately 200 feet from a tributary of Farmers Branch. Ground water could potentially flow toward the tributary, thus being a mechanism of contaminant transport to surface water.
- Air: The past potential for release to air could not be evaluated since no information is available concerning the nature of wastes managed. The ongoing potential for release to air is low since the unit has been covered since 1956.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is moderate. The presence of a building above the old landfill presents a high risk situation should methane be present.

5.30 SMMU No. 30 - Landfill No. 9 (No photo taken)

5.30.1 Information Summary

Unit Description: Landfill No. 9 is located in the northeast portion of the base, and adjacent to the West Fork Trinity River. No other information about this unit is available from either the file material or facility representatives present during the VSI. (149)

Dates of Operation: The unit was operational from 1978 to 1983.

Wastes Managed: The unit managed clean construction rubble and trees. No hazardous materials are reported to be buried at this site, although materials with hazardous constituents may have been disposed of here. (1)

Release Controls: There are no known release controls associated with this unit.

History of Releases: There is no documented history of releases for this unit.

5.30.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is moderate. The unit is not reported to have received hazardous waste, but may have received materials containing hazardous constituents.

- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate. The unit is adjacent to the West Fork Trinity River, and may have received materials containing hazardous constituents. Ground-water flow toward the river could transport contaminants to the river.
- Air: The past potential for release to air from this unit is unknown due to the unknown nature of the constituents of the wastes managed by this unit. The ongoing potential for release to air is low because the unit is no longer active.
- Subsurface Gas: The past and ongoing potential for the generation of subsurface gas at this unit is low to moderate due to the reported presence of trees buried at the site.

5.31 SWMU No. 31 - Building 1050 Waste Accumulation Area (Photo 59)

5.31.1 Information Summary

Unit Description: Building 1050 houses the Pneudraulics Shop. Within the Pneudraulics Shop are two solvent tanks used for cleaning pneudraulic aircraft parts. The spent solvent generated by the repeated use of these tanks is managed by the Building 1050 Waste Accumulation Area. The waste solvent is drained from the solvent tanks into approximately 5-gallon capacity containers and hand-carried to the Waste Accumulation Area where it is poured into 55-gallon drums. (149)

The Building 1050 Waste Accumulation Area consists of a concrete pad supporting approximately ten 55-gallon drums plus several smaller containers. The pad, approximately 15 feet long by 8 feet wide by 6 inches thick, is outdoors and uncovered. It is not surrounded by a fence or other barricade. Some of the drums were grounded at the time of the VSI. The unit manages drums of waste from the solvent tank inside the Pneudraulics Shop as well as drums of new solvent. (149)

Dates of Operation: The unit began operation in 1955. A facility representative did not know when the concrete pad was poured, however. The unit is currently in use.

Wastes Managed: The unit manages hydraulic oil, PD-680 (Type II) and the solvent, Citri-Kleen. The unit manages approximately 25 gallons per year of hydraulic oil and 50 gallons per month of PD-680. At the time of the VSI, the

shop had been using the Citri-Kleen for only two months, and had not generated any Citri-Kleen waste.

Release Controls: The unit consists of a 6-inch concrete pad on top of a layer of asphalt.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.31.2 Release Potential

- Soil/Ground Water: The past potential for release to soil and ground water is unknown since it is unknown how long the concrete pad has existed. The ongoing potential for release to soil and ground water is low to moderate. The unit is located adjacent to a lawn, and no secondary containment is available for the unit, however, there is no evidence a release has occurred.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low to moderate since any release to the ground surface has a potential to reach the West Fork Trinity River since no secondary containment is provided for this unit.
- Air: The past and ongoing potential for release to air from this unit is low to moderate. Although the condition of the containers appeared adequate at the time of the VSI, the unit does manage volatile wastes.

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- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low. The wastes are contained within sealed containers resting on a concrete pad.

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5.32 SWMU No. 32 - Building 1410 Waste Accumulation Area (Photos 64, 65, 66)

5.32.1 Information Summary

Unit Description: The Building 1410 Waste Accumulation Area is an outdoor, uncovered, concrete-based container storage area. The unit manages wastes generated by the Engine Shop and Wheel and Tire Shop inside Building 1410. The waste from the Engine Shop is managed in drums on wooden pallets occupying one half of the site, while the waste from the Wheel and Tire Shop is transferred to drums occupying the other half of the site. In addition to the 55-gallon drums, the unit also consists of a 500-gallon tank. Sand bags piled two high are stacked along the perimeter of the unit, which is located approximately 25 yards from a storm drainage ditch. Some of the drums have open bungholes, others are secured by metal plates and locked. Wastes from this unit are disposed of by contractor removal through DRMO. (149)

Dates of Operation: This unit, or one similar, began operation in the early 1940s. The wastes generated by the shops were burned at the Fire Training Area No. 1 (SWMU No. 18) until approximately 1963. From 1963 to 1970, the wastes were burned at Fire Training Area No. 2 (SWMU No. 19). From 1970 to the early 1980s, the wastes were removed by a private contractor (1). The unit is presently operational, with wastes transferred to the Building 1190 Central Waste Holding Area (SWMU No. 51).

Wastes Managed: The unit manages 7808 engine oil drained from jet engines, carbon and fingerprint removers, PD-680 (Type II), waste JP-4 fuel, and a solvent manufactured by Rochester Midland designated SE 377E. The carbon and

fingerprint removers are degreasers. The unit manages approximately 600 gallons of 7808 engine oil per year, 200 gallons of carbon and fingerprint remover per year, 550 gallons of PD-680 Type II per year, and 300 gallons of waste JP-4 per year. (1)

Release Controls: Sand bags piled two high on the concrete surround the drums of waste.

History of Releases: There is no documented history of releases for this unit, but during the VSI, the concrete within, and to some extent outside the sand bags, was stained with oily material that had either leaked from a drum or been spilled at this unit.

5.32.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soils and ground water from this unit is moderate to high because the unit is adjacent to a grassy area and because of the evidence of staining.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate to high because the unit is located approximately 25 yards from a storm water drainage ditch, and because of evidence of staining.
- Air: The past and ongoing potential for release to air from this unit is moderate due to the volatile nature of the wastes managed, and the fact that some of the bungholes were opened during the VSI.

- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is moderate to high due to the organic nature of the wastes managed, the proximity of the unit to an unpaved area, and the evidence of spillage noted during the VSI.

NO. 44

5.33 SWMU No. 33 - Building 1420 Waste Accumulation Area (Photos 78, 79)

5.33.1 Information Summary

Unit Description: The Building 1420 Waste Accumulation Area is a container storage area that receives waste from Buildings 1418, 1420, and 1403. The waste is stored in 55-gallon drums, some of which are stored horizontally on a metal rack. The unit is outside, uncovered, and surrounded on three sides by a wooden fence. The base of the unit is part concrete, part asphalt. At the time of the VSI, nine 55-gallon drums were present. The waste drums from this unit are transferred by truck to the Central Waste Holding Area (SWMU No. 51).
(149)

Dates of Operation: The exact startup date of operation is unknown. The unit is presently operational.

Wastes Managed: The unit manages hydraulic fluids, brake fluid, and PD-680 (Type II). On a monthly basis, the unit receives approximately 20 to 30 gallons of PD-680, 30 gallons of hydraulic fluid, and 2 to 3 gallons of brake fluid.

Release Controls: A portion of the unit is constructed of concrete; the other portion has an asphalt base.

History of Releases: There is no documented history of releases for this unit. During the VSI, the base of the unit was heavily stained with a dark, oily material.

5.34 SWMU No. 34 - Building 1194 Waste Accumulation Area (Photos 98, 101)

5.34.1 Information Summary

Unit Description: This unit is located just south of Building 1194, the Vehicle Refueling Shop. It is concrete-paved and slopes away from the building to the parking lot. Fifty-five-gallon waste drums rest on wooden pallets, and a waste oil bowser lays on the ground. The area is surrounded by discontinuous concrete curbing. Runoff from this side of the building flows across the parking lot to bare ground, into a storm water sewer. The soil at the edge of the parking lot appeared stained with oil at the time of the VSI. The waste drums from this unit are transferred by truck to the Central Waste Holding Area (SWMU No. 51). (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The unit holds a 100-gallon waste oil bowser, a waste antifreeze drum, a waste PD-680 drum, and a waste transmission fluid drum. According to a facility representative, PD-680 is generated in amounts of 15 to 20 gallons every three to four months.

Release Controls: The unit is paved with concrete. However, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. At the time of the VSI, the soil in the area's runoff pathway appeared stained with oil.

5.34.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high because evidence of release to soil was observed during the VSI, and due to the high water table.
- Surface Water: The past and ongoing potential for release to surface water from the unit is low. Runoff from this area washes down to a storm water drain. Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the drums are stored in the open air.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low to moderate because runoff from the unit carries hydrocarbon contaminants onto bare ground.

5.35 SWMU No. 35 - Vehicle Refueling Shop (Building 1194) Oil/Water Separation System (Photos 98, 99, 100)

5.35.1 Information Summary

Unit Description: This unit consists of a main trench floor drain, underground conduits, and an oil/water separator outside the building. Floor rinsate washes down the drain through the conduits to the Oil/Water Separator. There, the oil is skimmed from the wastewater and the wastewater is pumped out onto the parking lot surface. The parking lot slopes towards the surrounding bare ground where a storm water sewer catches runoff from the area. The floor in the building is paved with concrete and slopes towards the drain. The trench is approximately 1 foot deep, 18 inches wide and 30 feet long. Reportedly, the underground conduits are also constructed of concrete. The oil/water separator is a below-ground concrete box located beneath an asphalted area. It is comprised of two main units, one for separation, and another for holding the skimmed oil. A pressure gauge sticking out of the ground indicates the oil level in the oil holding tank, and thus, the need for pumping it out. The separation unit has a capacity of 2,000 gallons. The construction details of the unit were not documented. (149)

Dates of Operation: The unit is presently operational. The building was constructed, and the refueling vehicle and maintenance operations were initiated in 1982. (1)

Wastes Managed: The unit manages floor washings which consist of wastewater contaminated with fuel, PD-680, antifreeze, and transmission fluid, as well as waste oil.

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1114-01

Release Controls: The building floor is paved with concrete and the conduits and separator are reportedly constructed of concrete. However, the structural integrity of the unit is unknown.

History of Releases: There is no documented history of releases for this unit. Separated wastewater is reportedly released onto the parking lot surface. At the time of the VSI, the soil in the area's runoff pathway appeared stained with oil.

5.35.2 Release Potential

- Soil/Ground Water: The potential for release to soil and ground water is high since the separated wastewater is discharged to the parking lot pavement, and evidence of release was observed during the VSI.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low since the separated wastewater is released on the parking lot pavement, and flows into a storm water drain. Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low because most of the unit is enclosed in concrete, and it is located below ground.

- Subsurface Gas: The potential for subsurface gas generation is low to moderate because the separated wastewater may carry hydrocarbon contaminants onto bare ground.

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5.36 SWMU No. 36 - Building 1191 Waste Accumulation Area (Photos 95, 96)

5.36.1 Information Summary

Unit Description: This unit is located east of the Vehicle Maintenance Shop (Building 1191), at the corner of the parking lot. It holds wastes in 55-gallon drums from Vehicle Maintenance Operations. In addition, waste drums from various squadrons are held in this unit. Some of the drums rest directly on the asphalt pavement, others are on pallets. The waste drums from this unit are transferred by truck to the Central Waste Holding Area (SWMU No. 51). These drums are not picked up regularly; during the VSI, a facility representative stated that the last pickup had occurred in October 1988. Some sand bags are stacked in the back. There are no provisions for secondary containment and the unit is adjacent to bare ground. Runoff drains onto unpaved ground and flows to an unlined storm water culvert. Evidence of oily material spillage was noted during the VSI. It included soil and asphalt oil staining as well as an oil film in the ponded rainwater. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes managed include leaded and unleaded waste oil, drummed separately, waste MOGAS and waste antifreeze. These wastes may contain RCRA-hazardous materials.

Release Controls: The drums are held on asphalt. However, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. Evidence of oily material spillage was noted during the VSI including ground staining with oil and an oil film in the ponded rainwater.

5.36.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high because evidence of release to soil was observed during the VSI, and due to the high water table.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate since runoff from the unit discharges to a storm water culvert, and due to evidence of staining.
- Air: The past and ongoing potential for release to air from this unit is moderate because the drums are stored in the open air and some of the waste is volatile.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate because hydrocarbon contaminated runoff flows onto bare ground.

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5.37 SMMU No. 37 - Vehicle Maintenance Shop (Building 1191) Oil/Water Separation System (Photos 94, 97)

5.37.1 Information Summary

Unit Description: This unit consists of a main trench floor drain, underground conduits, and an oil/water separator outside the building. Floor rinsate washes down the drain through the conduits to the Oil/Water Separator. There, the oil is skimmed from the wastewater which is then discharged to the storm sewer system. The building floor is paved with concrete and slopes towards the drain. The trench is approximately 1 foot deep, 18 inches wide and 80 yards long. Reportedly, the underground conduits are also constructed of concrete. The oil/water separator is a below-ground concrete box located below an asphalt area. It is comprised of two main units, one for separation, and another for holding the skimmed oil. A pressure gauge sticking out of the ground indicates the oil level in the oil holding tank, and thus, the need for pumping it out. The capacities and construction details of the unit were not documented. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: This unit manages floor washings which consist of wastewater contaminated with chemicals used in vehicle maintenance. The contaminants include thinners and solvents, waste oil from gas engines as well as diesel engines, fuel, and antifreeze.

5.38 SWMU No. 38 - Building 1269 PCB Transformers Building (Photos 91, 92, 93)

5.38.1 Information Summary

Unit Description: This unit consists of the PCB transformers storage space in building 1269. The building was designed to store PCB transformers. It consists of one room with metal walls and roof, and a concrete floor. Its sides are each approximately 18 feet long. The floor slopes inwards from the door and loading area, and does not have any drains. The building is equipped with an automatic fire alarm system. At the time of the VSI, items stored in the building included four large transformers, four small transformers, two 55-gallon drums containing waste PCB oil, used and new PCB test kits, drums containing PCB spill containment kits, oil solvent booms, and bagged pesticides. The transformers are picked up by a contractor after they are transferred to DRMO. (149)

Dates of Operation: The unit is presently operational. It was constructed in 1984-85.

Wastes Managed: The wastes managed in this building consist mainly of PCB contaminated wastes; namely transformers, and waste PCB oil.

Release Controls: The building floor is constructed of concrete and graded to provide containment in case of a spill.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.38.2 Release Potential

- Soil/Ground Water: There is a low potential for release to soil or ground water because the concrete floor is graded to provide containment in case of a spill from this unit.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low because the concrete floor is graded to provide containment in case of a spill.
- Air: The past and ongoing potential for release to air from this unit is low because the waste is held in a closed building without ventilation and the wastes are not volatile.
- Subsurface Gas: There is a low potential for generation of subsurface gas because the concrete floor is graded to provide containment in case of a spill from this unit.

5.39 SWMU No. 39 - Building 1643 Waste Accumulation Area (Photo 86)

5.39.1 Information Summary

Unit Description: This unit is located east of Building 1643. Containerized wastes from the building's aircraft maintenance operations are held here until being picked up by DRMO, as reported. The area holds a waste oil trailer (about 200 gallon capacity), as well as a 55-gallon drum and a smaller container on a wooden pallet. It is surrounded by sand bags piled two high. Several 25-gallon containers are stacked in a locked cage just outside of the sand bag area. The cage is 7 feet high and approximately 3 feet wide by 6 feet long. The ground in this area is paved with asphalt. Surface runoff washes into storm water drains. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes in this unit are generated by the maintenance operations in Building 1643. They include waste engine oil, hydraulic fluid, waste jet fuel (JP-4), PD-680, and carbon remover which all contain complex hydrocarbons. (149)

Release Controls: The unit is in an asphalt-paved area which drains to the storm sewer system. However, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

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5.39.2 Release Potential

- Soil/Ground Water: There is a low potential for release to soil or ground water from this unit because the unit is in an asphalt paved area.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low. Runoff from this area washes to a storm water drain. Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the waste containers are stored in the open air, and some of the waste constituents are volatile.
- Subsurface Gas: There is a low potential for generation of subsurface gas because the unit is in an asphalt paved area.

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5.40 SWMU No. 40 - Building 1643 Oil/Water Separation System (Photos 87, 88, 89)

5.40.1 Information Summary

Unit Description: The Oil/Water Separation System in building 1643 consists of floor drains, underground conduits, and two oil/water separators. The inner space of the building is subdivided into a main hangar room for parking the aircrafts, and individual shops along the north and south sides. The building drainage and oil/water separation system consists of two distinct identical set ups, one on the north side, and the other on the south. There are two east-west trending trench drains in the main hangar. Floor rinsate from each trench drain, as well as from the floor drains in the shops on the same side flows in below-ground conduits to a separator outside the east side of the building. The north side drains to the northern separator and the south side to the southern one. The building floor is paved with concrete, and the drainage trenches are reportedly constructed of concrete. The separators consist of metallic boxes which appeared to be installed directly in bare ground. Each is surrounded by a concrete curb within 2 feet of the separator walls. The area in which they are located is paved with asphalt. The capacity and construction details of the separators were not documented. The northern separator is about 6 feet wide and 15 feet long, and it is divided into two compartments. The southern separator is approximately 21 feet long. The water from these separators connects with the base storm sewer system. The oil pickup from these units is handled by civil engineering. Reportedly, it is only pumped once every couple of years. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: This unit manages floor washings that consist of wastewater contaminated with chemicals used in aircraft maintenance. The contaminants include PD-680, jet fuel (JP-4) hydraulic fluid, engine oil, and carbon remover.

Release Controls: The building floor is paved with concrete, and the drainage trenches are reportedly constructed of concrete. However, the structural integrity of the separators is unknown since the construction details were not documented.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.40.2 Release Potential

- Soil/Ground Water: The potential for release to soil and ground water is unknown since the structural integrity of the separators is unknown.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.

- Air: The past and ongoing potential for release to air from this unit is low because most of the unit is enclosed in concrete, and it is located below ground.
- Subsurface Gas: The potential for generation of subsurface gas is unknown since the structural integrity of the separators is unknown.

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5.41 SWMU No. 41 - Building 1414 Oil/Water Separation System, Field Maintenance Squadron Aerospace Ground Equipment (Photos 68, 69, 72)

5.41.1 Information Summary

Unit Description: The Oil/Water Separation System at Building 1414 includes floor drains in the building, underground conduits, and an oil/water separation unit located just outside the northwest side of the building. There are three drains in the building. Two of these consist of trench drains along the northwest and southeast walls (Photo 68). They are approximately 1-1/2 feet wide. The third is a 1/2 foot by 1 foot floor drain in the area of the building used for washing ground equipment. The wash area is approximately 15 feet long and 10 feet wide. It is bordered by two walls along its length. The floor within the wash area slopes towards the drain, in its center (Photo 68). Also there is a vent in the floor for the below-ground conduits. Underground conduits connect the floor drains to the oil/water separator. The building floor is paved with concrete and the drainage trenches are reportedly constructed of concrete. The oil/water separator is a concrete box located 2 feet from the northwest wall in an asphalt-paved area. It is about 7 to 8 feet long and 4 feet wide. It is divided into two compartments which can each be accessed by a lid-covered manhole. One of these holds the hydrocarbon contaminated wastewater, while the other retains the skimmed oil. The separated water is discharged to the storm sewer system. Equipment maintenance performed in this building includes changes of engine oil, hydraulic fluid, and anti-freeze. The oil from the engines is drained into pans from which it is transferred to containers for accumulation in the outside Waste Accumulation Area (SWMU No. 42). (149)

- Air: The past and ongoing potential for release to air from this unit is low because most of it is enclosed in concrete and it is located below ground.
- Subsurface Gas: The potential for generation of subsurface gas is unknown because the structural integrity of the unit is not regularly tested.

NO. 140

5.42 SWMU No. 42 - Building 1414 Waste Accumulation Area (Photos 70, 71)

5.42.1 Information Summary

Unit Description: This unit is a 20 by 20 foot area where drummed waste from Building 1414 is held. It is located west of the building on asphalt pavement. Chemical waste is held in 55-gallon carbon steel drums. In addition, there is a 500-gallon bouser for waste oil. The bouser is set on the ground and it is surrounded by sand bags piled two high. The drum tops are all covered with lids, and most of them are locked to prevent mixing waste. Some barrels are equipped with funnels. Surface runoff from this area washes into storm water drains. The waste drums from this unit are transferred by truck to the Central Waste Holding Area (SWMU No. 51). (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes managed in this unit are generated from the maintenance of ground equipment. This includes waste oil, hydraulic fluid, antifreeze, and JP-4.

Release Controls: The unit is in an asphalt-paved area which drains to the storm sewer system; however, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.42.2 Release Potential

- Soil/Ground Water: There is a low potential for release to soil/ground water from this unit because the unit is in an asphalt-paved area.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low. Runoff from this area washes down to a storm water drain. Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the closed drums are stored in the open air and some of the waste constituents are volatile.
- Subsurface Gas: There is a low potential for generation of subsurface gas from this unit because the unit is in an asphalt-paved area.

5.43 SWMU No. 43 - Building 1414 Non-Destructive Inspection (NDI) Waste Accumulation Point (No photo taken)

5.43.1 Information Summary

Unit Description: This unit consists of two metal carboys in the Non-Destructive Inspection Lab, Building 1414. One is a 5-gallon can where waste oil is poured, the other is a carboy for trichloroethane-contaminated rags. The waste oil is transferred to the Waste Accumulation Area (SWMU No. 42) bouser while the rags are discarded in a Facility Dumpster (SWMU No. 4) outside the building. The lab flooring is all concrete. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: This unit manages waste oil as well as 1,1,1-trichloroethane-contaminated rags.

Release Controls: There are no release controls associated with this unit.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.43.2 Release Potential

- Soil/Ground Water: There is a low potential for release to soil/ground water from this unit because the unit is located inside a building with a concrete floor.

- Surface Water: There is a low potential for release to surface water from this unit because the unit is located inside a building with a concrete floor.
- Air: The past and ongoing potential for release to air from this unit is low because the unit is located in a building.
- Subsurface Gas: There is a low potential for generation of subsurface gas from this unit because the unit is located inside a building with a concrete floor.

5.44 SWMU No. 44 - Building 1027 Oil/Water Separation System at the Aircraft Washing Hangar (Photos 53, 54)

5.44.1 Information Summary

Unit Description: The aircraft washing hangar in Building 1027 is equipped with an oil/water separation system for wastewater treatment prior to discharge into the storm sewer. The system consists of a network of floor drains in the hangar, underground trenches, and an oil/water separator located outside the building. Rinsate from aircraft washing flows down the drains to the separator. The hangar floor is paved with concrete, and the drainage system reportedly is constructed of concrete. Moreover, the separator consists of a below-ground concrete box, approximately 15 feet long and 6 feet wide, divided into two compartments. Each compartment can be accessed from the top through a manhole covered by an iron lid. The separator directs the waste oil towards a tank (SWMU No. 45), and then releases the water to the storm water sewer system through the tank's vault and underground conduits. (149)

Dates of Operation: The unit has been in operation since 1987.

Wastes Managed: The wastes managed consist of aircraft wash rinsate carrying detergent soap and PD-680 as well as grease.

Release Controls: The system appears to be constructed of concrete.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.44.2 Release Potential

- Soil/Ground Water: The potential for release to soil/ground water is low. The unit is only two years old and it appeared to be in good shape at the time of the VSI.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low because most of it is enclosed in concrete and it is located below ground.
- Subsurface Gas: The potential for generation of subsurface gas is low. Although the structural integrity of the unit is not regularly tested, it is believed to be sound. The unit is only two years old, and it appeared to be in good shape at the time of the VSI.

5.45 SWMU No. 45 - Building 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar (Photos 55, 56)

5.45.1 Information Summary

Unit Description: This unit is a concrete below-ground vault located outside Building 1027, about 30 feet from the Oil/Water Separator (SWMU No. 44). It is approximately 8 feet wide by 8 feet long by 8 feet deep. The vault walls are lined with metal. According to facility representatives, this vault holds a waste oil tank which receives the separated oil from the separator (SWMU No. 44), an oil pump, and wastewater overflow from the Separator discharge. The tank is presumably made of carbon steel; however, its capacity was not reported. This vault provides containment for excess wastewater discharge from the separator to compensate for the difference in flow rate between separator discharge and conduit capacity in the storm sewer system. (149)

Dates of Operation: The unit has been in operation since 1987.

Wastes Managed: The wastes managed consist of oily hydrocarbons from aircraft washings. This may include PD-680 as well as grease and engine oil. The unit also manages discharge water.

Release Controls: The system appears to be constructed of concrete. The oil tank is made of carbon steel.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.45.2 Release Potential

- Soil/Ground Water: The potential for release to soil/ground water is low. Although the structural integrity of the unit is not regularly tested, it is believed to be sound. The unit is only two years old and it appeared to be in good shape at the time of the VSI.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: There is no potential for release to air from this unit because it is enclosed in concrete and it is located below ground.
- Subsurface Gas: The potential for release of subsurface gas is low. Although the structural integrity of the unit is not regularly tested, it is believed to be sound. The unit is only two years old and it appeared to be in good shape at the time of the VSI.

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5.46 SWMU No. 46 - Building 1027 Waste Accumulation Area (Photo 57)

5.46.1 Information Summary

Unit Description: This unit consists of an area outside Building 1027, the aircraft washing hangar. Hazardous wastes generated in the building are drummed in 55-gallon, carbon steel closed-top drums, and held until they are picked up by DRMO. The areas surrounding the building are mostly concrete paved. The waste drums stand on the edge of the concrete pad next to unpaved ground. Reportedly, the drums are stored for less than 90 days. The waste drums from this unit are transferred by truck to the Central Waste Holding Area (SWMU No. 51). (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes managed in the drums are generated by Building 1027 operations. They include contaminated JP-4 (jet fuel), and PD-680, as well as chemical wash products, which mainly consist of complex hydrocarbons.

Release Controls: The drums are held on a concrete pad; however, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.46.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is moderate because the drums are adjacent to unpaved ground and due to the high water table.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low. Runoff from this area washes down to a storm water drain. Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the closed drums are stored in the open air.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low because the drums are adjacent to unpaved ground and they hold complex hydrocarbon waste.

5.47 SWMU No. 47 - Building 1015 Jet Engine Test Cell Oil/Water Separator
(Photo 52)

5.47.1 Information Summary

Unit Description: This unit is located just outside the Jet Engine Test Cell Building 1015. Floor drains route runoff from the building floor to this unit. This separator consists of a below-ground concrete box in two compartments of equal size. One of these holds the hydrocarbon-contaminated wastewater, while the other is a retention unit for the skimmed oil. The separated water is discharged to the storm sewer system. The unit has a total capacity of 600 gallons. Oil level in the oil compartment is monitored by a pressure gage sticking above ground. Every two months, the waste oil is picked up by a private contractor. This is handled by the Department of Civil Engineering. Also the unit is pumped out, on the average, every two to three months. However, it is not tested for structural integrity. Each of the two compartments can be accessed through a manhole which is covered by a 2-foot diameter iron lid. (149)

Dates of Operation: Reportedly, this unit has been in operation since 1965.

Wastes Managed: The waste managed consists of hydrocarbon-contaminated runoff from the jet engine test cell. The chemical products used in this building that are washed down the drain include engine lubricating oil (No. 7808), hydraulic fluid, and JP-4.

Release Controls: The unit is constructed of concrete.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.47.2 Release Potential

- Soil/Ground Water: The potential for release to soil/ground water is unknown because the structural integrity of the unit is not regularly tested.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: There is a low potential for release to air from this unit because it is enclosed in concrete and it is located below ground.
- Subsurface Gas: The potential for generation of subsurface gas is unknown because the structural integrity of the unit is not regularly tested.

5.48 SWMU No. 48 - Building 1048 Fuel Systems Shop Floor Drains (No photo taken)

5.48.1 Information Summary

Unit Description: Several floor drains in the fuel systems shop (Building 1048) receive waste from spills on the floor. Fuel from fuel spills along the rain water is washed down the drains. This shop holds tanks which collect jet fuel from aircraft reservoirs after they are emptied. The floor is paved with concrete. Fuel from fuel spills along with rain water is washed down the drains. According to facility representatives, all the drains are also constructed of concrete, and they discharge to the Storm Sewer System. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes managed consist of jet fuel rinsate from spills on the building floor.

Release Controls: The drains are located in a concrete paved area. All are constructed of concrete.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.48.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil/ground water from this unit is low since the ground is paved with concrete in and around the unit, and the drainage system is constructed of concrete.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because most of the drains are in covered and walled areas.
- Subsurface Gas: There is a low potential for generation of subsurface gas from this unit since the drains are reportedly constructed of concrete.

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5.49 SWMU No. 49 - Aircraft Washing Area No. 1 (Photos 73, 74)

5.49.1 Information Summary

Unit Description: This is a large rectangular space used for washing aircrafts. It is located within the explosive safety clear zone outside building 1048. It is approximately 300 feet in length, and 150 feet in width. A 6-inch high concrete berm delineates most of the perimeter of the area. There is a 200 feet wide opening in each of the southwest and northeast sides of the berm, allowing for an aircraft passage. The ground is completely paved with asphalt, and within the boundaries of the unit, it slopes towards a center drain. This drain consists of a 2 feet by 2 feet metal grid. It discharges through conduits to the East Gate Oil/Water Separator (SWMU No. 55) from which the water is directed to an NPDES outfall. According to facility representatives, all drains at the base are constructed of concrete. (149)

Dates of Operation: The unit is presently operational. It was installed in 1955. (1)

Wastes Managed: The unit manages rinsate from aircraft washing operations along with storm water runoff. Products used in the washing include PD-680 as well as different kinds of soaps.

Release Controls: The ground at and around the unit is paved with asphalt. The area is surrounded by a 6-inch high concrete berm within which the ground grades towards a center drain. The drains on the installation and their conduits are constructed of concrete. The unit appeared to be in good condition at the time of the VSI.

History of Releases: There is no documented history of releases. No evidence of release was noted during the VSI.

5.49.2 Release Potential

- Soil/Ground Water: There is a low potential for release to soil and ground water since the ground is paved with asphalt in and around the unit, and it is in good condition, and the drainage system is constructed of concrete.
- Surface Water: Releases from this unit are directed to the storm sewer system which discharges to surface water at four different NPDES permitted outfalls.
- Air: The past and ongoing potential for release to air is low since the unit is in the open air and it does not manage volatiles.
- Subsurface Gas: There is a low potential for generation of subsurface gas since the ground is paved with asphalt in and around the unit, and it is in good condition, and the drainage system is constructed of concrete.

5.51 SWMU No. 51 - Building 1190 Central Waste Holding Area (Photos 102, 103, 104)

5.51.1 Information Summary

Unit Description: The fenced land surrounding Building 1190 is temporarily used as a central waste holding area until construction is completed for the DRMO storage facility. This unit consists of 55-gallon waste drums grouped in three different clusters. One cluster, next to the western fence, comprises 50 empty drums (Photo 102). Another one, in the center of the area, consists of 60 drums containing water from facility monitoring wells to be discharged into the sanitary sewer. Both these clusters are placed on bare ground. The third cluster is on wooden pallets on asphalt, adjacent to the main oil/water separator (Photo 104). It consists of 15 drums of hazardous waste containing PD-680 and xylene. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes of concern that are managed in this unit are PD-680 and xylene. The empty drums may contain traces of chemical products used on base such as solvents, fuels, and oils.

Release Controls: The hazardous waste drums are held on wooden pallets atop asphalted ground. However, there are no provisions for secondary containment.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.52 SWMU No. 52 - Building 1190 Oil/Water Separation System (Photos 104-110)

5.52.1 Information Summary

Unit Description: This unit is located next to Building 1190. It provides final separation for wastewater from the storm sewer system. Then, the separated water is discharged into a ditch (SWMU No. 52) which leads to the South Gate Storm Water Interceptor (SWMU No. 54). From the Interceptor, the water is released into Farmers Branch at an NPDES outfall. The separator consists of two independent concrete structures. One of these is situated at a higher level than the other. It receives the wastewater, and separates out the oily material which it directs to either of two oil sumps. The remaining water drains in pipes to the lower level where it is held until discharge. Both parts of the separator, and the oil sumps, are constructed of 6-inch-thick concrete. The capacity of the oil sumps is not documented, neither is the structural integrity of the system. The upper level of the separator consists of a rectangular basin, 5 feet deep, 7 feet wide, and 10 feet long. The lower level, on the other hand, is a rectangular basin 16 feet deep, 18 feet long, and 8 feet wide. Surface runoff from the area surrounding Building 1190 collects in a basin adjacent to the upper level. This basin is 12 feet long, 10 feet wide and 3 feet deep. It has an open side which it shares with the separator; its bottom is only 4 inches lower than the top of the separator. This allows free flow of basin contents into the separator. Wastewater from other parts of the facility is pumped in directly to the separator upper level. (149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

110-110

Wastes Managed: The wastes managed consist of storm water runoff from various parts of the facility. This water contains oily substances and may be contaminated with engine oil, PD-680, fuel, hydraulic fluid, antifreeze, transmission fluid, etc.

Release Controls: The system is constructed of concrete.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.52.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is unknown because the structural integrity of the unit is not documented.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low. The separated wastewater is discharged into a ditch which leads to an Interceptor. There, the releases occur into an NPDES outfall.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the unit is not covered and some of the waste may be volatile.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas from this unit is unknown because the structural integrity of the unit is not documented.

5.53 SWMU No. 53 - Storm Water Drainage System (Photos 35, 36, 49, 114-117)

5.53.1 Information Summary

Unit Description: The Storm Water Drainage System comprises the facility's network of drainage ditches and subsurface man-made conduits. This includes the storm sewer system, as well as the drainage ditches in which flow follows the topography. Three of these ditches are of particular interest. These are the flightline drainage ditch, the Building 1190 drainage ditch, and the Building 1340 drainage ditch. The flightline drainage ditch catches storm water runoff from the runway area. Water flows from west to east, first along the west side (Photo 49), then beneath the runways; then, it enters Farmers Branch east of the runway (Photos 35, 36). Buildings 1190 and 1340 drainage ditches carry storm water runoff as well as releases from oil/water separators in the respective buildings (SWMU Nos. 52 and 67). The storm sewer system is reportedly constructed of concrete (1). Most of the drainage ditches are earthen, except for a section of the Building 1190 drainage ditch (1, 4, 149).

The Building 1190 drainage ditch (Photos 114-117) starts at a culvert, about 50 yards from the building, and carries runoff to the South Gate Storm Water Interceptor (SWMU No. 54) (149). It curves around the building, 4 yards from the Oil/Water Separator (SWMU No. 52) lower level. From the culvert to the POL Tank Farm (SWMU No. 68), about 250 yards, it is not lined. Beyond that point, it is concrete-lined (149). It was identified as an IRP site (number 13), and referred to as the flightline drainage ditch in the IRP reports (1). Reportedly, this ditch may receive discharges from the Aircraft Washing Areas (SWMU Nos. 49 and 50) and the Fuel Systems Shop (Building 1048). This can

occur via an overflow pipe in the drain line between the wash racks and the oil/water separator which is controlled by a valve in the drainline, or a rupture in the pipe joining the fuel systems shop and Building 1190 oil/water separator (1).

The drainage ditch located near Building 1340 is tributary to Farmers Branch near its point of confluence with the Trinity River. In addition to storm water runoff, it receives discharges from an Oil/Water Separator (SWMU No. 67) located immediately south of the Civil Engineering yard. This ditch is currently being investigated under the IRP program. It is designated Site Number 16, and referred to as an "Unnamed Stream." Reportedly, overflow from the separator was releasing petroleum, oil, and lubricants (POL) and high levels of iron into the ditch. (1, 150)

Dates of Operation: The system is presently operational. Although the exact date of operation startup is unknown, it is believed that this system has been in use ever since maintenance operations started at the facility.

Wastes Managed: The unit receives storm water runoff from areas throughout the facility as well as non-oily discharges (by design) from Oil/Water Separators. Also, any spilled material could potentially be introduced into the Storm Water Drainage System. This may contain contaminants such as petroleum products, solvents, and soap, diluted in the runoff.

Release Controls: The storm water system is reportedly constructed of concrete. A segment of the Building 1190 drainage ditch, near the POL Tank Farm (SWMU No. 68), is lined with concrete.

History of Releases: The drainage ditches near Buildings 1190 and 1340 are being investigated under the IRP program. Reportedly, evidence of contamination has been observed in the ditch (Site Number 13), near Building 1190. It included a white liquid (aircraft soap), as well as petroleum products at the surface of the water and along the banks. The ditch may receive discharges from the Aircraft Washing Areas (SWMU Nos. 49 and 50) and the Fuel Systems Shop (Building 1048). This can occur via an overflow pipe in the drain line between the wash racks and the oil/water separator which is controlled by a valve in the drain line, or a rupture in the pipe joining the fuel systems shop and Building 1190 oil/water separator. These releases would include JP-4, PD-680, and soap (1). On the other hand, overflow from Building 1340's Oil/Water Separator (SWMU No. 67) was reportedly polluting the existing ditch with POL and high levels of iron. Records of analyses performed on the stream show the detection of trace quantities of TCE (1). More recently, analytical results from the IRP Phase II Stage 7 investigation indicate levels of soil grease ranging from less than 1 to 7,100 mg/l, and high levels of aromatic compounds in the ground water. Also, according to that report, the source of contamination is suspected of being either a former gasoline station, or the POL Tank Farm (SWMU No. 68) (1, 150).

5.53.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from these units is high. The ditches are unlined and evidence of contamination has been documented in both the soil and the ground water. Also, the structure of the storm sewer system is questionable.

- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate. Most of the system discharges to interceptors prior to release to surface water under NPDES permits. However, releases from Building 1340's drainage ditch are not controlled.
- Air: The past and ongoing potential for release to air from this unit is low to moderate because the ditches are open to the air and due to the dilute nature of wastes.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas from these units is moderate since the ditches are unlined, and due to the past evidence of organic contamination, despite the dilute nature of the wastes.

5.54 SWMU No. 54 – Storm Water Interceptors (Photos 111-113, 130)

5.54.1 Information Summary

Unit Description: A total of five Storm Water Interceptors is reported to exist at the facility. They consist of below-ground concrete sumps which are used to hold wastewater from storm water runoff, prior to separation, or to discharge to surface water. Their main purpose is to provide containment for releases to surface water from accidental spills into the storm water sewer system. Two of these units were encountered during the VSI, the east gate interceptor and the south gate interceptor. The east gate interceptor holds incoming wastewater to the East Gate Oil/Water Separator (SWMU No. 55). It is approximately 6 feet by 4 feet. Its depth and capacity were not documented. It is fully enclosed and its interior can be accessed from a 1 foot by 2.5 feet covered manhole. On the other hand, the south gate interceptor holds wastewater which is ready to be released into the Farmers Branch. It is 30 feet by 50 feet, and 15 feet deep. Its top is not closed. It is covered with a metal grid. The structural integrity of these units is not documented. (149)

Dates of Operation: The exact date of operation startup is unknown. The units are presently operational.

Wastes Managed: The wastes managed in the Interceptors consist of storm water runoff. The quality of the water to be discharged is monitored under the NPDES permit. However, Interceptors releasing wastewater to oil/water separators contain oily contaminants, primarily consisted of hydrocarbons.

Release Controls: The units are constructed of concrete.

History of Releases: There is no documented history of releases for these units. No evidence of release was noted during the VSI.

5.54.2 Release Potential

- Soil/Ground Water: The potential for release to soil/ground water is unknown because the structural integrity of the units is unknown.
- Surface Water: All releases to surface water from the Interceptors are monitored under NPDES permits. However, units discharging to separators have a low potential for release to surface water because they are fully enclosed.
- Air: The past and ongoing potential for release to air from the south gate interceptors is low because the wastewater in units discharging to surface water is unlikely to contain volatiles and units discharging to separators are fully enclosed.
- Subsurface Gas: The potential for generation of subsurface gas is unknown because the structural integrity of the units is unknown.

5.55 SWMU No. 55 - East Gate Oil/Water Separator (Photos 119, 120, 121, 122, 123, 132, 136)

5.55.1 Information Summary

Unit Description: This unit is the main Civil Engineering (CE) separator. It is located near the east gate, 100 yards from the west fork of the Trinity River. Wastewater is pumped in from the east gate interceptor and, following separation, it is discharged to the river. The separator is in an asphalt-paved and fenced area. It is a basin constructed of concrete, and its sides rise 1 foot above the asphalt. The unit is divided into two east-west trending sections of equal size. They are separated by a concrete wall. Each of these sections is approximately 60 feet long and 30 feet wide. Also, there is a 6 foot wide oil compartment at the east end of each section. The oily mud is cleaned out by front end loaders and taken to the Fire Training Area (SWMU No. 19). During cleaning, the wastewater from the section is pumped to the adjacent half. The structural integrity of the unit is not documented.
(149)

Dates of Operation: The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The wastes managed consist of surface water runoff from various parts of the facility. This water contains oily substances and may be contaminated with engine oil, PD-680, fuel, hydraulic fluid, antifreeze, transmission fluid, etc.

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Release Controls: The system is constructed of concrete. The unit appeared to be in good condition during the VSI.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.55.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is unknown because the structural integrity of the unit is undocumented.
- Surface Water: Releases to surface water from this unit are monitored under an NPDES permit.
- Air: The past and ongoing potential for release to air from this unit is moderate because the unit is not covered.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas from this unit is unknown because the structural integrity of the unit is undocumented.

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5.56 SWMU No. 56 - Building 1405 Waste Accumulation Area (Photo 82)

5.56.1 Information Summary

Unit Description: This unit consists of one 55-gallon drum on a wooden pallet inside Building 1405. Building 1405 is an airplane hangar where small scale, "touch up" painting of aircraft is conducted. This waste is transferred into the drum by buckets. From the early 1940s to 1963 the waste generated within this building was disposed of by burning at the Fire Training Area No. 1 (SWMU No. 18). From 1963 to 1970, the waste was disposed of at the Fire Training Area No. 2 (SWMU No. 19). From 1970 to approximately 1982, the waste was removed offsite by a private contractor. From 1982 to the present, the waste is disposed of by contractor removal through DRMO. Prior to offsite removal, the container is transferred to the Central Waste Holding Area (SWMU No. 51).

Dates of Operation: The unit began operation in the early 1940s. The exact date of operation startup is unknown. The unit is presently operational.

Wastes Managed: The unit manages polyurethane waste paint and thinners.

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

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

5.56.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is low since the unit is located inside a building with a concrete floor.
- Surface Water: The past and ongoing potential for release to surface water from this unit is low since the unit is located inside a building.
- Air: The past and ongoing potential for release to air from this unit is low. Although the waste is volatile, the unit is located indoors.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low since the unit is located indoors on a concrete floor.

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5.57 SWMU No. 57 - Buildings 1432/1434 Waste Accumulation Area (Photo 84)

5.57.1 Information Summary

Unit Description: This unit is an outdoor container storage area. The unit consists of a concrete pad approximately 4 feet wide by 7 feet long by 3 inches thick. At the time of the VSI, five 55-gallon drums of waste were on the pad. The facility representative did not know the origin of the waste. Sand bags had been placed around the drums. The unit is not covered, and is not protected by any type of barricade. (149)

Dates of Operation: The exact startup date of operation is unknown. The unit is presently operational.

Wastes Managed: At the time of the VSI, the unit managed one drum of contaminated diethylene glycol, two drums of waste hydraulic oil, one drum of contaminated antifreeze, and one drum of new (product) cleaner and degreaser.

Release Controls: The unit consists of a concrete pad with sandbags surrounding the drums of waste.

History of Releases: There is no documented history of releases for this unit. However, at the time of the VSI, oily stains were noticed on the asphalt adjacent to the concrete pad and on a portion of a grassy area approximately 10 feet from the unit. Also, the asphalt was cracked in places. Runoff most likely flows toward a Storm Water Drainage System (SWMU No. 53) drain.

5.57.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high due to visual evidence of release, cracked asphalt, and no secondary containment.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate since any release to the ground surface has the potential of reaching the West Fork of the Trinity River via the Storm Water Drainage System (SWMU No. 53).
- Air: The past and ongoing potential for release to air from this unit is low since the wastes are stored in closed containers.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low to moderate due to the evidence of release, the cracked asphalt, and the absence of secondary containment.

released from this unit flowed approximately 30 feet over a grassy area to Farmers Branch.

- Surface Water: The past and ongoing potential for release to surface water from this unit is high. Wastewaters released from this unit flowed approximately 30 feet over a grassy area to Farmers Branch.
- Air: The past potential for release to air from this unit was high. The operation of the unit was conducted outdoors with no release controls to air. The ongoing potential for release to air is low as the unit is no longer in operation.
- Subsurface Gas: The past and ongoing potential to generate subsurface gas is low due to the chemical nature of the wastes.

5.59 SWMU No. 59 – Building 8503 Weapons Storage Area Waste Accumulation Area
(Photo 124)

5.59.1 Information Summary

Unit Description: The Weapons Storage Area is a 500-acre site located about 4 miles west of Carswell AFB, just north of White Settlement Road. Facilities at the site include two munitions inspection shops, 16 ordnance storage buildings, an entry control building, an emergency power plant, an explosive ordnance disposal (EOD) range, a radioactive waste disposal site, a water storage tank, and two water wells. The unit consists of one 55-gallon drum (grounded) resting on a wooden pallet outdoors. The unit is not covered or barricaded. The unit is located on concrete adjacent to a grassy area that slopes toward a drainage ditch approximately 30 feet away. The unit receives waste generated from Inspection Shop activities inside Building 8503. Shop activities include removing rust and repainting bombs used in military practice activities. Paint, and a naphtha-based paint thinner are used for this purpose. Waste from this unit is picked up by truck and transferred to the Central Waste Holding Area (SWMU No. 53). (149)

Dates of Operation: The unit began operation in January 1987. The unit is currently in operation.

Wastes Managed: The unit manages waste paint and waste paint thinner.

Release Controls: The unit is located on a section of concrete. No other release controls are associated with this unit.

5.60 SMU No. 60 - Building 8503 Radioactive Waste Burial Site (Photo 125)

5.60.1 Information Summary

Unit Description: This unit is located approximately 400 feet west of Building 8503 at the Weapons Storage Area. The unit consists of three dry wells constructed from 12-inch diameter cast iron pipes encased in 2-1/4 inches of grout. The pipes are vertically embedded 18 feet into the ground (1). It is not known if the cast iron pipes are sealed at the bottom, how the waste is stored (i.e., if concrete was poured in the pipe after periodic disposal), and if any rain water entered the pipes before they were permanently capped. The area surrounding the wells is fenced, with a locked gate. The unit is also located approximately 100 yards from a farm pond. Ground water, should it be flowing toward the farm pond, could potentially transport contaminants to the pond (149).

Dates of Operation: The unit was used from 1957 to 1969. The wells were permanently capped in 1969. (1)

Wastes Managed: The wells reportedly contain plutonium-contaminated swipe samples, rubber gloves, paper bags, and uranium oxide. (1)

Release Controls: The waste is stored within cast iron pipes encased in 2-1/4 inches of grout.

History of Releases: There is no documented history of releases for this unit. No evidence of release was noted during the VSI. The water supply for

the Weapons Storage Area is ground water. Ground water from the potable supply well was found to contain total radium (8.5 pCi/L) in excess of federal standards for drinking water (190). It is not known if the radium detected in ground water from this well is the result of releases from this unit (149).

5.60.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is unknown. It is not known if the cast iron pipes are sealed at the bottom of the boreholes, and how the waste is stored within the pipes (i.e., was concrete poured in the pipe after periodic disposal). It is also not known if any rain water entered the pipes before they were permanently capped.
- Surface Water: The past and ongoing potential for release to surface water could be high since a farm pond is located within 100 yards of the unit. Ground water, should it be flowing toward the farm pond, could transport contaminants to this surface water body.
- Air: The past potential for release to air is unknown due to the lack of information regarding past waste management practices. The ongoing potential for release to air is low since the pipes have been permanently capped since 1969.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is low due to the chemical nature of the waste managed by this unit.

5.61 SWMU No. 61 - Building 1320 Power Production Maintenance Facility Waste Accumulation Area (Photo 126)

5.61.1 Information Summary

Unit Description: This unit is an outdoor container storage area for waste generated inside Building 1320. Maintenance work on portable generators is conducted inside Building 1320. The unit consists of approximately 12 55-gallon drums resting on wooden pallets which rested on railroad ties. The unit has a gravel base. The unit is uncovered and without a berm to provide secondary containment. Some of the drums are grounded. Some of the drums are not labeled; others were labeled but the writing is not legible. A bung hole on one of the drums was open, and another drum had a label dated 16 September 1986. Generally, conditions at this unit are poor. (149)

Dates of Operation: The exact startup date of operation is unknown. The unit is presently operational.

Wastes Managed: The unit manages waste antifreeze, waste oil, and waste PD-680. Several 5-gallon cans of a hard material similar to roofing tar are also at this unit.

Release Controls: There are no release controls associated with this unit.

History of Releases: At the time of the VSI, oily runoff from the unit was draining to a storm sewer (Storm Water Drainage System, SWMU No. 53).

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5.61.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is high. Evidence of release was noted during the VSI. The unit was not bermed, and there were some grassy areas adjacent to the unit that could receive runoff.
- Surface Water: The past and ongoing potential for release to surface water from this unit is high. At the time of the VSI, oily rain water was observed flowing into a storm drain. All storm water flows into either Farmers Branch or the West Fork of the Trinity River.
- Air: The past and ongoing potential for release to air from this unit is low to moderate. At the time of the VSI, one of the drums had an open bunghole.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas is moderate to high high since the unit manages hydrocarbon materials and is adjacent to a grassy area, and evidence of release was noted during the VSI.

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5.62 SWMU No. 62 - Landfill No. 6 (No photo taken)

5.62.1 Information Summary

Unit Description: This unit is an inactive landfill, approximately one acre in size, located between the golf course and the flightline perimeter road. It is approximately 500 feet from a tributary of Farmers Branch. The site was originally a gravel pit used for base construction materials. After the gravel had been removed, the site was used for the burial of construction-related waste. (1)

Dates of Operation: The Landfill was operated between 1975 and 1978. The unit was covered in 1978.

Wastes Managed: The unit reportedly managed construction rubble, trees, and miscellaneous trash, as well as several drums of hydraulic fluid. Since the site is located near the flightline shops, small quantities of other hazardous materials are suspected of being disposed of at this unit.

Release Controls: The Landfill is covered; no other release controls are known for this unit.

History of Releases: There is no documented evidence of release from this unit.

5.62.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water from this unit is moderate since the unit was not equipped with any known release controls and is suspected of managing hazardous waste.
- Surface Water: The past and ongoing potential for release to surface water from this unit is moderate due to the location of a tributary of Farmers Branch within 500 feet of the site, and the potential for ground water flowing toward Farmers Branch transport contaminants to the tributary.
- Air: The past potential for release to air is high due to the volatile nature of the suspected wastes generated along the flightline. The ongoing potential for release to air is low. The unit has been covered since 1978.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is moderate to high due to the organic nature of wastes generated along the flightline.

5.63 SWMU No. 63 - Entomology Dry Well (No photo taken)

5.63.1 Information Summary

Unit Description: The unit was a dry well formerly located immediately to the west of the old entomology shed (Building 133) in the present Civil Engineering Compound, off Rogner Drives. The unit was used for the disposal of pesticide- and herbicide-contaminated rinse water. The site is currently vacant. Building 1338 has been destroyed and the area has been regraded. Chemicals stored and mixed at this site included malathion, diazinon, dursban, and chlordane (150). The West Fork Trinity River is within 2,000 feet of this site (4A).

Three monitoring wells were installed at this site as part of the IRP Phase II Stage I investigation. The wells were drilled to the base of the upper zone, or until at least ten feet of saturated zone was encountered. Soil samples were collected as the drilling progressed. Ground water samples were collected after the wells were completed. Ground water samples were also collected during the field work conducted 4-8 February 1985 and 4-8 March 1985. (4A)

Dates of Operation: The unit was in operation from 1965 to 1981. (150)

Wastes Managed: The unit managed pesticide- and herbicide-contaminated rinse water. Chemicals rinsed out of pesticide and herbicide application included malathion, diazinon, dursban, and chlordane. (150)

Release Controls: No known release controls are associated with this unit.

History of Releases: The results of the Phase II, Stage I investigation concluded that pesticides and herbicides have not been released from this unit into the soil and ground water in significant quantities. Lindane and endrin were detected in one downgradient monitoring well, but at levels which were not quantitatively measurable. (150)

5.63.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is high since lindane and endrine have been detected in one downgradient monitoring well.
- Surface Water: The past and ongoing potential for release to surface water is low. Although ground water can sometimes act as a mechanism for contaminant transport to surface water, the concentrations found in the monitoring well downgradient of this unit were very low.
- Air: The past and ongoing potential for release to air is low since wastes were disposed of below ground.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low due to the diluted nature of the chemicals disposed of into this unit.

5.64 SWMU No.64 - French Underdrain System (No photo taken)

5.64.1 Information Summary

Unit Description: The French Underdrain System is a below-ground drainage collection system constructed of perforated ceramic tile. The unit is located downgradient from the POL Tank Farm (SWMU No. 68). The unit collects fuels in the ground that are migrating downgradient from the POL Tank Farm. The unit discharges to the Building 1190 Oil/Water Separation System (SWMU No. 52).
(150)

Dates of Operation: The unit was installed in 1965 and is currently operational. (150)

Wastes Managed: The unit manages aromatic hydrocarbons.

Release Controls: No known release controls are associated with this unit.

History of Releases: There is no documented history of release for this unit.

5.64.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water could not be evaluated during the VSI since the unit is below ground and the structural integrity could not be verified.

- Surface Water: The past and ongoing potential for release to surface water is low to moderate. The unit is below-ground level, but because of its location, the structural integrity of the unit could not be verified. A potential exists for release to surface water via ground-water flow.
- Air: The past and ongoing potential for release to air is low since the unit is below-ground level.
- Subsurface Gas: The past and ongoing potential for generation of subsurface gas could not be evaluated since the structural integrity of the unit could not be verified at the time of the VSI.

5.65 SWMU No. 65 - Weapons Storage Area Disposal Site (No photo taken)

5.65.1 Information Summary

Unit Description: This unit is an area of bare ground, west of Building 8503 within the Weapons Storage Area. The area was used for the occasional dumping of waste cleaner and solvents (4A). Personnel working at Building 8503 were not aware of the location of this site (149).

Dates of Operation: The startup date for this unit is unknown. The unit is no longer active.

Wastes Managed: Paint thinners and trichloroethylene are the wastes suspected of being dumped at this area. Five to ten gallons of waste a year are estimated to have been disposed of at this area. (4A)

Release Controls: There are no release controls associated with this unit.

History of Releases: Analysis of soil at this area revealed TCE ranging from none detected to 0.0619 ug/g. (150)

5.65.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is high since TCE has been detected in the soil at this site.

- Surface Water: The past and ongoing potential for release to surface water is moderate. A drainage ditch is approximately 30 feet away. This ditch channels runoff approximately 100 yards to Live Oak Creek. Some of the waste disposed of on the ground could potentially be carried into Live Oak Creek by runoff.
- Air: The past potential for release to air was high due to the volatile nature of the wastes that were poured onto the ground. The ongoing potential is low since this method of disposal is no longer practical.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low since the chemical of the wastes managed and the configuration of the unit are most likely to facilitate the generation of subsurface gas.

5.66 SWMU No. 66 - Sanitary Sewer System (No photo taken)

5.66.1 Information Summary

Unit Description: The Sanitary Sewer System consists of a network of underground pipes. The Sanitary Sewer System collects sanitary wastewater as well as some industrial wastewater from the Visual Information Center Work Station Waste Accumulation Areas (SWMU No. 13). Other industrial activities that discharge waste to the Sanitary Sewer System are shown on Table 2-1. The wastewater collected by the Sanitary Sewer System at Carswell AFB is pumped to the City of Fort Worth for treatment. This has been the operation since the base was first constructed. (1)

Dates of Operation: The unit has been operational since 1942, when the facility began operation. The unit is currently active.

Wastes Managed: The unit manages sanitary wastewater from throughout the facility as well as industrial wastewater from various activities (see Table 2-1).

Release Controls: No known release controls are associated with this unit.

History of Releases: There is no known history of release from this unit.

5.66.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water could not be evaluated since the structural integrity of the unit could not be verified at the time of the VSI.
- Surface Water: The past and ongoing potential for release to surface water is low since the unit is located below ground.
- Air: The past and ongoing potential for release to air is low since the unit is underground.
- Subsurface Gas: Because the structural integrity of the unit is unknown, the past and ongoing potential for subsurface gas generation could not be evaluated.

5.68 SWMU No. 68 - POL Tank Farm (Photos 114, 117 (background))

5.68.1 Information Summary

Unit Description: The POL Tank Farm is a major fuel storage area located on the eastern side of Carswell AFB near the Building 1190 Oil/Water Separation System (SWMU No. 52). The Tank Farm consists of two 840,000-gallon tanks containing JP-4 jet fuel. Fuels are delivered to the tanks by truck, and pumped by pipeline to the flightline fuel pumphouses (1). During the early 1960s, fuels were discovered in the ground at this site and downgradient from this site. The contamination reportedly results from routine releases from the storage and handling of fuels at this site (150).

Dates of Operation: The precise startup date for this unit is unknown, but the unit has been in operation since at least the early 1960s. The unit is currently operational.

Wastes Managed: The unit manages JP-4 jet fuel.

Release Controls: A French Underdrain System (SWMU No. 64) was installed downgradient from the Tank Farm to collect fuels in the ground.

History of Releases: During the IRP Phase II Stage 1 investigation, organic compounds were detected in the soil (ranging from less than one to 1,300 ug/g) and ground water (ranging from less than one to 31,000 mg/l) beneath the Tank Farm. (150)

5.68.2 Release Potential

- Soil/Ground Water: The past and ongoing potential for release to soil and ground water is high since hydrocarbons have been detected in the ground at this unit.
- Surface Water: The past and ongoing potential for release to surface water is low since routine releases from this unit migrate into the subsurface.
- Air: The past and ongoing potential for release to air is low since the tanks are covered and any release migrate into the subsurface.
- Subsurface Gas: The past and ongoing potential for subsurface gas generation is low to moderate since the wastes released to the environment are not contained in a configuration susceptible to gas generation.

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6.0 AREA OF CONCERN

AOC No. 1 - Base Service Station

The Base Service Station is located in the east-central portion of the facility near the eastern boundary. In conjunction with the IRP Phase II Stage 2 investigation, one soil boring was drilled to a depth of 6 feet and three monitoring wells were installed at depths of 10 to 12 feet at this site. No data from these monitoring installations was available at the time of this report. Reportedly, a gasoline leak has occurred at the base gasoline station.

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7.0 CONCLUSIONS AND SUGGESTIONS FOR FURTHER ACTION

SWMU No. 1 - Pathological Waste Incinerator

Suggested Further Action: No further action is suggested for this unit.

Reasons: The structural integrity of the unit appeared adequate to prevent any inadvertent releases to environmental media.

SWMU No. 2 - Pathological Waste Storage Shed

Suggested Further Action: No further action is suggested for this unit.

Reasons: The potential for release to the various media from this unit is low. The unit appeared to be well constructed and well managed, with no visible signs of release observed during the VSI.

SWMU No. 3 - Metal Cans

Suggested Further Action: No further action is suggested for this unit.

Reasons: The cans appeared to be in adequate condition, and the unit generally appeared to be well-managed, with no visible signs of release observed during the VSI.

SWMU No. 7 - Building 1628 Oil/Water Separator

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. Also, there was no evidence at the time of the VSI to indicate a potential problem regarding releases from this unit.

SWMU No. 8 - Building 1628 Sludge Collection Tank

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit.

SWMU No. 9 - Building 1628 Work Station Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. The unit is simply a metal can used for the disposal of oily and solvent-contaminated rags.

SWMU No. 10 - Building 1617 Work Station Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. The release potential to soil, ground water, and surface water is low since the unit is located inside a building.

SWMU No. 11 - Building 1617 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. No evidence of release was noted during the VSI. The unit appeared clean and well managed.

SWMU No. 12 - Building 1619 Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Releases to the soil and potentially to the ground water and surface water was evident at the time of the VSI. The unit is not equipped with any secondary containment feature.

SWMU No. 13 - Building 1710 Visual Information Center Work Station Waste Accumulation Areas

Suggested Further Action: No further action is suggested for these units.

Reasons: There is no documented unauthorized history of releases for these units. No evidence of release was noted during the VSI. The units appeared well-managed at the time of the VSI.

SWMU No. 14 - Building 1060 Bead Blaster Collection Tray

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

SWMU No. 15 - Building 1060 Paint Booth Vault

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

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SWMU No. 16 - Building 1060 Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Release to soil, and potentially the ground water and surface water was evident at the time of the VSI. Sampling of the adjacent soil and storm water in the shallow drainage ditch may be warranted.

SWMU No. 17 - Landfill No. 7

Suggested Further Action: An RFI is warranted for this unit.

Reasons: The unit reportedly does not manage hazardous materials, but construction rubble landfills may contain hazardous constituents.

SWMU No. 18 - Fire Training Area No. 1

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Soil and ground-water contamination has been documented at this unit.

SWMU No. 19 - Fire Training Area No. 2

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Soil, ground water and surface water contamination has been documented at and/or near this unit. The unit is located within one mile of a residential area.

SWMU No. 20 - Waste Fuel Storage Tank

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Conditions noted during the VSI included general sloppiness and oil and/or fuel staining of the surrounding soil. Soil, ground water and surface water contamination have been documented nearby. It is suggested that an RFI for this unit be incorporated with that suggested for the adjacent Fire Training Area No. 2 (SWMU No. 19).

SWMU No. 21 - Waste Oil Tank

Suggested Further Action: An RFI is warranted for this unit.

Reasons: There is no documented history of releases for this unit. Should the unit be releasing hazardous constituents to the environment, the RFI suggested for the neighboring units should detect releases from this unit as well.

SWMU No. 22 - Landfill No. 4

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Organic compounds, and purgeable halocarbons (primarily TCE) have been detected in both soil and ground water near this site.

SWMU No. 23 - Landfill No. 5

Suggested Further Action: An RFI is warranted for this unit.

Reasons: TCE has been detected in both soil and ground water near this site.

SWMU No. 24 - Waste Burial Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Ground water near this site has been found to contain TCE of concentrations ranging from 1,870 to 5,000 ug/l.

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SWMU No. 25 - Landfill No. 8

Suggested Further Action: An RFI is warranted for this unit.

Reasons: The potential exists that some materials buried at this unit may contain hazardous constituents. The site is located along the flightline, in the general vicinity of Landfills No. 4 (SWMU No. 22), No. 5 (SWMU No. 23) and the Waste Burial Area (SWMU No. 24) all of which received hazardous materials.

SWMU No. 26 - Landfill No. 3

Suggested Further Action: An RFI is warranted for this unit.

Reasons: The unit is suspected of receiving small quantities of hazardous waste, and is within one mile of a residential area.

SWMU No. 27 - Landfill No. 10

Suggested Further Action: An RFI is warranted for this unit.

Reasons: At the time of the VSI, the unit managed concrete rubble and tree limbs. No evidence of hazardous materials was noted during the VSI. There is no documented history of releases for this unit, however, the trench was full of standing water precluding a complete assessment of waste types. If hazardous constituents are present, the presence of standing water would facilitate constituent migration.

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SWMU No. 28 - Landfill No. 1

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Oil and grease, heavy metals, and low concentrations of purgeable halocarbons, have been detected in ground water at this unit. Also, the unit is approximately 300 feet from the West Fork Trinity River, and within 1,000 feet of a population of greater than 100 people.

SWMU No. 29 - Landfill No. 2

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Moderate quantities of hazardous waste is suspected of being managed by this unit. Building 1055 is situated on top of the old landfill. The site is within 1,000 feet of an estimated population of greater than 1000 people. Soil gas monitoring may be warranted.

SWMU No. 30 - Landfill No. 9

Suggested Further Action: An RFI is warranted for this unit.

Reasons: The potential exists that some of the materials buried at this unit may contain hazardous constituents.

SWMU No. 31 - Building 1050 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 32 - Building 1410 Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: At the time of the VSI, the concrete, both inside and outside the bermed (sand bags) area, was stained with an oily material. Runoff from the site potentially could enter the storm water drainage near the unit.

SWMU No. 33 - Building 1420 Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Conditions at the unit were generally sloppy, and release of waste to the concrete base was evident during the VSI. The unit was not equipped with secondary containment to prevent runoff from coming in contact with the adjacent grassy area.

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SWMU No. 34 - Building 1194 Waste Accumulation Area

Suggested Further Action: An RFI is suggested for this unit.

Reasons: Evidence of release was observed during the VSI. Releases from this unit threaten the existing soil and ground water conditions, as well as subsurface gas generation.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 35 - Vehicle Refueling Shop (Building 1194) Oil/Water Separation System

Suggested Further Action: An RFI is suggested for this unit.

Reasons: The wastewater is directly released onto the parking lot without any chemical monitoring. It presents a threat to soil, ground water, and subsurface gas releases.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 36 - Building 1191 Waste Accumulation Area

Suggested Further Action: An RFI is suggested for this unit.

Reasons: Evidence of release was observed during the VSI. Releases from this unit threaten the existing soil and ground water conditions, as well as subsurface gas generation.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 37 - Vehicle Maintenance Shop (Building 1191) Oil/Water Separation System

Suggested Further Action: No further action is suggested for this unit.

Reasons: The potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 38 - Building 1269 PCB Transformers Building

Suggested Further Action: No further action is suggested for this unit.

Reasons: The potential for releases from this unit is negligible.

SWMU No. 39 - Building 1643 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 40 - Building 1643 Oil/Water Separation System

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is unknown.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 41 - Building 1414 Oil/Water Separation System, Field Maintenance Squadron Aerospace Ground Equipment

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is unknown.

Supplemental Information: The structural integrity of the system should be routinely tested.

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SWMU No. 42 - Building 1414 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 43 - Building 1414 Non-Destructive Inspection (NDI) Waste Accumulation Point

Suggested Further Action: No further action is suggested for this unit.

Reasons: There are no potentials for release to natural media from this unit.

SWMU No. 44 - Building 1027 Oil/Water Separation System at the Aircraft Washing Hangar

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 45 - Building 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 46 - Building 1027 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: Consider installation of adequate secondary containment.

SWMU No. 47 - Building 1015 Jet Engine Test Cell Oil/Water Separator

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is unknown.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 48 - Building 1048 Fuel Systems Shop Floor Drains

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 49 - Aircraft Washing Area No. 1

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 50 - Aircraft Washing Area No. 2

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 51 - Building 1190 Central Waste Holding Area

Suggested Further Action: An RFI is suggested for this unit.

Reasons: Although the waste holding area is used temporarily, the soil in this area may be exposed to contaminants. This area is used temporarily until construction is completed at the Central DRMO Storage Area.

SWMU No. 52 - Building 1190 Oil/Water Separation System

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is unknown.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 53 - Storm Water Drainage System

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Evidence of release was detected in the past and the unit has significant potentials for release to the surrounding media.

Supplemental Information: The structural integrity of the sewer system warrants further investigation. Consider installation of a liner for the ditches to prevent uncontrolled releases to soil and ground water.

SWMU No. 54 - Storm Water Interceptors

Suggested Further Action: No further action is suggested for these units.

Reasons: The overall potential for releases from these units is low.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 55 - East Gate Oil/Water Separator

Suggested Further Action: No further action is suggested for this unit.

Reasons: The overall potential for releases from this unit is unknown.

Supplemental Information: The structural integrity of the system should be routinely tested.

SWMU No. 56 - Building 1405 Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of release for this unit, and no evidence of release was noted during the VSI. The unit is located inside a building, thus release potentials to soil, ground water, and surface water are low.

SWMU No. 57 - Buildings 1432/1434 Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Evidence of release was noted during the VSI, the surrounding asphalt was cracked, and the unit was not equipped.

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SWMU No. 58 - Pesticide Rinse Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: There has been confirmed disposal of small quantities of pesticides at this unit, which is approximately 30 feet from Farmers Branch.

SWMU No. 59 - Building 8503 Weapons Storage Area Waste Accumulation Area

Suggested Further Action: No further action is suggested for this unit.

Reasons: There is no documented history of releases for this unit. No evidence of release was noted during the VSI.

SWMU No. 60 - Building 8503 Radioactive Waste Burial Site

Suggested Further Action: No further action under corrective action authorities is suggested for this unit.

Reasons: There is no documented history of releases for this unit.

Supplemental Information: The Base Bio-Environmental Engineering Department samples and analyses the ground water from the potable well quarterly. Personnel onsite use bottled water for drinking. The unit may be the site of a release of radioactive constituents and may require further investigation under the appropriate authority.

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SWMU No. 61 - Building 1320 Power Production Maintenance Facility Waste Accumulation Area

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Conditions at this unit were generally poor. At the time of the VSI, oily runoff from the unit was flowing into a storm sewer.

SWMU No. 62 - Landfill No. 6

Suggested Further Action: An RFI is warranted for this unit.

Reasons: The unit is suspected of receiving small quantities of hazardous waste. It is located within one mile of residential areas and within 3 miles of a population greater than 1,000 people served by a ground-water supply.

SWMU No. 63 - Entomology Dry Well

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Further sampling of the ground water is suggested to compare the quantities of chemicals found (if any) in the ground water to those discovered during the field work conducted during February and March 1985. Additional ground water data should be collected to further characterize the nature and extent of contamination from this unit.

SWMU No. 64 - French Underdrain System

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Soil sampling is suggested to confirm that the underdrain system is indeed collecting the hydrocarbon material and not releasing hazardous constituents to soil or ground water.

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SWMU No. 65 - Weapons Storage Area Disposal Site

Suggested Further Action: An RFI is warranted for this unit.

Reasons: TCE has been detected in the soil at this site. Additional sampling is suggested to characterize the extent of TCE contamination.

SWMU No. 66 - Sanitary Sewer System

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Soil sampling at various locations adjacent to the sanitary sewer piping may provide information concerning the structural integrity of the unit, and the possibility of unacceptable releases.

SWMU No. 67 - Building 1340 Oil/Water Separator

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Ground water is reportedly entering this separator, thus indicating poor structural integrity. If ground water is indeed entering the separator, releases to soil and ground water may be occurring at this unit.

SWMU No. 68 - POL Tank Farm

Suggested Further Action: An RFI is warranted for this unit.

Reasons: Both soil and ground-water contamination has been detected at this unit.

AOC No. 2 - Base Service Station

Suggested Further Action: Further investigation may be warranted.

Reasons: The soil and water quality data from these monitoring installations should be examined, and if necessary, additional sampling should be considered to fully characterize the plume resulting from the gasoline leak.

8.0 REFERENCES

1. CH₂M-Hill, Installation Restoration Program Records Search for Carswell Air Force Base, Texas, prepared for Strategic Air Command, Deputy Chief of Staff, Engineering and Services, Offutt Air Force Base, Nebraska, February, 1984.
2. Note: Packet includes a second copy of reference without cover page of L of Ts, but includes 11 28 x 24 plates not part of report.
3. Hazardous Materials Technical Center, RCRA Part B Permit Application, DRMO Carswell [Draft], prepared for Defense Reutilization and Marketing Service, Battle Creek, Michigan, March 13, 1987.
4. Radian Corporation, Installation Restoration Program, Phase II - Confirmation/Quantification, Stage 1, Final Report for Carswell AFB, Texas, prepared for Headquarters Strategic Air Command Surgeon's Office (HQ SAC/SGPB) Offutt AFB, Nebraska, 68113, October, 1986.

Note in three packets:
 4A - Volume 1 is text
 4B - Volume 2 is Appendix A
 4C - Volume 3 is Appendices B-L
5. Marlon Henderson, FWAPC, (Investigation in response to Complaint #000668), Carswell Air Force Base, TA-0079-D, April 19, 1985.
6. Col. Mohn, letter to Mr. Bill Stewart, Executive Director, Texas Air Control Board, Austin, Texas, July 31, 1985.
7. Marlon Henderson, FWAPC, (Investigation in response to Complaint #000119), Carswell Air Force Base, TA-0079-D, August 22, 1985.
8. (Notes, Permits, Applications pertaining to Destructor D-100 incinerator)
9. Clayton Smith, P.E., Letter of Transmittal: Workfile (Emission Estimates): re Petition for Rule Charges dated August 3, 1984, to Max R. Pierce, Commander, 7th Combat Support Group, Carswell Air Force Base, October 3, 1984.
10. Texas Air Control Board, Permit Application Summary, Air Launched Cruise Missile Support Facilities, Permit 12363, October 2, 1985.
11. Texas Air Control Board, Permit Application Summary, Air Launched Cruise Missile Support Facilities, Permit X 2363, July 21, 198_.
12. Texas Air Control Board, Permit Application Summary, 70 HP Boiler, Permit 15823, November 12, 1985.

13. Major Paul D. Garcia, USAF, Chief, Environmental Planning Division, Air Force Regional Civil Engineer Central Region, Dallas, Texas, letter to Mr. Randy A. Hamilton, Texas Air Control Board Permits Section, Austin, Texas, March 2, 1984 (with attachments).
14. J.R. Millican, Chief, Engineering and Planning, Headquarters, 7th Combat Support Group, Carswell Air Force Base, Texas, letter to Clayton Smith, P.E., Technical Services Division, Texas Air Control Board, Austin, Texas, December 6, 1984 (no attachments).
15. Pages 4-17 twice of a document pertaining to J-4 vapor emissions from underground operating tanks and from refueling vehicles.
16. Compliance Agreement for Controlling Vapor Emission from JP-4 Underground Tanks and Truck Refueling at Carswell AFB, Texas (draft), February 1, 1985?
17. T.C. Michael, FWAPC, Investigation in response to complaint, Carswell Air Force Base Hospital, TA-0079D, September 9, 1986.
18. John B. Turney, Director, Legal Division, Texas Air Control Board, Austin, Texas, letter to Col. William F. Mohn, Jr., Commander, 7th Combat Support Group, Carswell Air Force Base, Texas, March 10, 1986.
19. G.A. Giles, Director, Plant Engineering, Chevrolet-Pontiac-Canada Group, Arlington Plant, General Motors Corporation, Arlington, Texas, letter to Mr. Eli Bell, Executive Director, Texas Air Control Board, Austin, Texas, March 17, 1986.
20. Texas Air Control Board, (1st page of Reference 25), letter to Capt. Roger Bousum, Chief Bio-Environmental Engineering, Carswell Air Force Base, Robert L. Thompson, Strategic Hospital/SGPB, Carswell AFB, Texas.
21. Eddie Mack, Investigation/Violation Form, Investigation Number 522388A, May 20, 1988.
22. G. Bearden, Investigation Form, Investigation Number 665599A, October 13, 1987.
23. Eddie Mack, Investigation/Violation Form, Investigation Number 520269H, July 21, 1987.
24. Jesse Macias, Jr., Investigation Form, Investigation Number 519165A, November 7, 1986.
25. Melvin, V. Lewis, Regional Director, Region 8, Fort Worth, Texas Air Control Board, letter to Capt. Roger Bousum, Chief, Bio-environmental Engineering, Carswell Air Force Base, Robert L. Thompson, Strategic Hospital/SGPB, Carswell AFB, Texas, May 31, 1988.
26. Eddie Mack, Investigation Report, Investigation Number 522514A, June 24, 1988.

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27. Eddie Mack, Investigation/Violation Form, Investigation Number 522388A, May 20, 1988.
28. Guy Bearden, Investigation Form, Investigation Number 665599A (pl or 3), October 13, 1987.
29. H.G. Bradbury, PWAPC, Texas Air Control Board, (Report of Investigation), June 27, 1983.
30. Melvin Lewis, Texas Air Control Board, Interoffice Memorandum) to John Turney, Legal Division, February 15, 1983.
31. Jesse Macias, Jr., Texas Air Control Board Source Investigation System, February 1, 1983.
32. R. Wayne Burnop, P.E., Technical Services Division, Memorandum to John Turney, Legal Division, request for Legal Opinion Regulation V, Rule 115.111(1).
33. (Appears to be a draft of Reference 33 dated August 15, 1984.)
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36. File Review, Carswell Air Force Base, Fort Worth, Texas, CDS Number 5070 00050.
37. Pamela C. Eddis-Klein, Pei Associates, Inc., Arlington, Texas, Volatile Organic Compound Inspection Report, Carswell Air Force Base, Fort Worth, Texas, prepared for U.S. Environmental Protection Agency, Region VI, Dallas, Texas, December, 1984.
Note: References 5-37 are in one bundle.
- 38a. L.B. Griffith, Jr., Director, Surveillance and Enforcement Division, Bureau of Solid Waste Management, letter to Col. Max R. Pierce, Base Commander, Headquarters, 7th Combat Support Group (SAC), Carswell Air Force Base, Texas, August 15, 1984.
- 38b. Col. Max R. Pierce, Commander, Headquarters, 7th Combat Support Group (SAC), Carswell Air Force Base, Texas, letter to Texas Department of Health, Austin, Texas, July 5, 1984.
39. L.B. Griffith, Jr., Director, Surveillance and Enforcement Division, Bureau of Solid Waste Management, Texas Department of Health, Austin, Texas, letter to Base Commander, 7 CSG/DEEV, Carswell Air Force Base, Carswell AFB, Texas, June 18, 1984.

40. Hector H. Mendieta, P.E., Director, Permits Division, Bureau of Solid Waste Management, letter to Base Commander, 7 CSG/DE, Carswell Air Force Base, Texas, May 29, 1984.
41. Seyed Mohammadi, Hazardous Waste Inspection Report, Bureau of Solid Waste Management, TDH File Number 65004, May 2, 1984.
42. L.B. Griffith, P.E., Director, Surveillance and Enforcement Division, Bureau of Solid Waste Management, letter to Base Commander, 7 CSG/DEEV, Carswell Air Force Base, Fort Worth, Texas, November 28, 1983.
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44. Hector H. Mendieta, Director, Permits Division, Bureau of Solid Waste Management, letter to Base Commander, 7 CSG/DE, Carswell Air Force Base, Texas, September 9, 1982.
45. M. Seyed Mohammadi, Hazardous Waste Inspection Report, Bureau of Solid Waste Management, Texas Department of Health, TDH Registration Number 65004, September 9, 1982.
46. Col. Gerald E. Bond, Base Civil Engineer/7 CES Commander, Headquarters, 7th Combat Support Group (SAC), Carswell Air Force Base, Texas, letter to Texas Department of Health Permits Division, Bureau of Solid Waste Management, Austin, Texas, July 20, 1982.
47. Hector H. Mendieta, P.E., Director, Permits Division, Bureau of Solid Waste Management, letter to Base Commander, 7 CSG/DE, Carswell Air Force Base, Texas, July 5, 1982.
48. M. Seyed Mohammadi, Texas Department of Health, Public Health Region 5, Austin, Texas, RCRA Inspection Report Transmitted by Interoffice Memorandum to L.B. Griffith, P.E., Director, Surveillance and Enforcement Division, February 22, 1982. (Attached to letter from Col. Gerald E. Bond, Base Civil Engineer/7 CES Commander, Headquarters, 7th Combat Support Group (SAC), Carswell Air Force Base, Texas, to Texas Department of Health, Public Health Region 5, Arlington, Texas, June 2, 1982.
49. Permit Application for Industrial Solid Waste Storage/Processing/Disposal Facility, transmitted by Col. Gerald E. Bond, Base Civil Engineer/7 CES Commander, Headquarters, 7th Combat Support Group (SAC), Carswell Air Force Base, Texas, to Texas Department of Water Resources, Austin, Texas, transmitted by Texas Department of Health, Interoffice from M. Seyed Mohammadi, Public Health Region 5 to L.B. Griffith, Jr., P.E., Director, Surveillance and Enforcement Division.
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51. (Folded four 24" x 28" maps aerial photographs)

Notes:

References 38-51 are in one bundle.
References 52-90 are in one bundle (mostly or entirely letters).

References 91-97 are mostly inspection reports.
References 98-143 are mostly correspondence.
References 91-143 are in file folder.
Reference 144 is six 28" x 24" drawings.
Reference 145 is Enforcement Screening Comm. Actions.
References 46-148 are Inspection Reports.

149. A.T. Kearney, Inc. Visual Site Inspection, February 13-16, 1989.
150. Radian Corporation, Installation Restoration Program, Phase 2, Stage 2, Draft Technical Report for Carswell AFB, Texas, September 1988.
151. N.I. Sax and R.J. Lewis, Sr., Hawley's Condensed Chemistry Dictionary, Eleventh Edition, 1987.
152. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Tarrant County, Texas, June 1981.

VSI Summary Trip Report
Carswell AFB
Fort Worth, Texas
February 13-16, 1989

This appendix presents the photographs taken during the four-day Visual Site Inspection (VSI) at Carswell AFB in Fort Worth, Texas. The VSI was conducted by the Kearney Team from February 13 to February 16, 1989. Photograph times are indicated in the lower right corner of each photograph. Photograph times are for the central time zone, and are in military time (24-hour clock).

The Kearney Team conducting the VSI consisted of Randa Smine and Mark Lane of Kearney/Centaur.

Cold, rainy weather conditions were present for all of the VSI. Morning temperatures were in the upper 30s warming to the mid-40s by afternoon. Strong winds were present at times.

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1. Carswell AFB, Texas 2/13/89 2:09pm

Closeup of the door of the Pathological Waste
Incinerator (SWMU No. 1).



3. Carswell AFB, Texas 2/13/89 2:10pm

Metal cans (SWMU No. 3) next to the Pathological Waste Incinerator (SWMU No. 1).



4. Carswell AFB, Texas 2/13/89 2:13pm

Pathological Waste Storage Shed (SWMU No. 2).



5. Carswell AFB, Texas 2/13/89 2:23pm

View of the Building 1628 Waste Accumulation Area (SWMU No. 5).



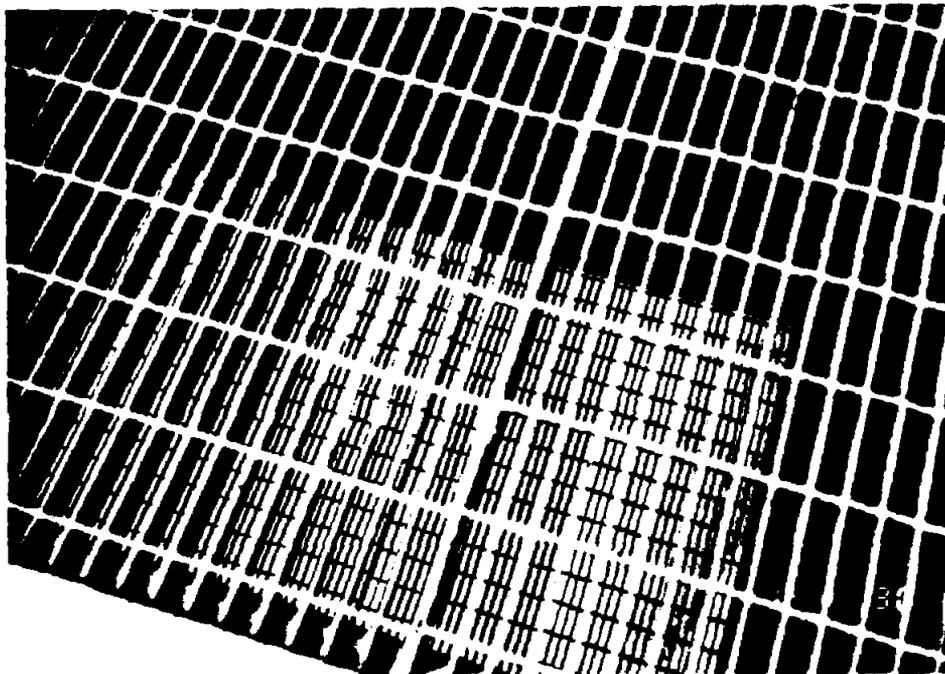
6. Carswell AFB, Texas 2/13/89 2:23pm

Fuel pumps at Building 1628.



9. Carswell AFB, Texas 2/13/89 2:26pm

Used batteries on pallets outside Building 1628 Waste Accumulation Area (SWMU No. 5). Note the stressed vegetation.



10. Carswell AFB, Texas 2/13/89 2:30pm

Closeup of Building 1628 Oil/Water Separator (SWMU No. 7).

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1989-02-13 14:26

1989-02-13



11. Carswell AFB, Texas 2/13/89 2:30pm

View of the Oil/Water Separator (SWMU No. 7) at Building
1628.

14 - 30



13. Carswell AFB, Texas 2/13/89 2:35pm

Epoxy stripper vat outside Building 1628.

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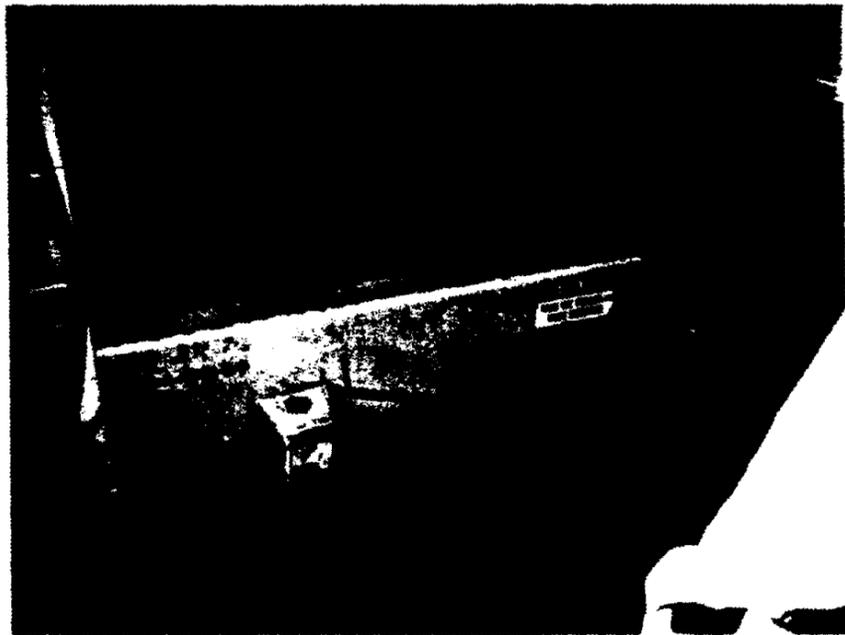
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14. Carswell AFB, Texas 2/13/89 2:41pm
Dry paint booth, Building 1628.

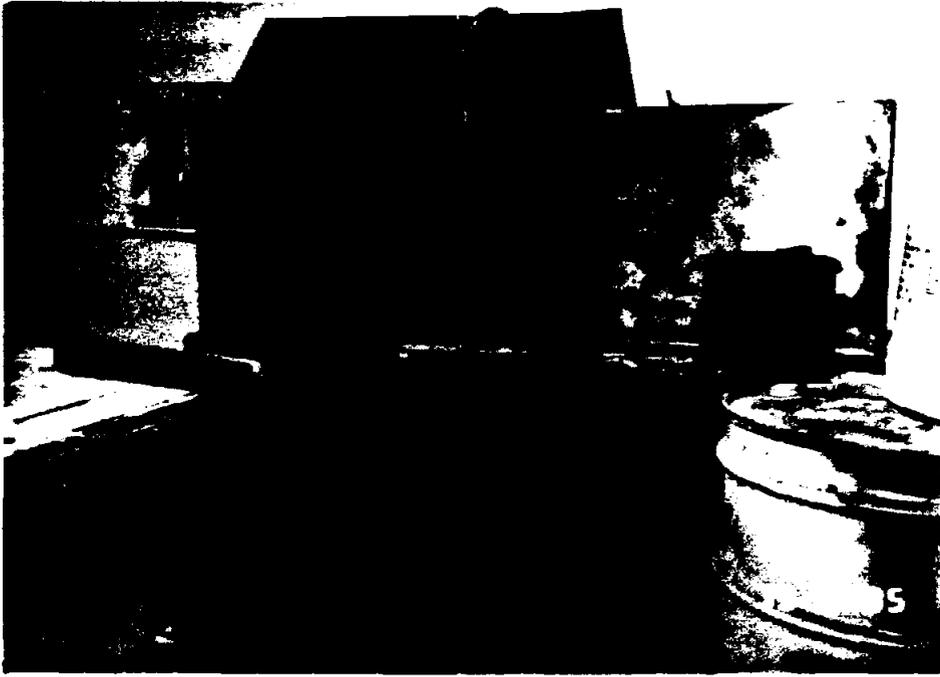


15. Carswell AFB, Texas 2/13/89 2:47pm
PD-680 cleaning tank, Building 1628.



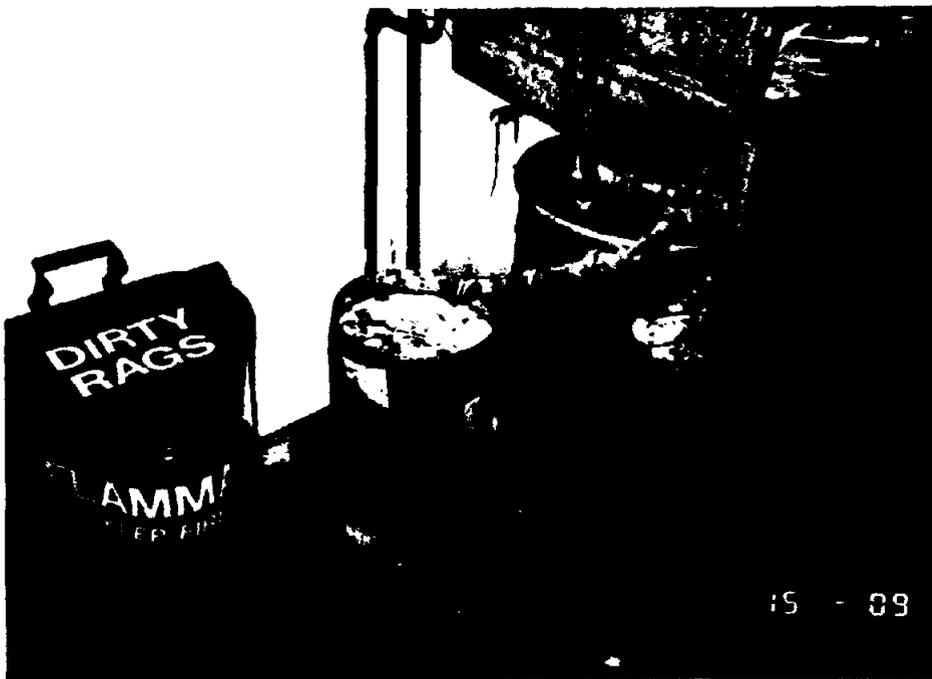
16. Carswell AFB, Texas 2/13/89 2:53pm
Building 1628 Work Station Waste Accumulation Area (SWMU
No. 9).

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17. Carswell AFB, Texas 2/13/89 3:05pm

Building 1617 Work Station Waste Accumulation Area (SWMU No. 10).



18. Carswell AFB, Texas 2/13/89 3:09pm

Building 1617 Work Station Waste Accumulation Area (SWMU No. 10).

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19. Carswell AFB, Texas 2/13/89 3:10pm
Etchant tank, Building 1617.



20. Carswell AFB, Texas 2/13/89 3:14pm
Building 1617 Waste Accumulation Area (SWMU No. 11).



21. Carswell AFB, Texas 2/13/89 3:24pm

Building 1619 Waste Accumulation Area (SWMU No. 12).



22. Carswell AFB, Texas 2/13/89 3:28pm

Building 1619 Waste Accumulation Area (SWMU No. 12).
Note dark stain on the soil near the white barrels.

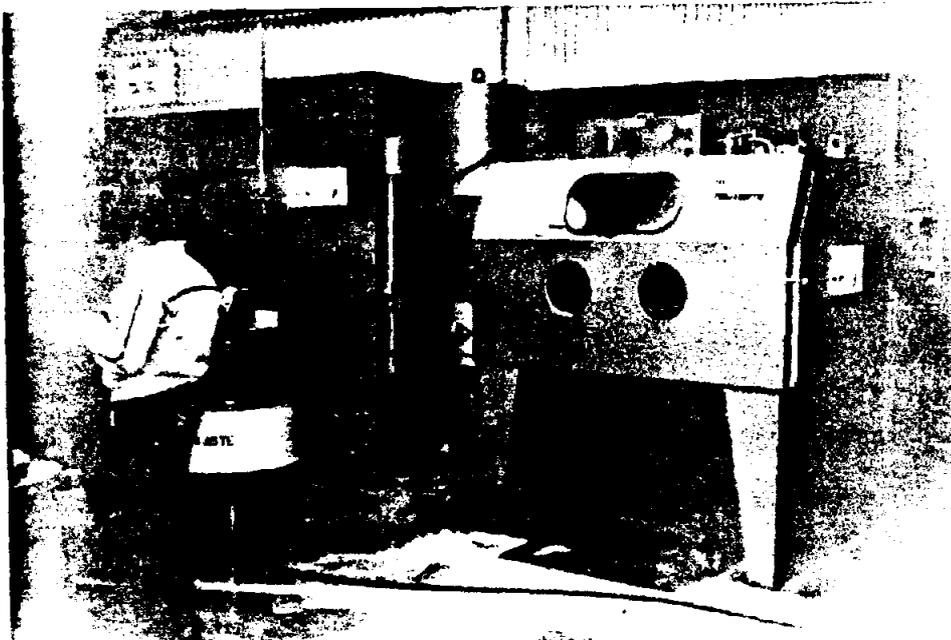
14-000-004

1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



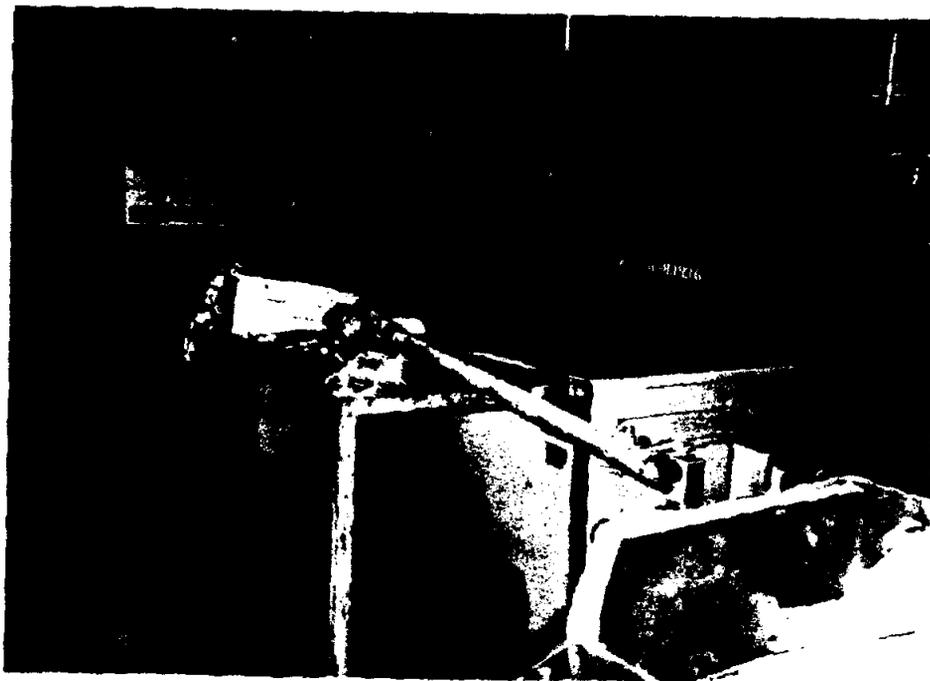
25. Carswell AFB, Texas 2/13/89 4:16pm

Process tanks in the black and white processing room,
photolab, Building 1710.



26. Carswell AFB, Texas 2/14/89

Building 1060 Bead Blaster [Collection Tray (SWMU
No. 14) not visible].



27. Carswell AFB, Texas 2/14/89 9:08am

Hot paint stripper dip tank and soap tank (on the left),
at Building 1060.



28. Carswell AFB, Texas 2/14/89 9:09am

Drum of rags contaminated with paint and MEK, Building
1060.



32. Carswell AFB, Texas 2/14/89 9:26am

General view of Building 1060 Waste Accumulation Area (SWMU No. 16).



33. Carswell AFB, Texas 2/14/89 9:28am

Palletted waste drums in Building 1060 Waste Accumulation Area (SWMU No. 16).

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34. Carswell AFB, Texas 2/14/89 9:32am

View of the runoff ditch behind Building 1060 Waste Accumulation Area (SWMU No. 16). Note the stained soil.



35. Carswell AFB, Texas 2/14/89 9:39am

View of the culverts carrying Farmers Branch under the north-south runways with the approximate location of Landfill No. 8 (SWMU No. 25) in the background (left).



36. Carswell AFB, Texas 2/14/89 9:39am

Storm Water Drainage System (SWMU No. 53) (eastward flow), east of the runway.



37. Carswell AFB, Texas 2/14/89 9:41am

Landfill No. 7 (SWMU No. 17).

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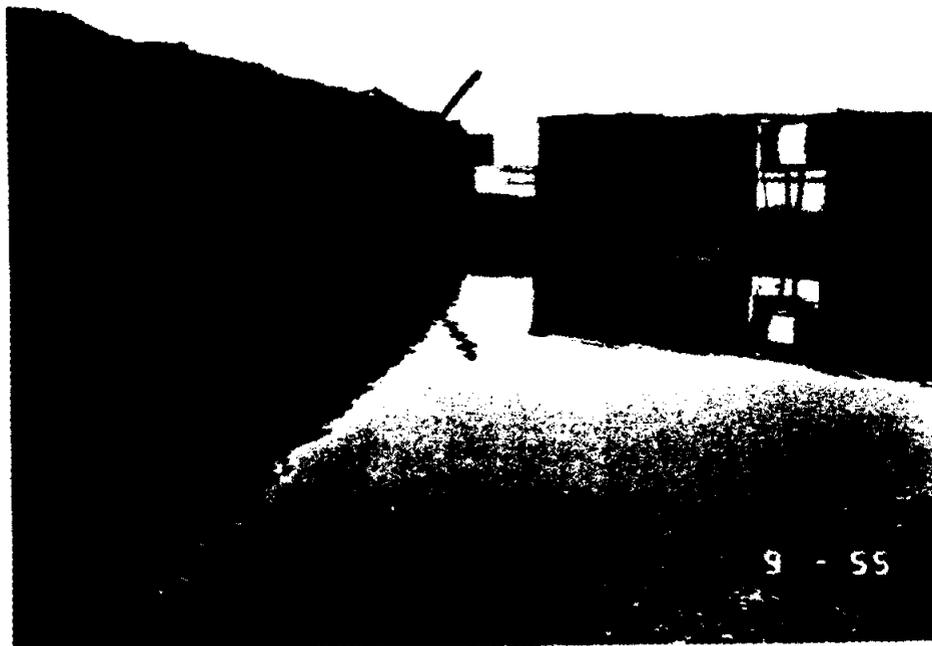
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38. Carswell AFB, Texas 2/14/89 9:54am

View of Fire Training Area No. 2 (SWMU No. 19), the earthen berms surrounding it, and a drain line.



39. Carswell AFB, Texas 2/14/89 9:55am

Burn structures in the center of Fire Training Area
No. 2 (SWMU No. 19)



40. Carswell AFB, Texas 2/14/89 9:55am

View of the east side of Fire Training Area No. 2 (SWMU
No. 19).

PHOTO 0101

1989 02 14 09 55 AM CARSWELL AFB TEXAS SWMU 19



41. Carswell AFB, Texas 2/14/89 9:56am

Top view of Waste Fuel Storage Tank (SWMU No. 20) for fire training exercises at Fire Training Area No. 2 (SWMU No. 19).



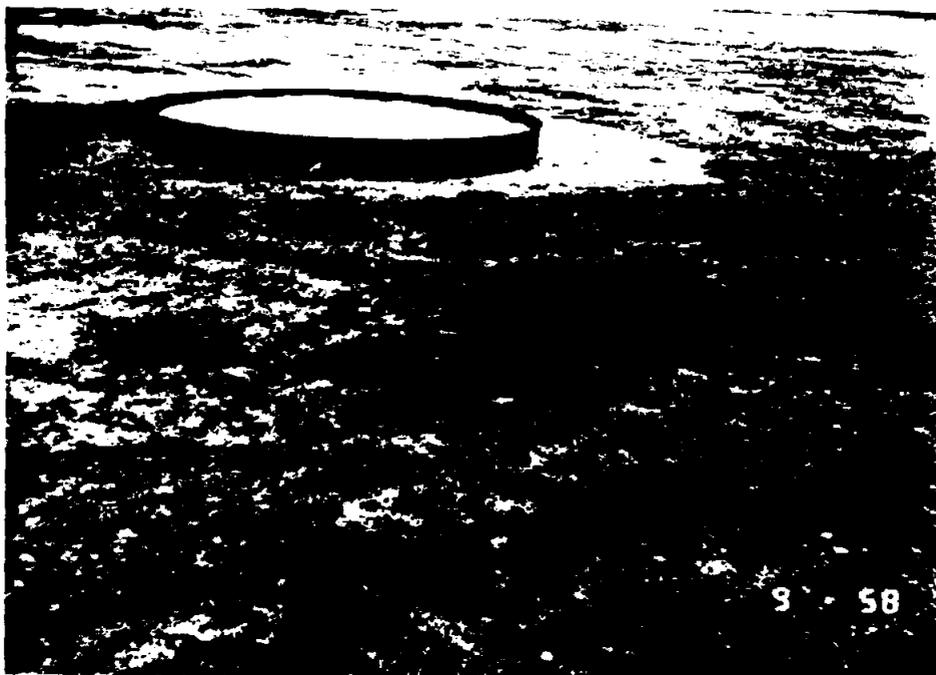
42. Carswell AFB, Texas 2/14/89 9:57am

Side view of Waste Fuel Storage Tank (SWMU No. 20) for fire training exercises at Fire Training Area No. 2 (SWMU No. 19).



43. Carswell AFB, Texas 2/14/89 9:58am

Circular burn pan containing oily liquid at Fire Training Area No. 2 (SWMU No. 19). Note soil staining around it.



44. Carswell AFB, Texas 2/14/89 9:58am

Circular burn pan containing oily liquid at Fire Training Area No. 2 (SWMU No. 19). Note soil staining around it.

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47. Carswell AFB, Texas 2/14/89 10:11am

Landfill No. 10 (SWMU No. 27) just southwest of the flightline, looking north.



48. Carswell AFB, Texas 2/14/89 10:23am

General Dynamics' outfall west of the runway.

30-266

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FORM 350 (11-1987)



49. Carswell AFB, Texas 2/14/89 10:26am

View of the Storm Water Drainage System (SWMU No. 53), west of the runway.



50. Carswell AFB, Texas 2/14/89 10:27am

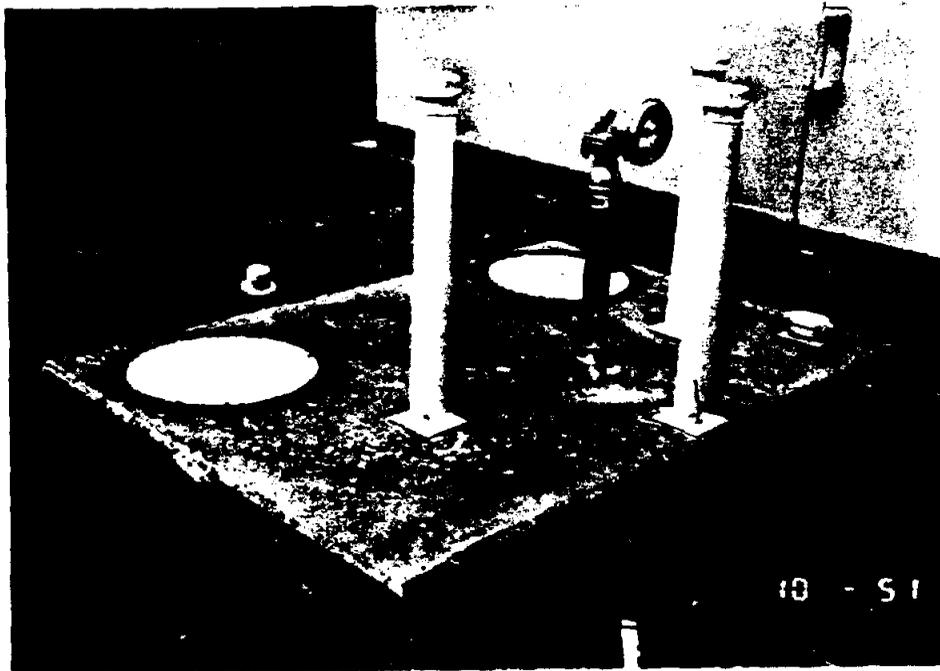
Inflow to the Storm Water Drainage System (SWMU No. 53), west of the runway. The right fork originates in General Dynamics' outfall.

MO-2197



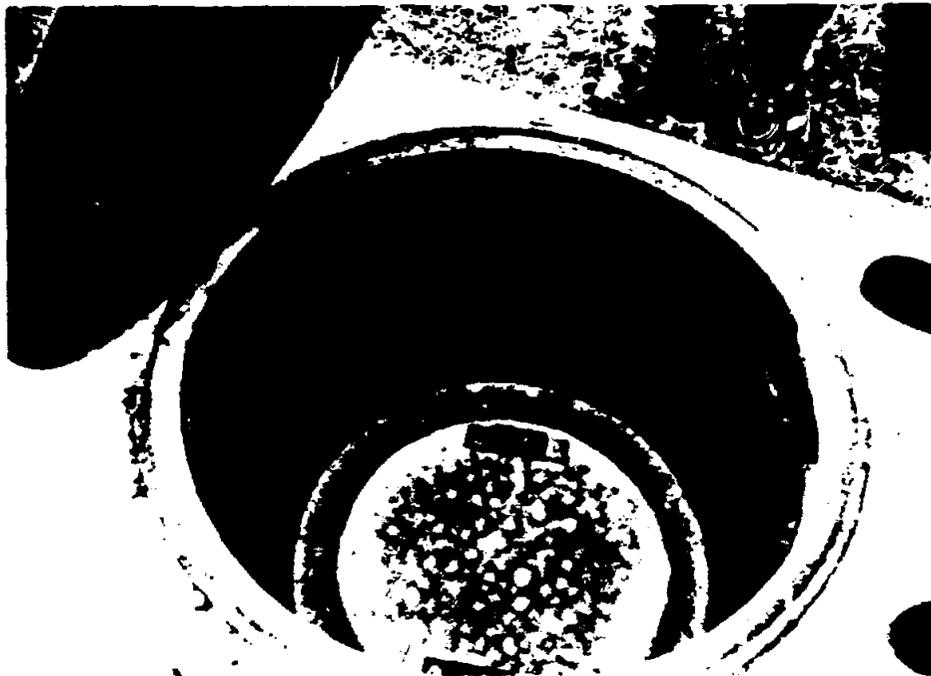
51. Carswell AFB, Texas 2/14/89 10:27am

Southwest side drainage ditch leading to the Storm Water Drainage System (SWMU No. 53).



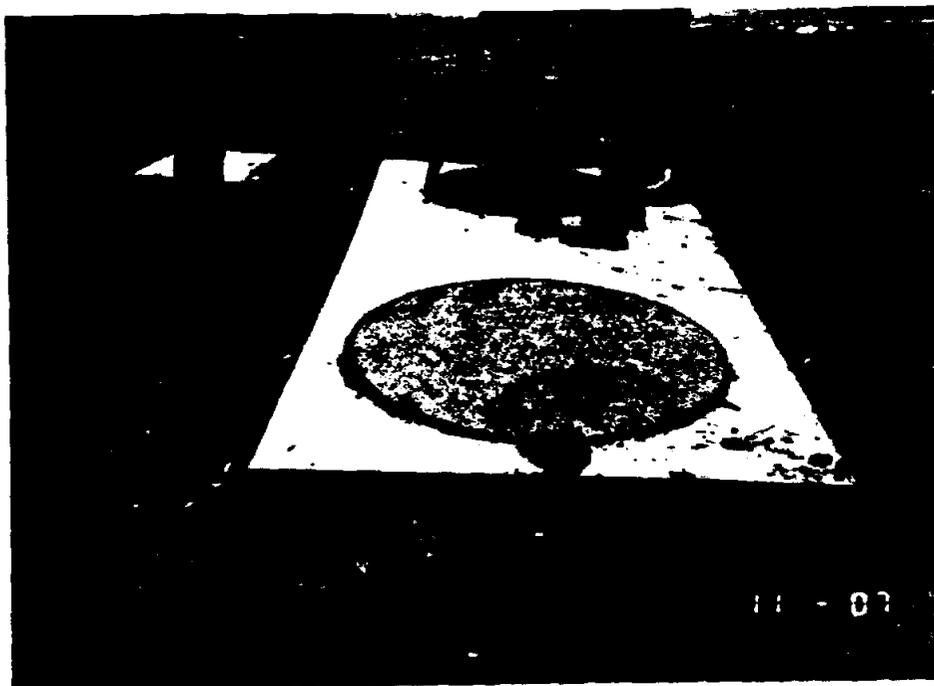
52. Carswell AFB, Texas 2/14/89 10:51am

Building 1015 Jet Engine Test Cell Oil/Water Separator (SWMU No. 47).



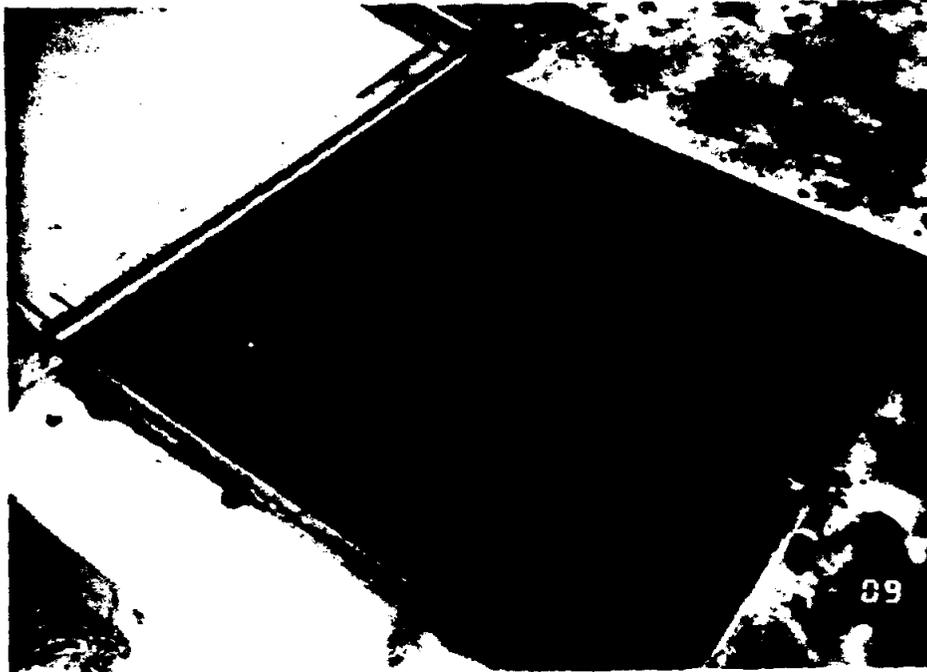
53. Carswell AFB, Texas 2/14/89 11:07am

Building 1027 Oil/Water Separation System at the
Aircraft Washing Hangar (SWMU No. 44).



54. Carswell AFB, Texas 2/14/89 11:07am

Building 1027 Oil/Water Separation System at the
Aircraft Washing Hangar (SWMU No. 44).



55. Carswell AFB, Texas 2/14/89 11:09am

Building 1027 Waste Oil Tank Vault at the Aircraft
Washing Hangar (SWMU No. 45).



56. Carswell AFB, Texas 2/14/89

Building 1027 Waste Oil Tank Vault at thte Aircraft
Washing Hangar (SWMU No. 45).



59. Carswell AFB, Texas 2/14/89 11:40am
Building 1050 Waste Accumulation Area (SWMU No. 31).

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60. Carswell AFB, Texas 2/14/89 11:49am

PD-680 tank in the Defensive Fire Control Shop, Building
1055.

PD-680



62. Carswell AFB, Texas 2/14/89 2:45pm

Carbon remover tanks in the Engine Shop, Building 1410.



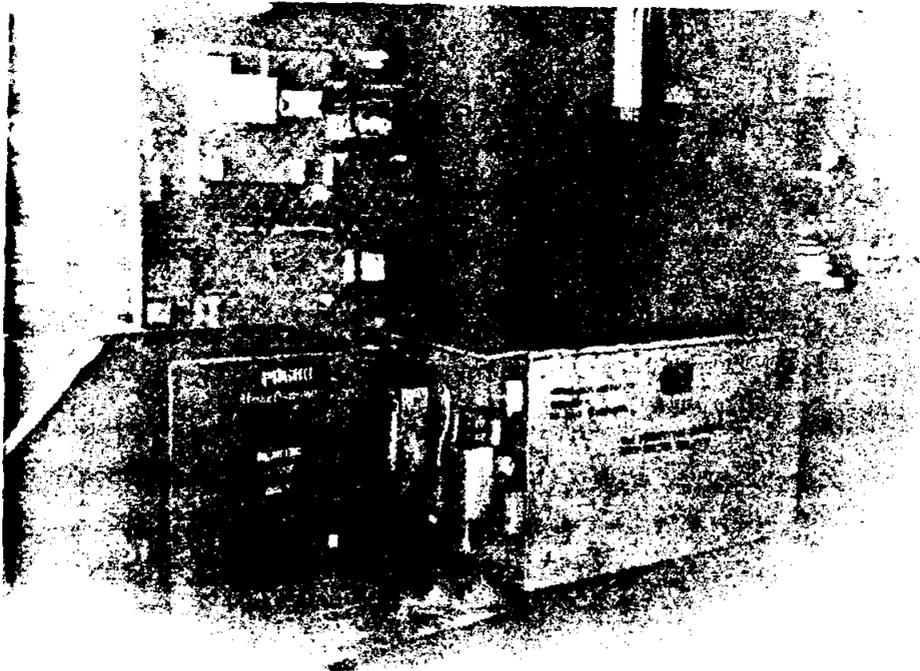
63. Carswell AFB, Texas 2/14/89 2:52pm

Hot oil dip tank in the Engine Shop, Building 1410.



66. Carswell AFB, Texas 2/14/89 3:01pm

Building 1410 Waste Accumulation Area (SWMU No. 32).
Close-up of the ground around the oil tank showing heavy
staining.

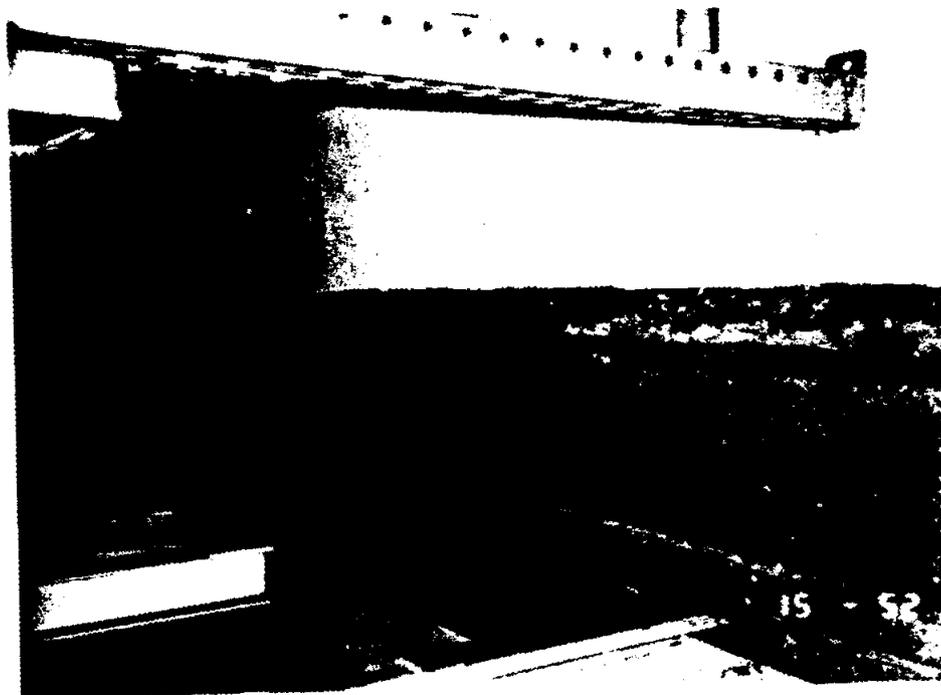


67. Carswell AFB, Texas 2/14/89 3:19pm

PD-680 tank, left and Citri-Kleen tank, right, in the
Wheel and Tire Shop, Building 1410.

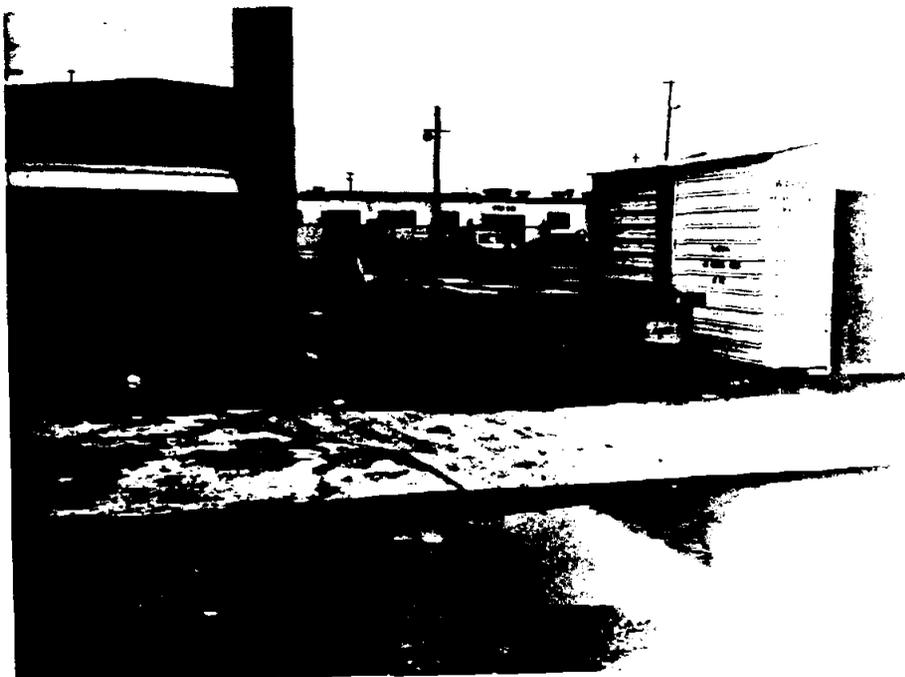
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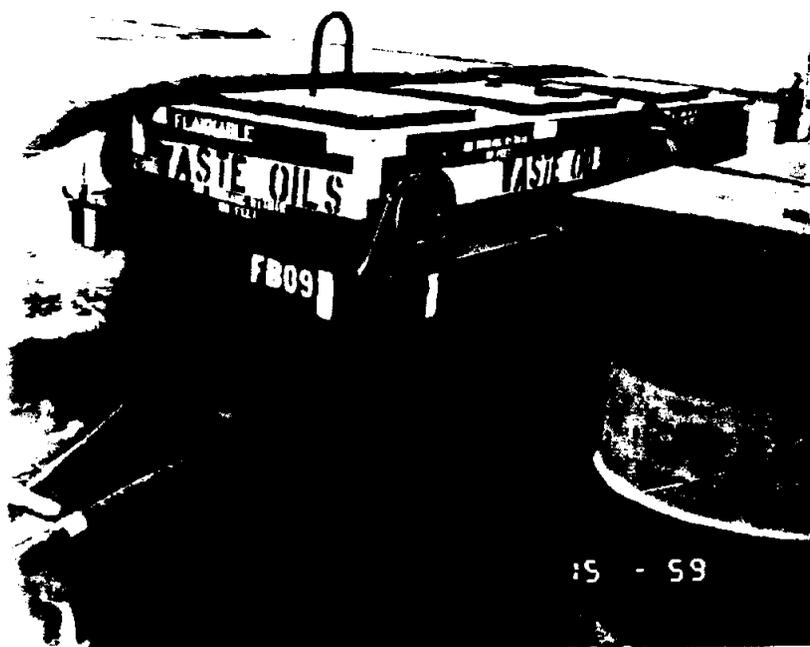


68. Carswell AFB, Texas 2/14/89 3:52pm

Close-up of the floor drain which is part of the
Building 1414 Oil/Water Separation System (SWMU No. 41).



70. Carswell AFB, Texas 2/14/89 3:55pm
Building 1414 Waste Accumulation Area (SWMU No. 42).



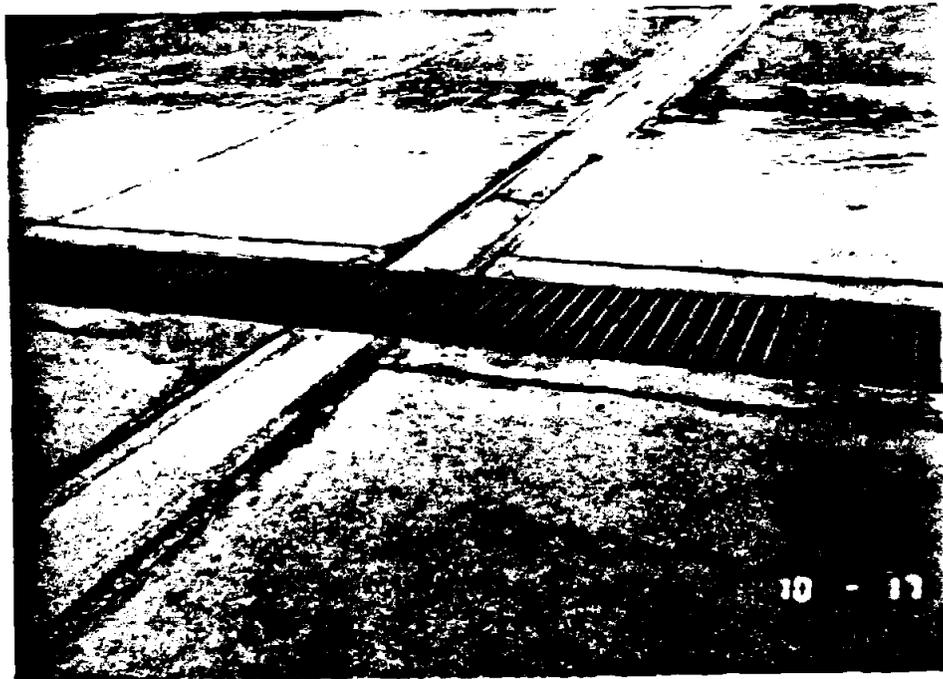
71. Carswell AFB, Texas 2/14/89 3:59pm
Waste oil trailer at the Building 1414 Waste
Accumulation Area (SWMU No. 42).

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1987 O-500-000



76. Carswell AFB, Texas 2/15/89 10:17am

Drain in the middle of Aircraft Washing Area No. 2 (SWMU No. 50).



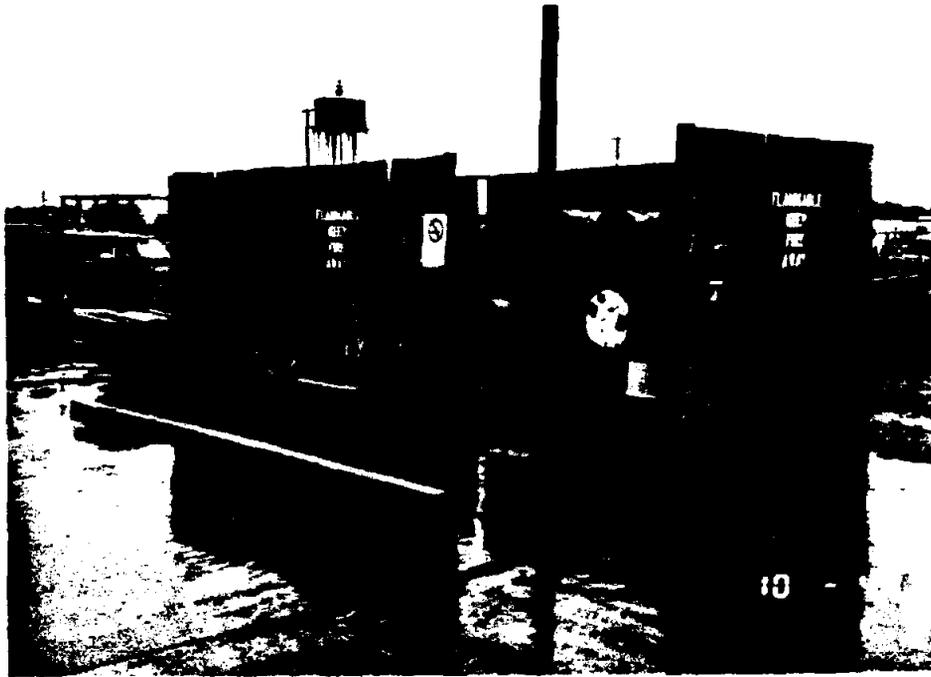
77. Carswell AFB, Texas 2/15/89 10:17am

Close-up of the drain in the middle of Aircraft Washing Area No. 2 (SWMU No. 50).

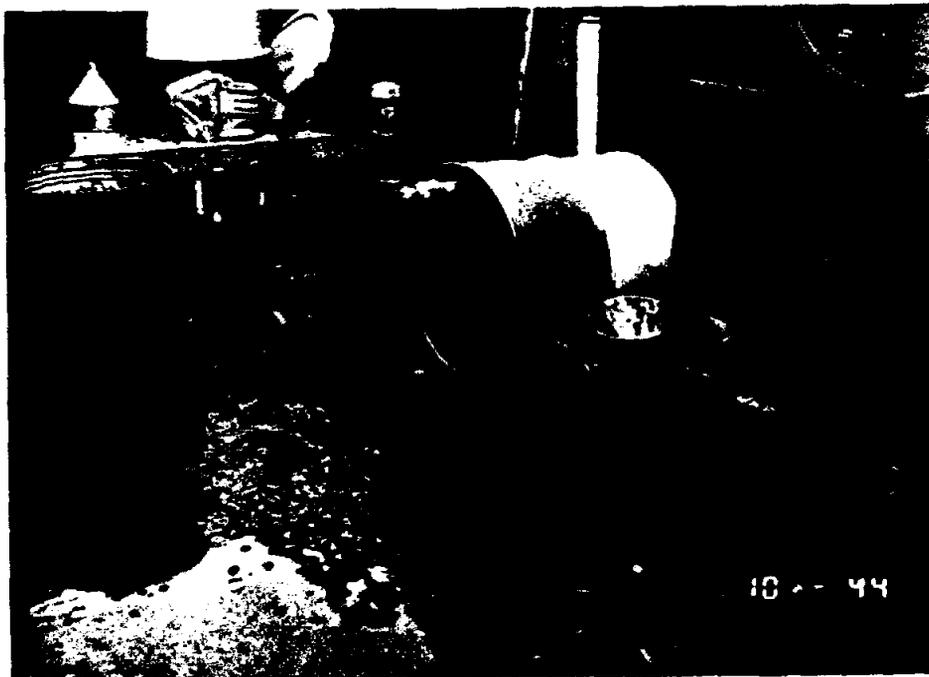
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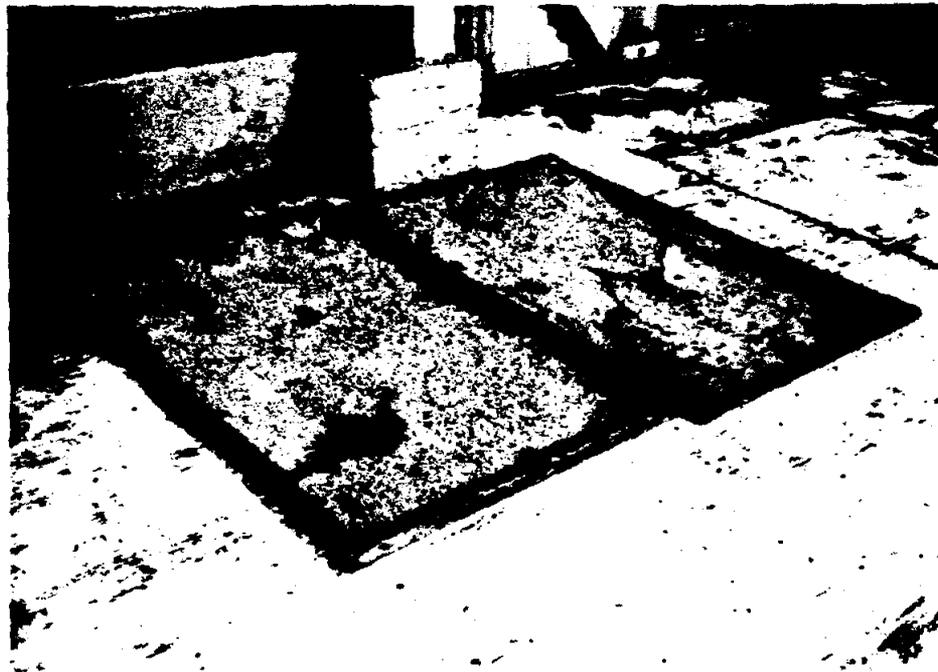
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78. Carswell AFB, Texas 2/15/89 10:44am
Building 1420 Waste Accumulation Area (SWMU No. 33).



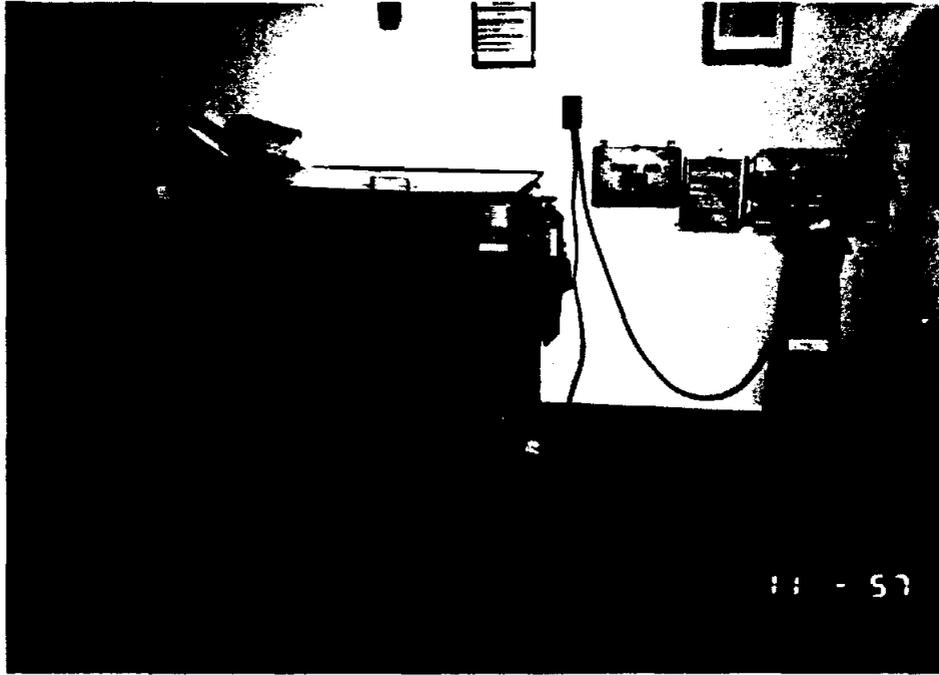
79. Carswell AFB, Texas 2/15/89 10:44am
Building 1420 Waste Accumulation Area (SWMU No. 33).
Note ground staining.



83. Carswell AFB, Texas 2/15/89 11:09am
Drip pans in Building 1405.



84. Carswell AFB, Texas 2/15/89 11:32am
Building 1432/1434 Waste Accumulation Area (SWMU No. 57).



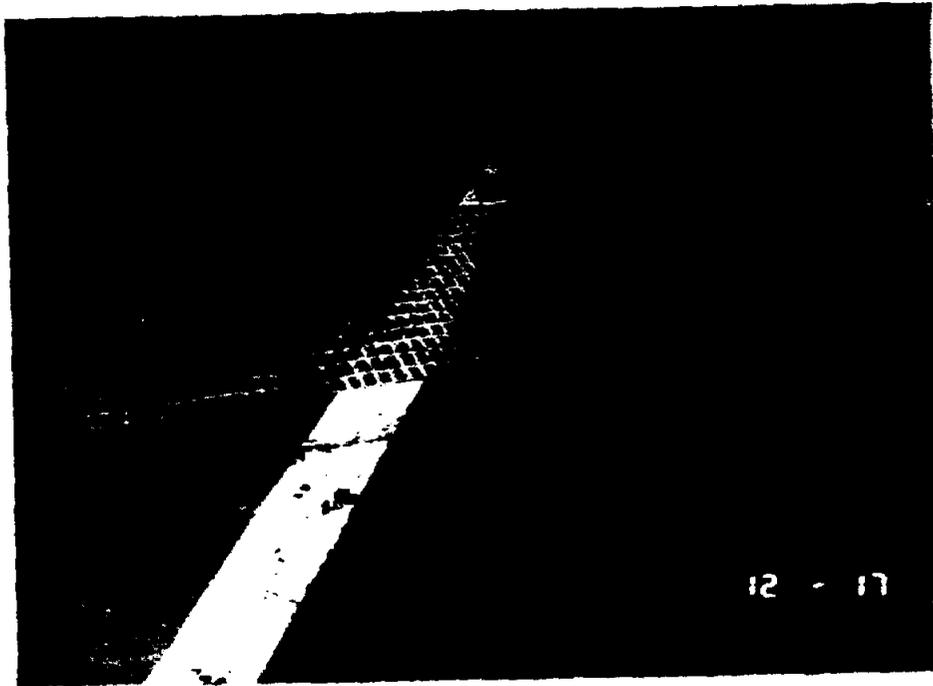
85. Carswell AFB, Texas 2/15/89 11:57am

PD-680 dip tank in the Aircraft Inspection Shop,
Building 1643.



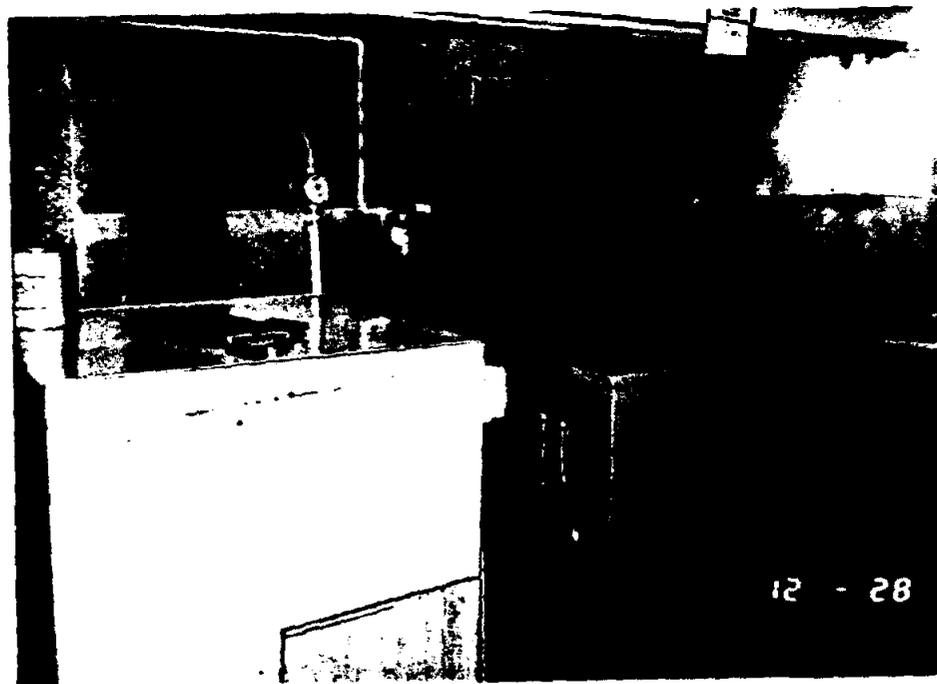
86. Carswell AFB, Texas 2/15/89 12:04pm

Building 1643 Waste Accumulation Area (SWMU No. 39).



89. Carswell AFB, Texas 2/15/89 12:17pm

Close-up of the floor drain inside Building 1643 which is part of the Oil/Water Separation System (SWMU No. 40).

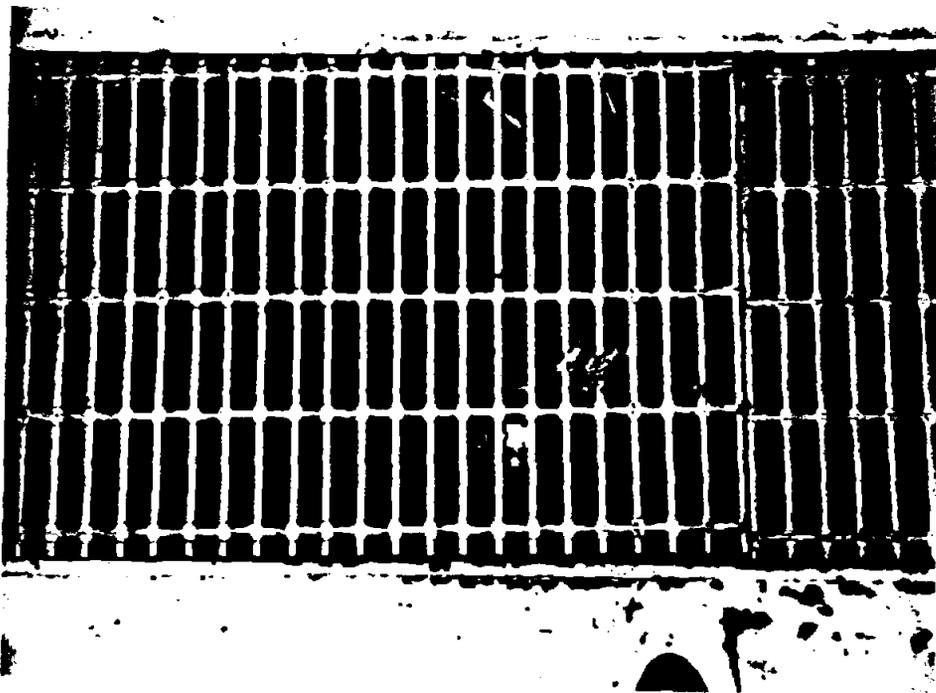


90. Carswell AFB, Texas 2/15/89 12:28 pm

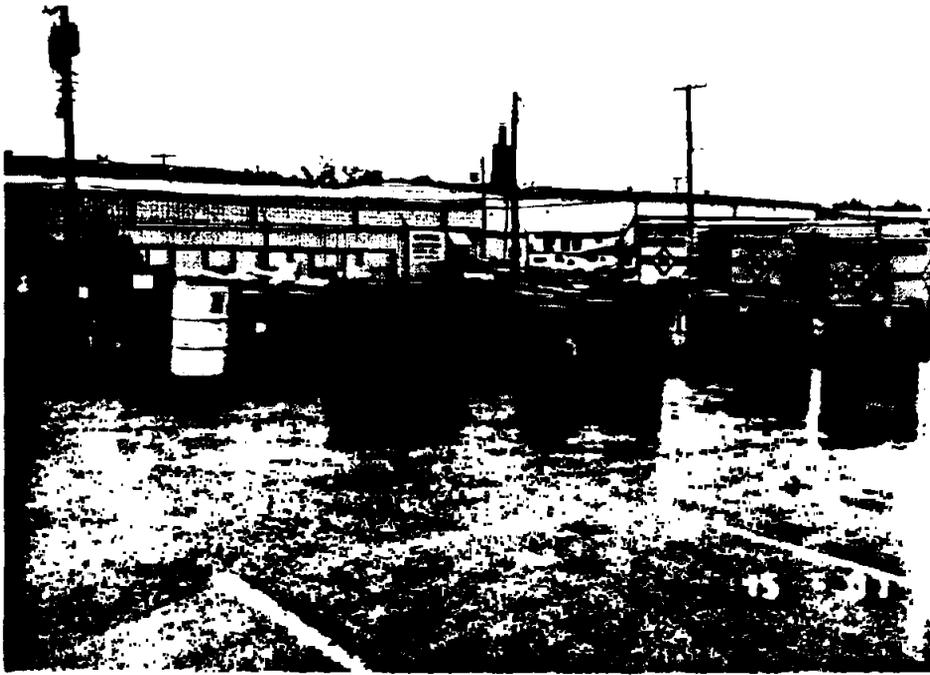
Solvent dip tanks in the Tire Shop, Building 1643.



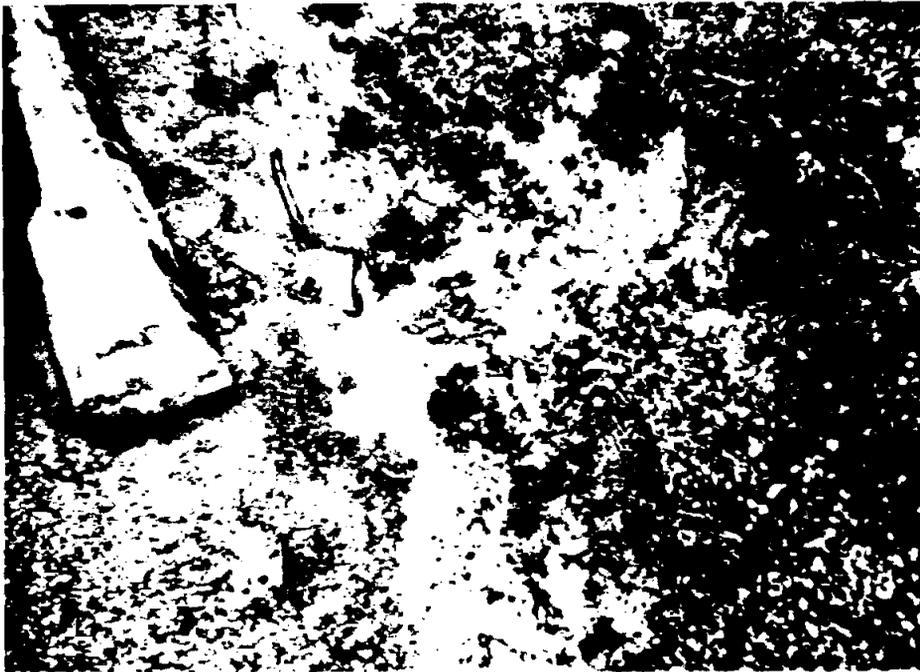
93. Carswell AFB, Texas 2/15/89 2:34pm
Pesticide products stored inside Building 1269.



94. Carswell AFB, Texas 2/15/89 2:56pm
Close-up of the floor drain (SWMU No. 37) in the Vehicle
Maintenance Shop, Building 1191.



95. Carswell AFB, Texas 2/15/89 3:07pm
Building 1191 Waste Accumulation Area (SWMU No. 36).



96. Carswell AFB, Texas 2/15/89 3:10pm
Close-up of oily runoff from the Building 1191 Waste Accumulation Area (SWMU No. 36). Note ground staining.



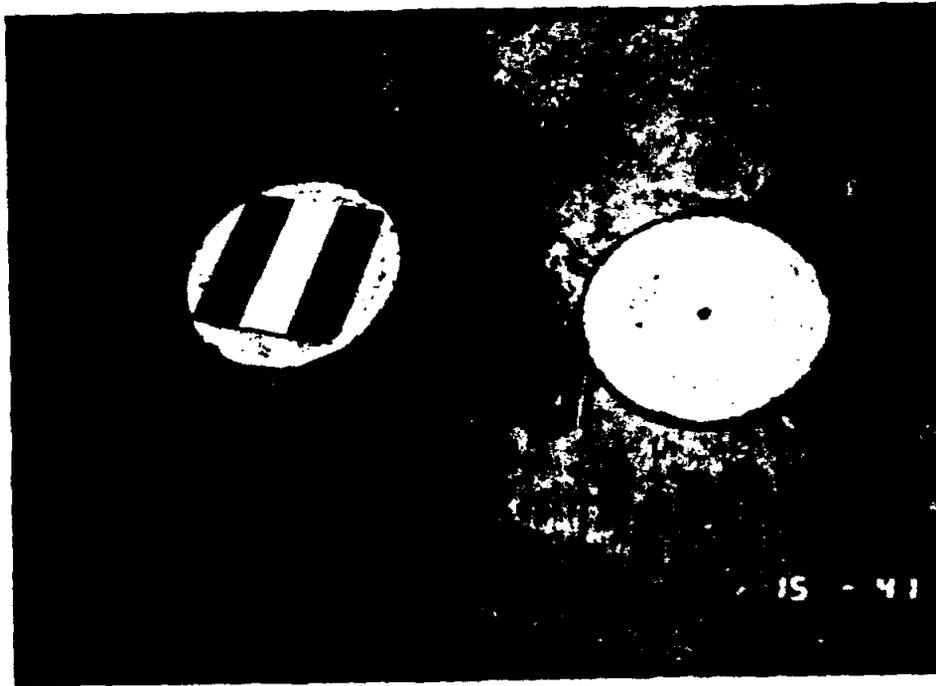
97. Carswell AFB, Texas 2/15/89 3:17pm

Vehicle Maintenance (Building 1191) Oil/Water Separation System (SWMU No. 37).



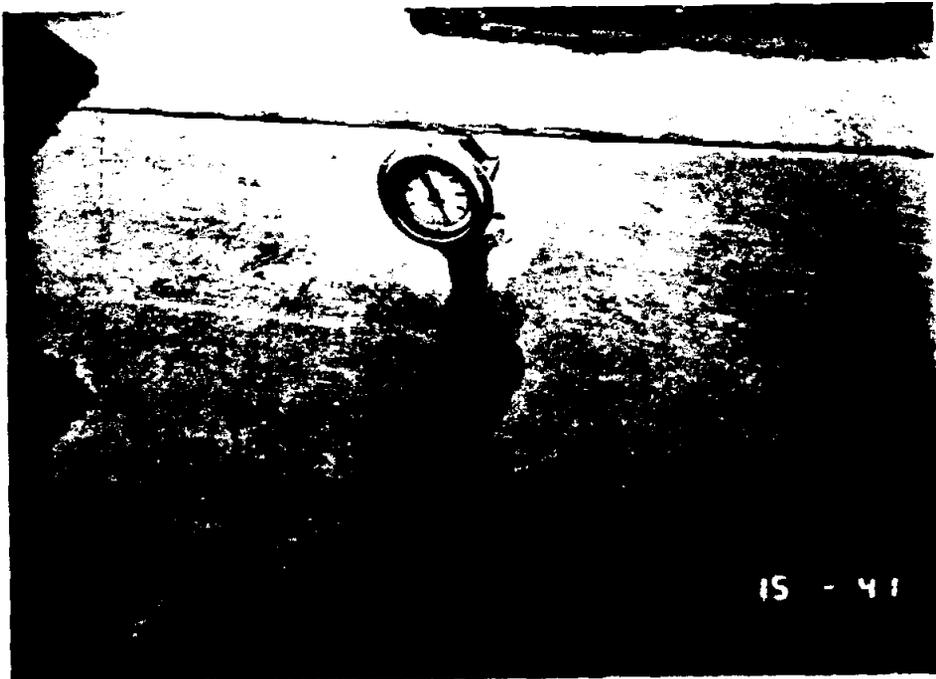
98. Carswell AFB, Texas 2/15/89 3:40pm

Building 1194 Waste Accumulation Area (SWMU No. 34) outside Building 1194 with the Oil/Water Separation System (SWMU No. 35) in the foreground.



99. Carswell AFB, Texas 2/15/89 3:41pm

Vehicle Refueling Shop (Building 1194) Oil/Water
Separation System (SWMU No. 35).



100. Carswell AFB, Texas 2/15/89 3:41pm

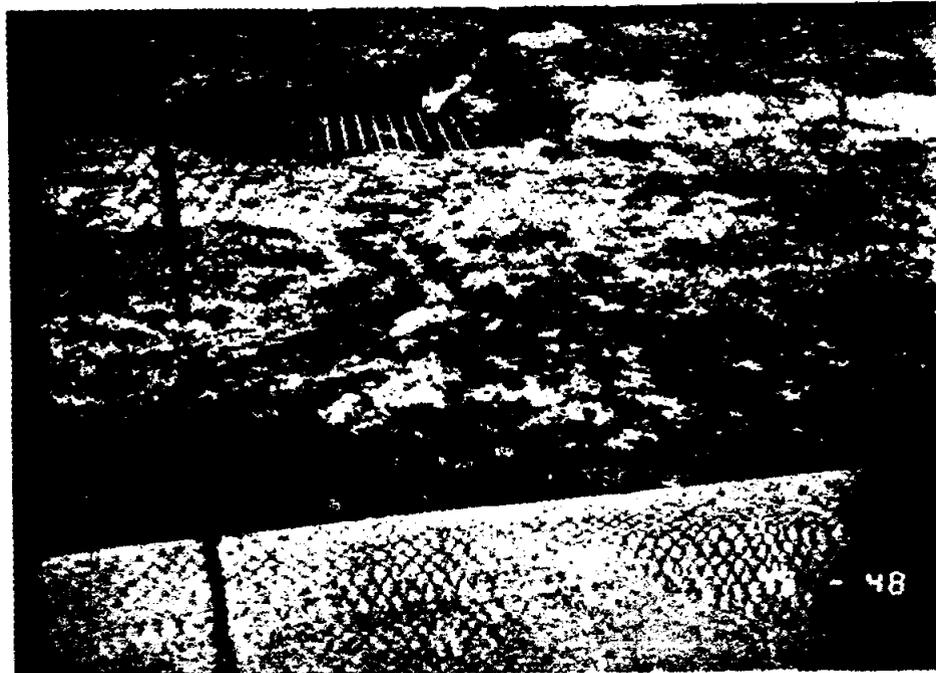
Vehicle Refueling Shop (Building 1194) Oil/Water
Separation System (SWMU No. 35).

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101. Carswell AFB, Texas 2/15/89 3:48pm

Runoff ditch and drain [Storm Water Drainage System
(SWMU No. 53)] outside Building 1194.



102. Carswell AFB, Texas 2/15/89 3:51pm

Building 1190 Central Waste Holding Area (SWMU No. 51).

100 - 200



103. Carswell AFB, Texas 2/15/89 3:51pm
Building 1190 Central Waste Holding Area (SWMU No. 51).



104. Carswell AFB, Texas 2/15/89 3:51pm
Building 1190 Central Waste Holding Area (SWMU No. 51),
with the Building 1190 Oil/Water Separation System (SWMU
No. 52) on the left.

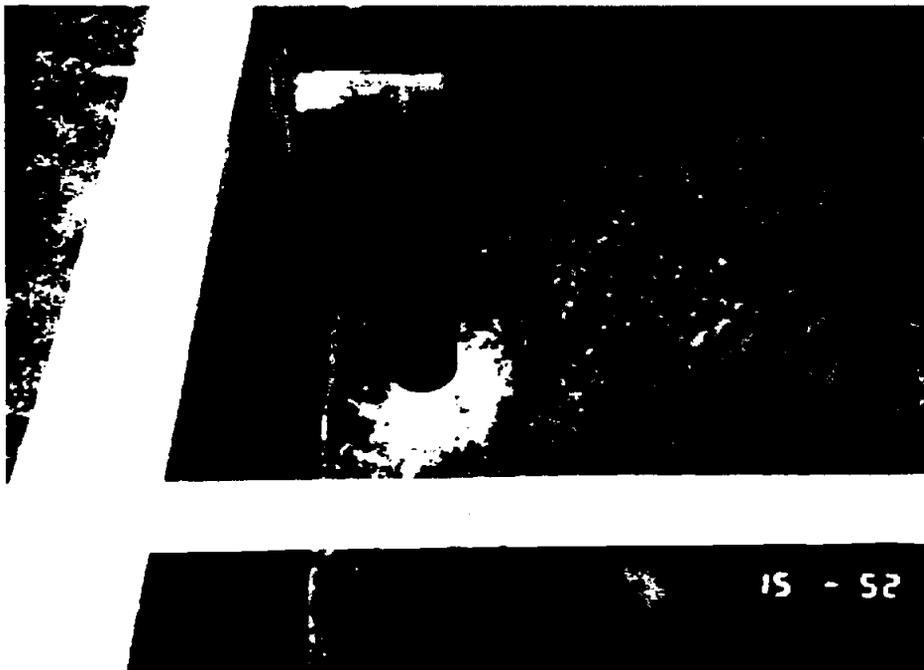
15 - 51

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105. Carswell AFB, Texas 2/15/89 3:52pm

Building 1190 Oil/Water Separation System (SWMU No. 52),
upper level.

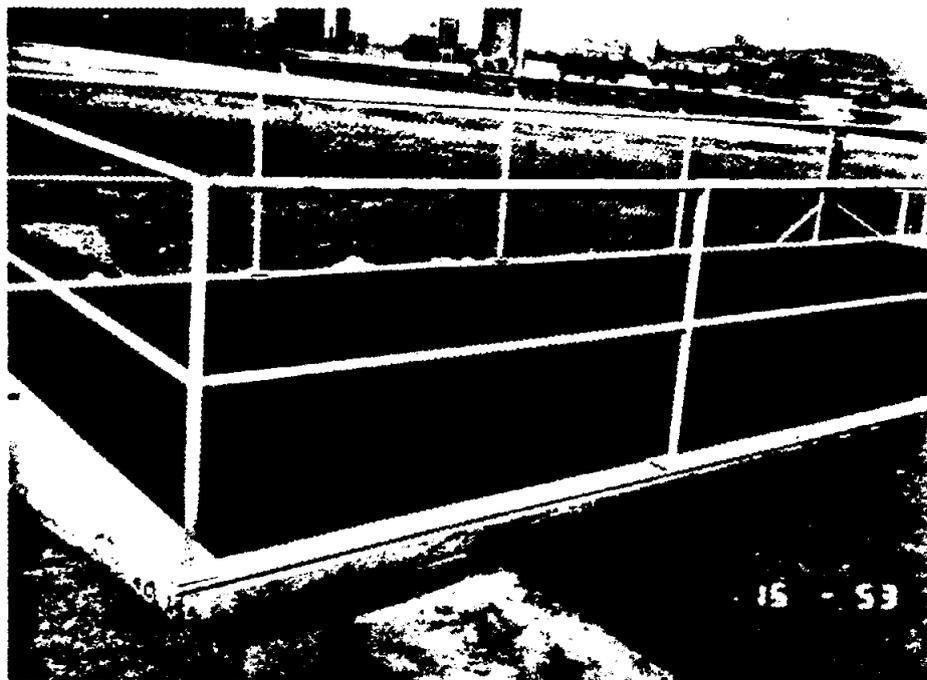


106. Carswell AFB, Texas 2/15/89 3:52pm

Close-up of the water discharge in the Building 1190
Oil/Water Separation System (SWMU No. 52) lower level.

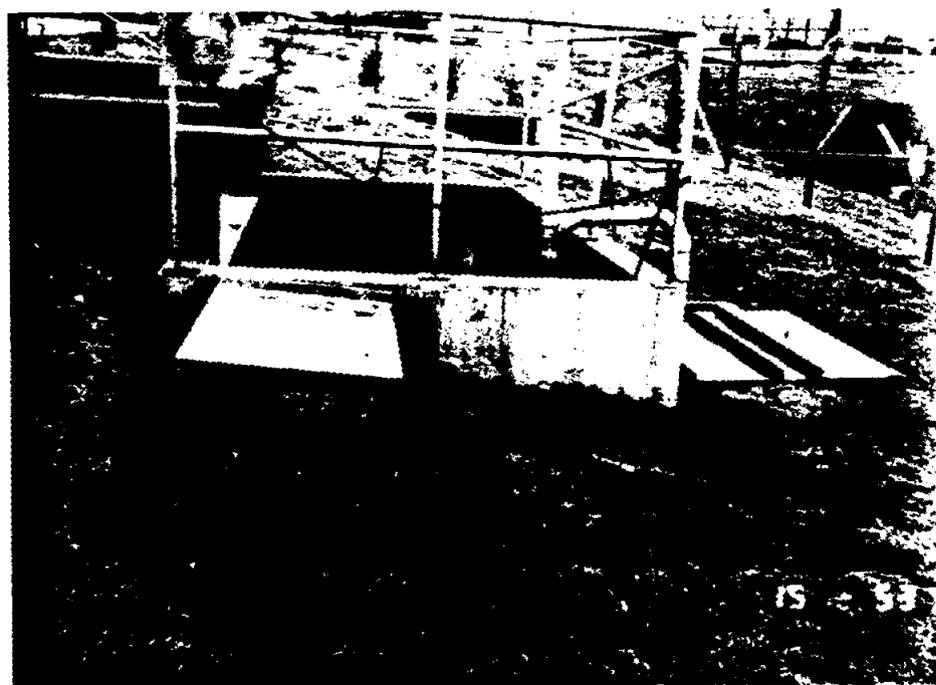
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107. Carswell AFB, Texas 2/15/89 3:53pm

View of the lower level of the Building 1190 Oil/Water Separation System (SWMU No. 52).



108. Carswell AFB, Texas 2/15/89 3:53pm

Building 1190 Oil/Water Separation System (SWMU No. 52) upper level, with the oil tank to the right.

PRO - PHOTO



109. Carswell AFB, Texas 2/15/89 3:53pm

Close-up of the oil tank next to the upper level of the Building 1190 Oil/Water Separation System (SWMU No. 52).

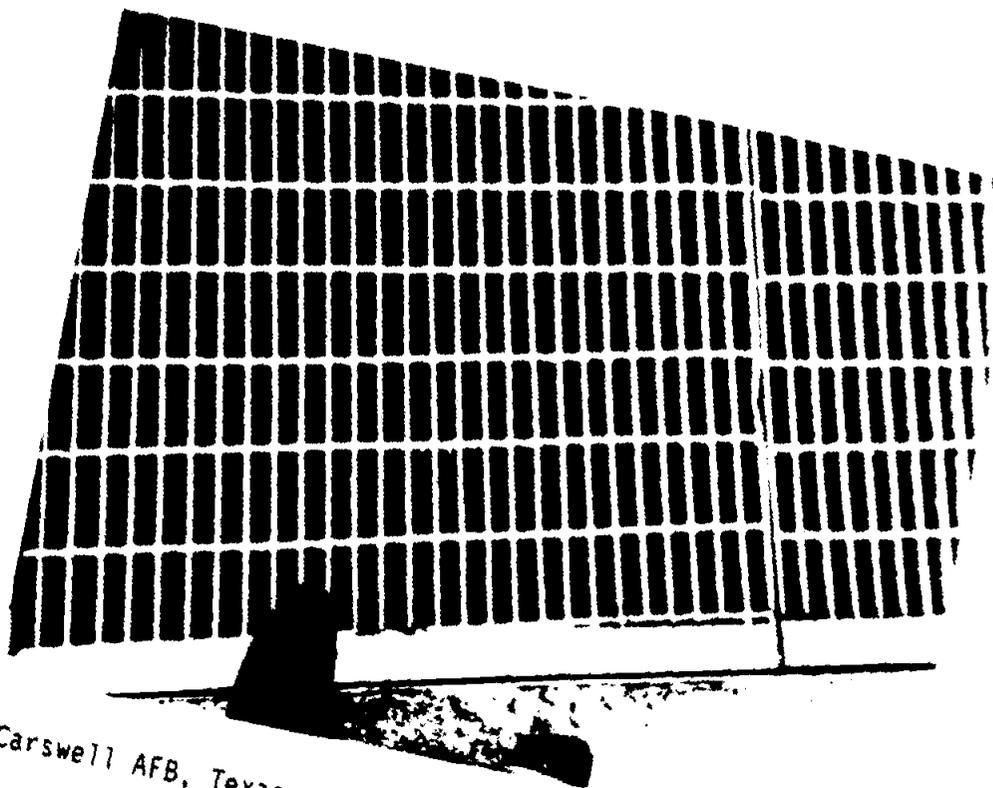


110. Carswell AFB, Texas 2/15/89 4:06pm

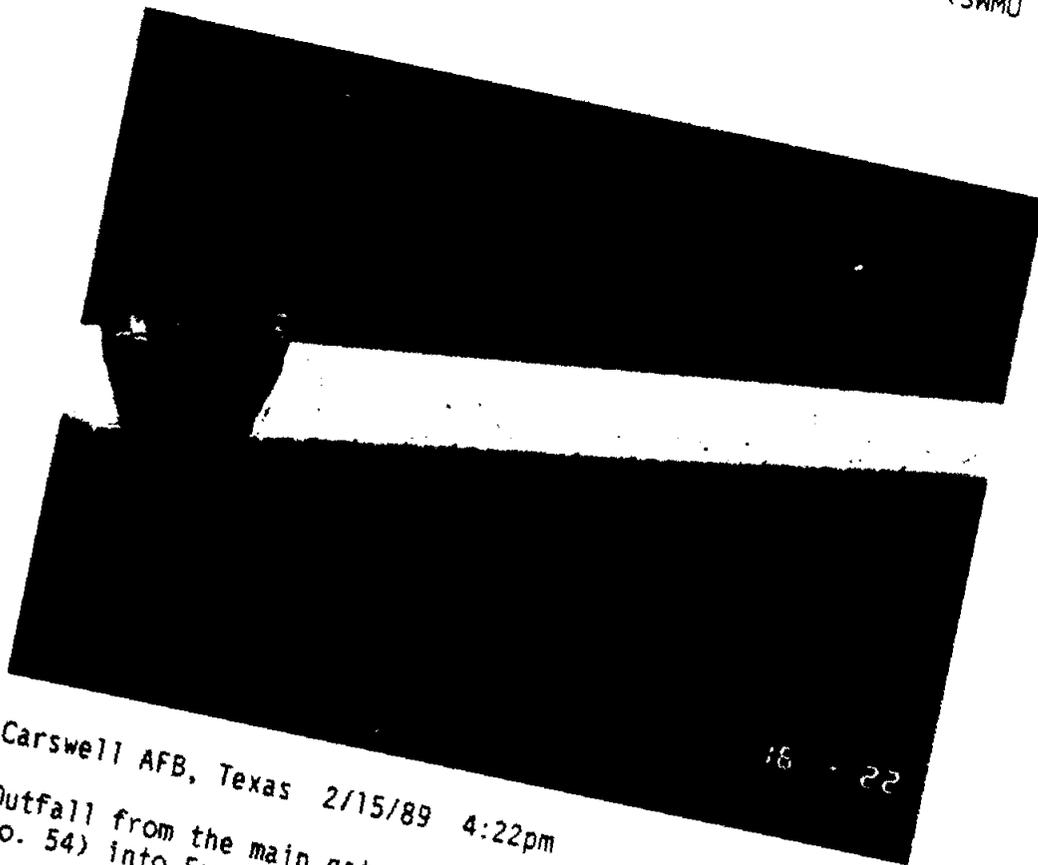
General view of Building 1190 Central Waste Holding Area (SWMU No. 51) and Oil/Water Separation System (SWMU No. 52).

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111. Carswell AFB, Texas 2/15/89 4:18pm
Close-up of the main gate Storm Water Interceptor (SWMU
No. 54).



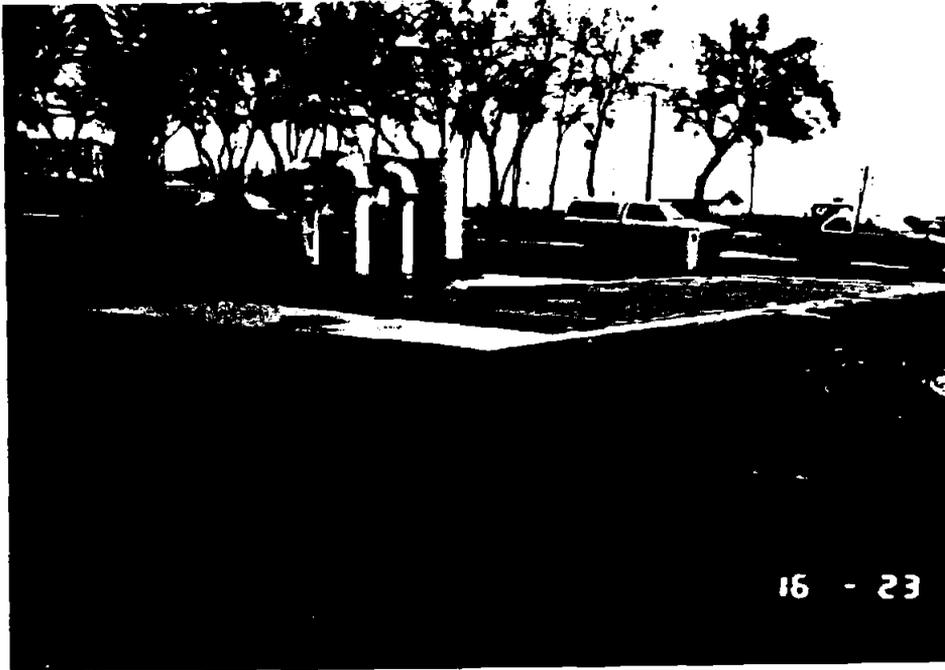
112. Carswell AFB, Texas 2/15/89 4:22pm
Outfall from the main gate Storm Water Interceptor (SWMU
No. 54) into Farmers Branch.

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113. Carswell AFB, Texas 2/15/89 4:23pm
Main gate Storm Water Interceptor (SWMU No. 54)



114. Carswell AFB, Texas 2/15/89 4:32pm
Storm Water Drainage System (SWMU No. 53) near Building
1190 Oil/Water Separation System (SWMU No. 52).



117. Carswell AFB, Texas 2/15/89 4:39pm

Storm Water Drainage System (SWMU No. 53) which receives discharge from the Building 1190 Oil/Water Separation System (SWMU No. 52).



118. Carswell AFB, Texas 2/16/89 9:15am

Former location of the Entomology Dry Well (SWMU No. 63).

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UNCLAS * CIA

SECRET



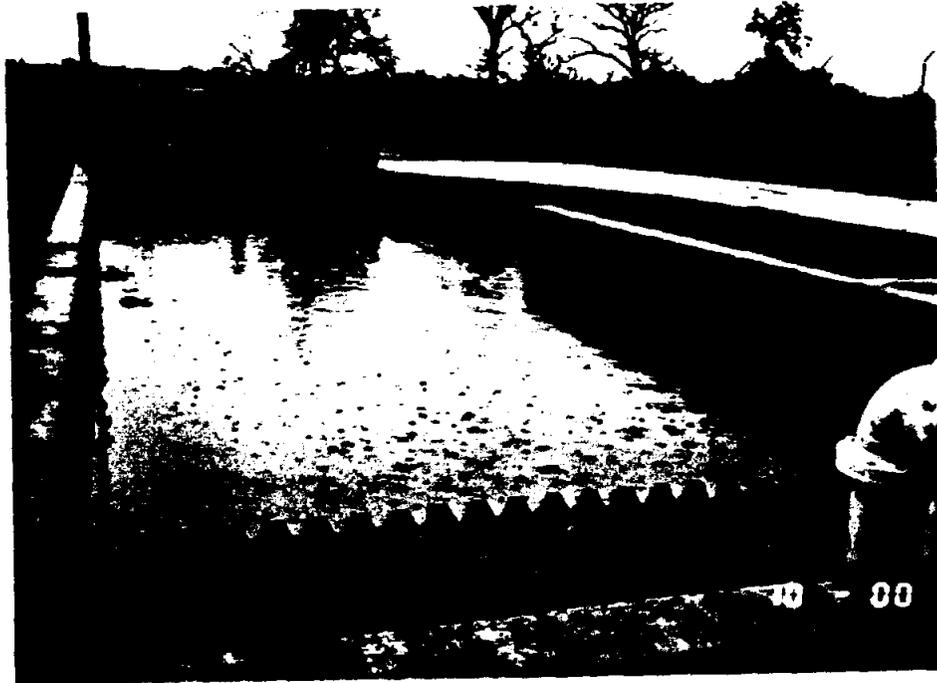
119. Carswell AFB, Texas 2/16/89 9:50am

View of the East Gate Oil/Water Separator (SWMU No. 55).



120. Carswell AFB, Texas 2/16/89 9:52am

Front view of the East Gate Oil/Water Separator (SWMU No. 55).



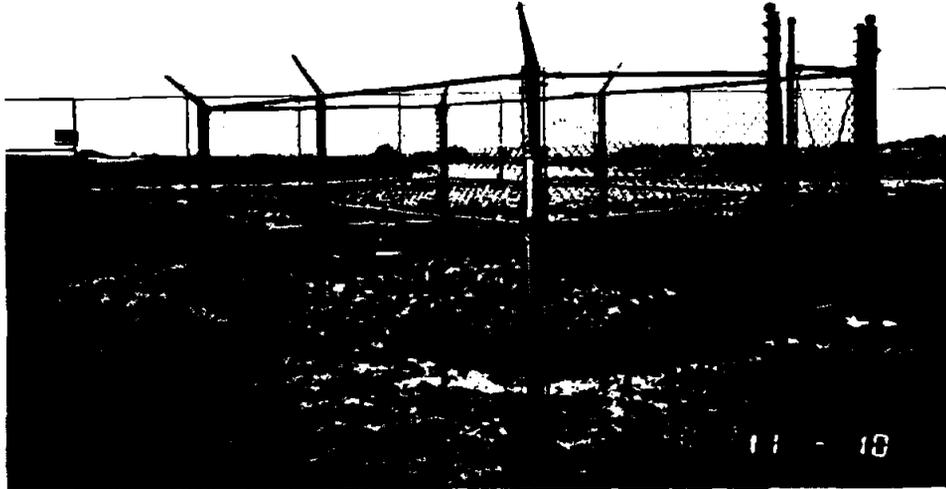
123. Carswell AFB, Texas 2/16/89 10:00am

Close-up of the water in the East Gate Oil/Water Separator (SWMU No. 55).



124. Carswell AFB, Texas 2/16/89 11:09am

Building 8503 Weapons Storage Area Waste Accumulation Area (SWMU No. 59).



125. Carswell AFB, Texas 2/16/89 11:10am

Building 8503 Radioactive Waste Burial Site (SWMU No. 60) at the Weapons Storage Area.



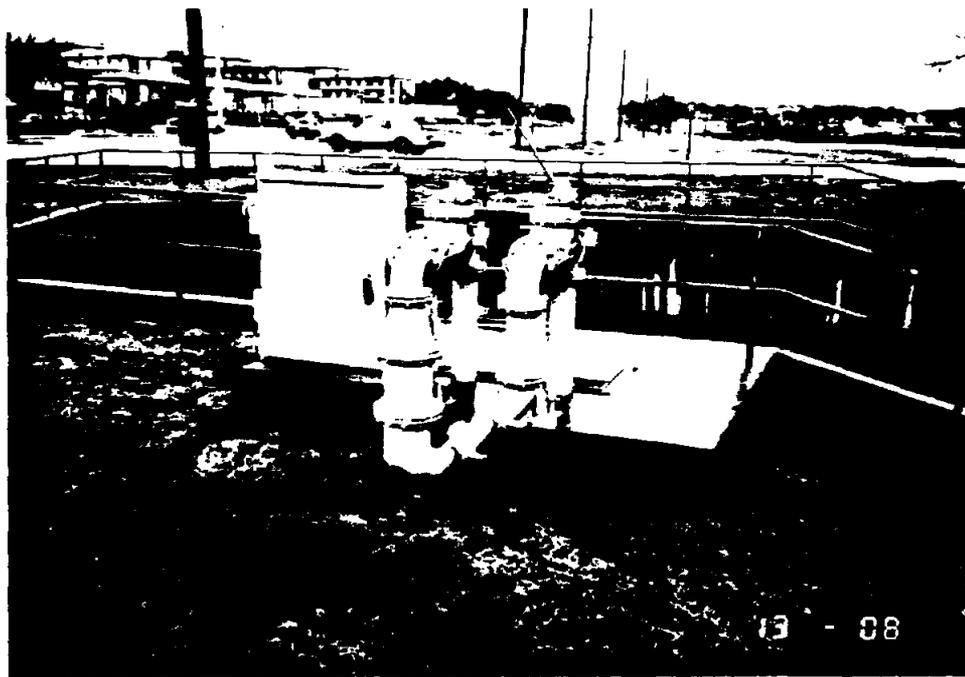
126. Carswell AFB, Texas 2/16/89 12:05pm

Building 1320 Power Production Maintenance Facility
Waste Accumulation Area (SWMU No. 61).



129. Carswell AFB, Texas 2/16/89 12:07pm

Unidentified product drums adjacent to the Building 1320 Waste Accumulation Area. Note staining of the ground.



130. Carswell AFB, Texas 2/16/89 1:08pm

Storm Water Interceptor (SWMU No. 54) at the east gate.

11/11/89

11/11/89 1:08pm

11/11/89



131. Carswell AFB, Texas 2/16/89 1:08pm
Storm Water Drainage System (SWMU No. 53).



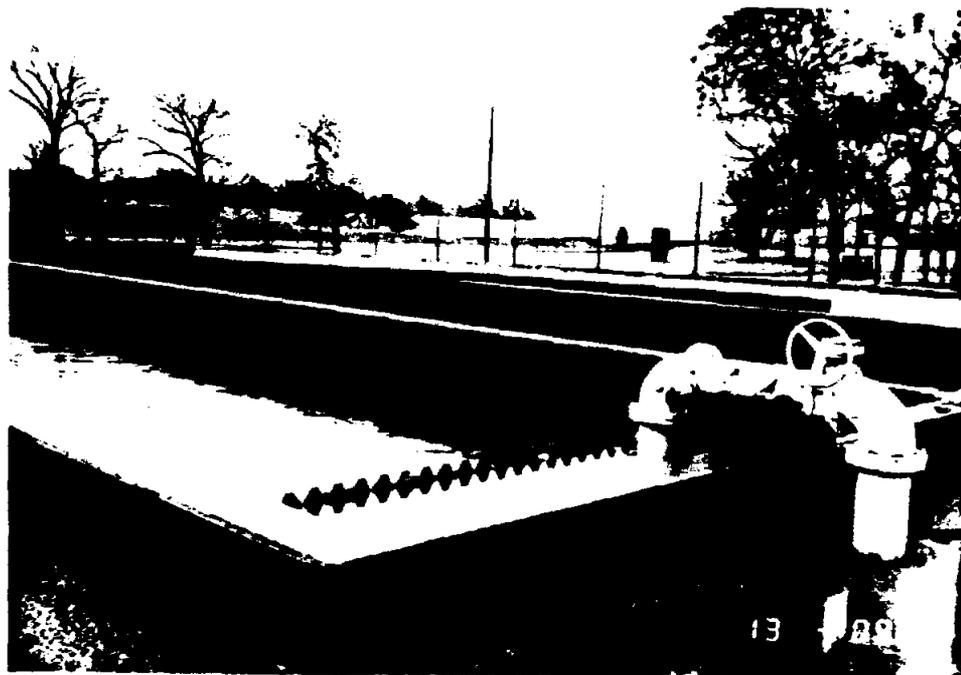
132. Carswell AFB, Texas 2/16/89 1:09pm
View of the north side of the East Gate, Oil/Water
Separator (SWMU No. 55) showing a Storm Water Drainage
System (SWMU No. 53) ditch.

PHOTO 131



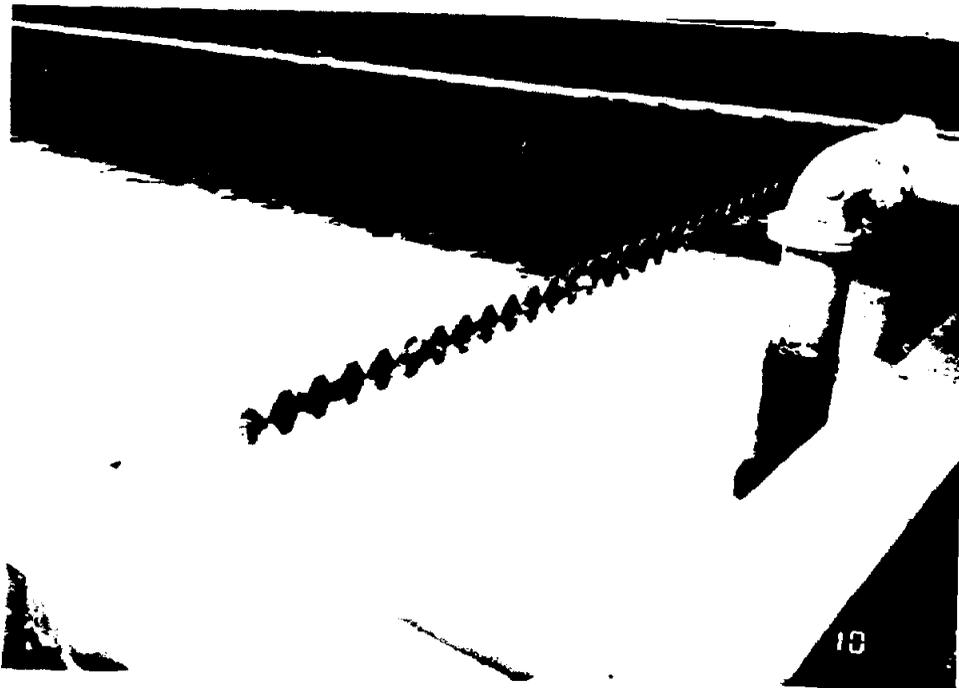
133. Carswell AFB, Texas 2/16/89 1:09pm

Front view of the East Gate Oil/Water Separator (SWMU No. 55).



134. Carswell AFB, Texas 2/16/89 1:09pm

East Gate Oil/Water Separator (SWMU No. 55) looking southeast.



135. Carswell AFB, Texas 2/16/89 1:10pm

Close-up of the water in the East Gate Oil/Water Separator (SWMU No. 55).



136. Carswell AFB, Texas 2/16/89

Oil of the East Gate Oil/Water separator (SWMU No. 55) reservoir.

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