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*Headquarters, Air Combat Command
Langley Air Force Base,
Virginia*

*Draft
Statement of Basis
Approval for No Further Action for
Seventy (70) Solid Waste Management Units*

*RCRA Corrective Action Program
Holloman AFB, New Mexico
RCRA Permit No. NM6572124422-1*

March 2000



*49 CES/CEV
Holloman Air Force Base,
New Mexico*

**DRAFT
STATEMENT OF BASIS**

**Approval of No Further Action for
Seventy (70) Solid Waste Management Units (SWMUs)**

**RCRA Corrective Action Program
Holloman AFB, New Mexico
RCRA Permit No. NM6572124422-1**

**Prepared for:
49 CES/CEV
Holloman AFB
New Mexico**

**Prepared by:
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6400 Uptown Blvd., NE, Suite 250E
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March 2000

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List of Acronyms

ACC	Air Combat Command
AFB	Air Force Base
AFMC	Air Force Materiel Command
AGE	Aerospace Ground Equipment
AOC	Area of Concern
bgl	below ground level
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
CERCLA	Comprehensive Environmental Response Compensation and Liability Act (Superfund)
COCs	Chemicals of Concern
COPCs	Chemicals of Potential Concern
DPT	Direct-Push Technology
DRMO	Defense Reutilization and Marketing Office
EM	Electromagnetic
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FTA	Fire Training Area
GWQB	Ground Water Quality Bureau
HRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
HVDPE	High-Vacuum Dual-Phase Extraction
IRFNA	Inhibited Red Fuming Nitric Acid
IRP	Installation Restoration Program
IWFNA	Inhibited White Fuming Nitric Acid
LNAPL	Light Non-aqueous Phase Liquid
LOX	Liquid Oxygen
NFA	No Further Action
NMED	New Mexico Environment Department
O/WS	Oil/Water Separator
PA/SI	Preliminary Assessment/Site Investigation
PCBs	Polychlorinated Biphenyls
POL	Petroleum, Oils, and Lubricants
ppb	parts per billion
PRI	Primate Research Institute
RA	Risk Assessment
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act

List of Acronyms (continued)

RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
SVOCs	Semivolatile Organic Compounds
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
TCLP	Toxic Characterization Leaching Procedure
TDS	Total Dissolved Solids
TOH	Total Organic Halogens
TPH	Total Petroleum Hydrocarbons
TRPH	Total Residual Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
UDMH	Unsymmetrical Dimethylhydrazine
UTL	Upper Tolerance Limit
VOCs	Volatile Organic Compounds
WAA	Waste Accumulation Area
WOT	Waste Oil Tank

← Toxicity characteristics ✓

The New Mexico Environment Department (NMED) has made a final determination to approve the Holloman Air Force Base (AFB) request to remove seventy Solid Waste Management Units (SWMUs) from the Hazardous and Solid Waste Amendments (HSWA) Corrective Action module Resource Conservation and Recovery Act (RCRA) permit, No. NM6572124422-1.

A. FACILITY DESCRIPTION

Holloman AFB is located on approximately 59,827 acres of land in Otero County in south central New Mexico. The Base lands are situated in the northern Chihuahuan Desert in the region known as the Tularosa Basin that is bound to the east and west by the Sacramento and San Andres Mountains, respectively. The Base is located adjacent to White Sands Missile Range, and White Sands National Monument is located west of the Base.

The nearest population center is the city of Alamogordo, located approximately seven miles to the east. Regional metropolitan centers include El Paso, Texas, located 90 miles south-southwest and Las Cruces, located 70 miles southeast of the facility. The primary transportation route for the facility is Highway 70 that traverses the southern boundary of the Base in a northeasterly direction.

Currently, Holloman AFB hosts the Air Combat Command (ACC) 49th Fighter Wing, which includes pilot training, mobility support, and combat support operations. The primary Air Force Materiel Command (AFMC) component located at Holloman AFB is the 46th Test Group, which is responsible for evaluation of propulsion and navigational systems for aircraft, space vehicles and missiles. A variety of tenant organizations are assigned to Holloman AFB including, but not limited to, the German Air Force Tornado Squadron, the 4th Space Surveillance Squadron, and Detachment 4 of the 55th Weather Squadron.

B. HISTORY OF INVESTIGATION

At Holloman AFB, the investigation and remediation of SWMUs potentially takes place under one or both of two separate programs: the Environmental Restoration Program (ERP) [formerly the Installation Restoration Program (IRP)], and the RCRA corrective action program. The IRP Program was initiated in 1983 and the RCRA Facility Assessment (RFA) was conducted in 1987. A HSWA Permit was issued to Holloman AFB on August 22, 1991. The effective date of the permit was September 25, 1991.

The HSWA portion of the RCRA permit required that sites identified by the Environmental Protection Agency (EPA) during the 1987 RFA be included in the RCRA Facility Investigation (RFI). The RFI was conducted in phases. Phase I took place between 1987 and 1992. Phase II took place between 1992 and 1995. In all, in the course of the two programs at Holloman, two hundred and thirty-six (236) potential SWMUs have been identified (SWMUs 1 through 231 and the Primate Research Institute (PRI) 1 through 5). In addition, twenty-nine (29) Areas of Concern (AOCs) have been identified and investigated as potential SWMUs. Five additional sites were also investigated under the ERP Program [the Boles Well Field, the Silver City Radar Site, the El Paso Radar Site, West Ramp Fuel Spill Area, and the Bonito Lake Reservoir]. These five sites did require further investigation. Of the 265 potential SWMUs and AOCs originally identified, 112 were included on the original HSWA permit by the EPA as requiring either additional investigation or remediation. The remaining SWMUs were determined not to require additional action either in the RFA or through decision documents derived from investigations conducted under the ERP program. Five additional SWMUs have since been added to the permit. The latest renewal application for the permit includes 117 SWMUs and AOCs.

On July 12, 1999, Holloman submitted a request to remove 104 SWMUs and AOCs from its HSWA corrective action module. NMED reviewed the request and determined that seventy (70) of the SWMUs and AOCs are appropriate for no further action (NFA). The remaining SWMUs and AOCs will be subject to further investigation, long term operation, or long term monitoring or remediation as necessary.

C. INVESTIGATION RESULTS

During investigation of the SWMUs at Holloman AFB, it was determined that certain sites were identified as SWMUs that never handled hazardous waste, including hazardous constituents regulated under RCRA. Other SWMUs were duplicates of other sites, or were included in investigations of other SWMUs. These are some of the types of SWMUs that Holloman AFB requested for NFA in their requests for Class 3 permit modifications dated July 12, 1999. NFA criteria were developed and employed during the SWMU investigations and the 104 SWMUs and AOCs proposed for NFA are categorized based on these criteria. At this time, NMED has identified seventy (70) of these sites as appropriate for NFA. Brief descriptions of each of the SWMUs proposed for NFA are included in Section I. A more detailed description can be found in draft Briefing Documents for the Table 1, Table 2, and Table 3 SWMUs, prepared by Radian International, April 1999. A complete set of references is included in Section J, Supporting Documentation.

D. PERMIT MODIFICATION

The administrative record for this proposed action consists of a legal notice, fact sheet, NMED's Statement of Basis, the Request for Permit Modification, related correspondence and documents, and the modified permit. The administrative record may be reviewed during normal business hours at:

New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
2044-A Galisteo
Santa Fe, New Mexico 87505
(505) 827-1558
Attn: Mr. Cornelius Amindyas

The legal notice, fact sheet, NMED's Statement of Basis, and modified permit may also be reviewed at:

Public Library of Alamogordo
2400 Scenic Drive
Alamogordo, NM 88310

E. SELECTED REMEDY

NMED's determination that NFA is required at these SWMUs is based on sampling and analytical data, field surveys, historical records, aerial photographs, and employee interviews that show no or insignificant release(s) of hazardous wastes to the environment. The determination is based on the following criteria:

- NFA Criterion 1: The SWMU/AOC cannot be located, does not exist or is a duplicate SWMU/AOC.
- NFA Criterion 2: The SWMU/AOC has never been used for the management (i.e., generation, treatment, storage and/or disposal) of RCRA solid waste or hazardous wastes and/or constituents, or other Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances.
- NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from the SWMU/AOC.
- NFA Criterion 4: A release from the SWMU/AOC to the environment has occurred, but the SWMU/AOC was characterized and/or remediated under another authority (such as NMED's Underground Storage Tank or Ground Water Quality Bureaus (GWQB)), which adequately addressed RCRA corrective action, and documentation, such as a closure letter, is available.

NFA Criterion 5: The SWMU/AOC has been characterized or remediated in accordance with current applicable state or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

Each site approved by the NMED for NFA is summarized in Table 1, and is described under the applicable NFA criteria in Section I.

F. PUBLIC PARTICIPATION

Requirements for public notification are required by the New Mexico Hazardous Waste Management Regulations. Upon submittal of a request for permit modification, a facility is required to publish a notice in a local newspaper and send notices to all persons on the facility mailing list maintained by NMED. This notice announces a 60-day comment period for the request for permit modification and indicates the time, date, and place where a public meeting is held. Comments made during the public comment period are addressed to NMED for consideration during the review process. Upon review of the request for permit modification by NMED, a list of SWMUs that are deemed appropriate for NFA must be published in a local newspaper and public notices must be sent to all persons on the facility mailing list. As part of this process, the public may make comments to and/or request additional information from NMED.

Public meetings were held as indicated:

A public meeting was held on 27 January 2000 in Alamogordo, NM, at the location?? regarding the July 12, 1999 request for permit modification. Approximately five people attended the meeting, including representatives from Holloman AFB and the NMED. Ms. Julie Jacobs of NMED provided one comment. She requested that the GWQB be included in the permit modification review process. She also stated that the Hazardous & Radioactive Materials Bureau (HRMB) was good at communicating with other bureaus and that she would keep in touch with HRMB.

G. NEXT STEPS

NMED will notify Holloman AFB and each person on the public comment mailing list of the final decision. The final decision will become effective thirty (30) days after service of the decision, unless a later date is specified or review is requested under the New Mexico Hazardous Waste Management Regulations, 20 NMAC 4.1, Section 901.E., *Hearings*.

H. CONTACT PERSON FOR ADDITIONAL INFORMATION

Mr. Cornelius Amindyas
New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
2044-A Galisteo
Santa Fe, New Mexico 87505
(505) 827-1558

Table 1. SWMUs Approved for No Further Action

SWMU No.	IRP Site	Unit Name	NFA - Criteria	AR/IR No.	AR/IR TITLE
✓ 1	N/A	Bldg. 55 O/WS	5	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
✓ 2	N/A	Bldg. 121 O/WS	5	810, 1056	Phase I RFI Table 2 SWMUs; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
✓ 3	N/A	Bldg. 130 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
5	N/A	Bldg. 137 O/WS	3	909	Table 3 RFI Report
6	N/A	Bldg. 193 O/WS	3	909	Table 3 RFI Report
7	N/A	Bldg. 198 O/WS	5	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
8	N/A	Bldg. 231 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
9	N/A	Bldg. 282 O/WS	3	909	Table 3 RFI Report
10	N/A	Bldg. 283 O/WS	5	1011	Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals
11	N/A	Bldg. 300 O/WS	5	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
12	N/A	Bldg. 304 O/WS	5	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
13	N/A	Bldg. 304A O/WS	5	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
14	N/A	Bldg. 306 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
15	N/A	Bldg. 309 O/WS	3	810	Phase I RFI Table 2 SWMUs
16	N/A	Bldg. 315 O/WS	5	909	Table 3 RFI Report
17	N/A	Bldg. 316 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
18	N/A	Bldg. 500 O/WS	5	1011	Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals
✓ 21	N/A	Bldg. 702 O/WS	3	810, 1056	Phase I RFI Table 2 SWMUs; Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals; Final Closure Report POL- Contaminated Sites & OWS/WOT Removals
✓ 22	N/A	Bldg. 704 O/WS	3	810, 1056	Phase I RFI Table 2 SWMUs; Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals; Final Closure Report POL- Contaminated Sites & OWS/WOT Removals
23	N/A	Bldg. 800 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
24	N/A	Bldg. 801 O/WS	3	909	Table 3 RFI Report
25	N/A	Bldg. 805 O/WS	3	909, 1056	Table 3 RFI Report; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
26	N/A	Bldg. 809 O/WS	3	909	Table 3 RFI Report

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Table 1 (Continued)

SWMU No.	IRP Site	Unit Name	NFA - Criteria	AR/IR No.	AR/IR TITLE
27	N/A	Bldg. 810 O/WS	5	909, 1056	Table 3 RFI Report: Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
28	N/A	Bldg. 822 O/WS	5	1093	Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
29	N/A	Bldg. 827 O/WS	4	909, 1056	Table 3 RFI Report: Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
30	N/A	Bldg. 830 O/WS	3	909	Table 3 RFI Report
31	N/A	Bldg. 855 O/WS	5	909, 1056	Table 3 RFI Report: Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
32	N/A	Bldg. 868 O/WS	5	810	Phase I RFI Table 2 SWMUs
33	N/A	Bldg. 869 O/WS	3	909	Table 3 RFI Report
34	N/A	Bldg. 902 O/WS	5	909	Table 3 RFI Report
35	N/A	Bldg. 903 O/WS	3	909, 1056	Table 3 RFI Report: Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
36	N/A	Bldg. 1001 O/WS	5	810, 1056	Phase I RFI Table 2 SWMUs; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
37	N/A	Bldg. 1080 O/WS	5	909	Table 3 RFI Report
38	N/A	Bldg. 1080A O/WS	5	909	Table 3 RFI Report
40	N/A	Bldg. 1166 O/WS	5	810, 1056	Phase I RFI Table 2 SWMUs; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
41	N/A	Bldg. 1266 O/WS	5	909, 1056	Table 3 RFI Report: Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
42	SS-09	Bldg. 1 WAA	3	468	RI Report, Investigation, Study, and Recommendation for 29 Sites.
54	N/A	Bldg. 702 WAA	5	810	Phase I RFI Table 2 SWMUs
55	N/A	Bldg. 702A WAA	3	810	Phase I RFI Table 2 SWMUs
56	N/A	Bldg. 807 WAA	3	810	Phase I RFI Table 2 SWMUs
63	N/A	Bldg. 867 WAA	3	810	Phase I RFI Table 2 SWMUs
71	N/A	Bldg. 1778A WAA	3	810	Phase I RFI Table 2 SWMUs
78	N/A	Trim Pad 3 WAA	3	810	Phase I RFI Table 2 SWMUs
91	N/A	Bldg. 816 Wash Rack	3	810	Phase I RFI Table 2 SWMUs
102	OT-04	Acid Trailer Burial Site			Phase II RFI Report Table 1 SWMUs
107	OT-11	Main Base Substation PCB Disposal Area			RI Report, Investigation, Study, and Recommendation for 29 Sites; Addendum Phase II Remediation of POL-Contaminated Sites &
119	N/A	Bldg. 121 Waste Oil Tank			Us; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
120	N/A	Bldg. 309 Waste Oil Tank			Us
121	N/A	Bldg. 316 Waste Oil Tank			Us; Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals

Add the page of each document to the list of SWMUs in Table 1.

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Table 1 (Continued)

SWMU No.	IRP Site	Unit Name	NFA - Criteria	AR/IR No.	AR/IR TITLE
123	N/A	Bldg. 704 Waste Oil Tank	5		
124	N/A	Bldg. 752 Waste Oil Tank	3	810	Phase I RFI Table 2 SWMUs
125	N/A	Bldg. 868 Fire Water Tank	3	810	Phase I RFI Table 2 SWMUs
126	N/A	Bldg. 1001 Waste Oil Tank	5	810, 1056	Phase I RFI Table 2 SWMUs; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
128	N/A	Bldg. 1166 Waste Oil Tank	5	810, 1056	Phase I RFI Table 2 SWMUs; Final Closure Report for Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
129	SS-36	Bldg. 1191 Spill Tank	3	1011	Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals
134	OT-24	Bldgs. 920-924 Drainage Ditch	3	899	Phase II RFI Report Table 1 SWMUs
138	N/A	Bldg. 1166 Oil/Water Sep Drainage Pit	5	1011	Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals
155	N/A	Sludge Drying Beds	5	810	Phase I RFI Table 2 SWMUs
156	N/A	Imhoff Tanks (5)	5	810	Phase I RFI Table 2 SWMUs
164	N/A	Bldg. 1080 Pond	5	810	Phase I RFI Table 2 SWMUs
165	SS-39	Bldg. 1176 Pond	3	810	Phase I RFI Table 2 SWMUs
171	FT-31	Fire Department Training Area 2	3	899	Phase II RFI Report Table 1 SWMUs
178	SS-36	Building 1191 Fuel Runoff Pits	3	1011	Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals
192	OT-41	Coco Block House Disposal Well	3	468	RI Report, Investigation, Study, and Recommendation for 29 Sites.
212	SD-28	Former North Area Wash Rack	3	468	RI Report, Investigation, Study, and Recommendation for 29 Sites.
231	LF-58	Incinerator/Landfill	5	909	Table 3 RFI Report
AOC-G	DP-43	Atlas Substation PCB Spill	5	468, 1093	RI Report, Investigation, Study, and Recommendation for 29 Sites; Final Closure Report Addendum Phase II Remediation of POL-Contaminated Sites & OWS/WOT Removals
AOC-L	OT-37	Early Missile Test Site	5	468	RI Report, Investigation, Study, and Recommendation for 29 Sites.
AOC-D	SD-26	Bldg. 882 Spills	3	468	RI Report, Investigation, Study, and Recommendation for 29 Sites.

NFA - No Further Action

Table 1 RFI Report – Table 1 RCRA Facility Investigation (Radian, 95)

Table 2 RFI Report – Table 2 RCRA Facility Investigation (Radian, 95)

Table 3 RFI Report – Table 3 RCRA Facility Investigation (Radian, 95)

Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals (Foster Wheeler, 96)

Closure Report Phase II Petroleum Oils and Lubricants Contaminated Sites (Foster Wheeler, 97)

Closure Report Addendum for Phase II Petroleum Oils and Lubricants Contaminated Sites (Foster Wheeler, 97)

PA/SI for Four Waste Sites – Preliminary Assessment/Site Inspection for 4 Waste Sites (Radian, 94)

Results of Additional GW Sampling, SS-39 – Additional Groundwater Investigation for Site SS-39 (Foster Wheeler, 98)

Draft Statement of Basis

I. DESCRIPTION OF SWMUs PROPOSED FOR NO FURTHER ACTION***NFA CRITERION 1***

NFA Criterion 1: The SWMU/AOC cannot be located, does not exist or is a duplicate SWMU/AOC.

1. SWMU 120--Building 309 Waste Oil Tank**Location**

This SWMU is adjacent to SWMU 15—Building 309 Oil/Water Separator. SWMU 120, Building 309 Waste Oil Tank (WOT), is reportedly constructed of steel and has a capacity of 100 gallons. Recent attempts to locate the waste oil tank at SWMU 120 have been unsuccessful, and interviews with personnel from Building 309 raise considerable doubt concerning its existence. It is currently thought that adjacent SWMU 15 functioned as both the Oil/Water Separator (O/WS) and WOT. For a further description of the area, refer to Figure 1.

History

SWMU 120, Building 309 Waste Oil Tank (WOT) was in operation from 1975 to 1989. The source of waste for this SWMU was the vehicle wash rack in Building 309. Rinsate and waste oils from Building 309 were routed through the O/WS for processing. Waste oil was transferred to the waste oil tank (SWMU 120). The amount of waste disposed of at this site is unknown.

A literature search and visual inspection during drilling activities indicated that no releases had occurred. However, a halon vapor monitoring system was never installed at the site to monitor possible leakage. Since SWMU 120 was not located, Remedial Investigation (RI) data from SWMU 15, the closest adjacent SWMU, is used to characterize the site.

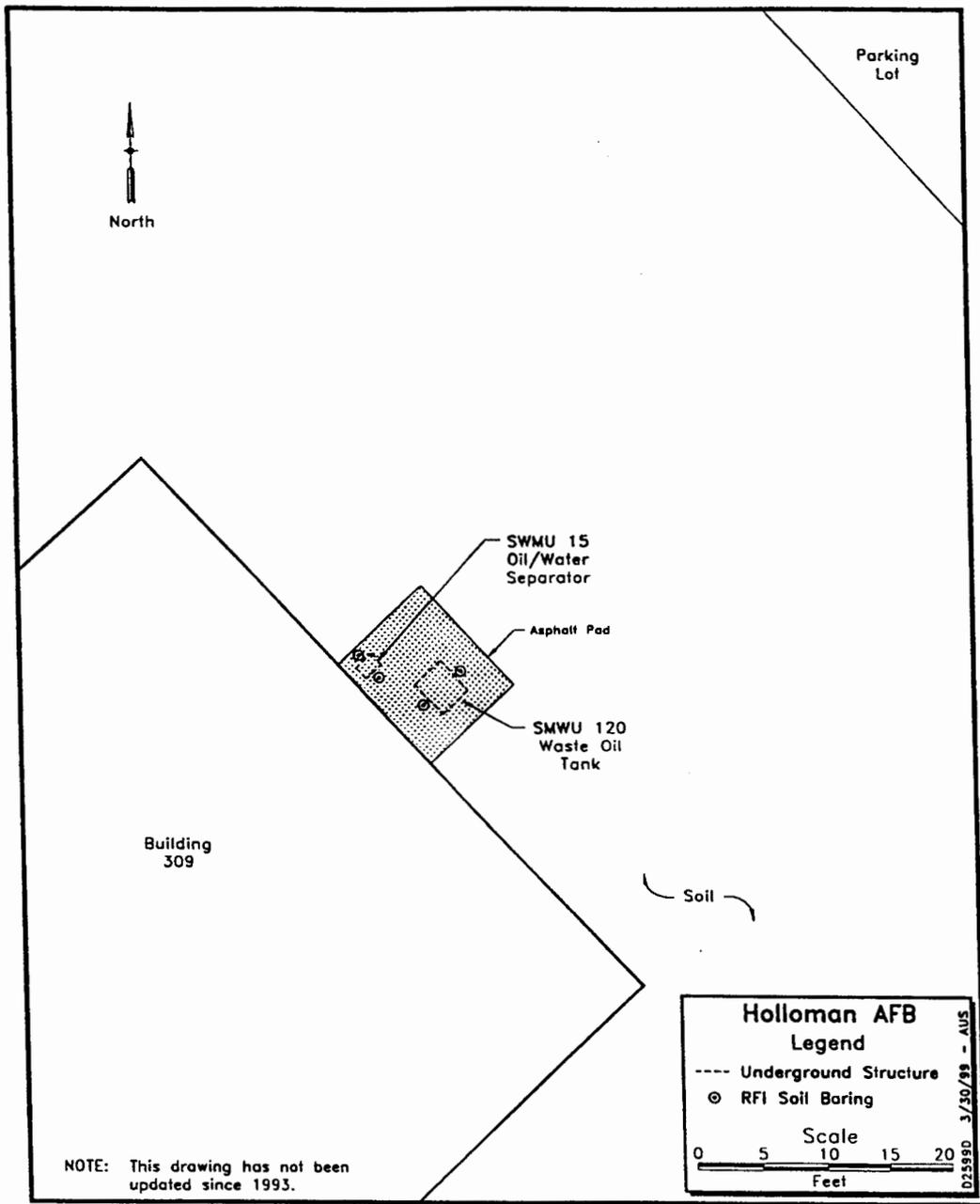
Evaluation of Relevant Information

A Phase I RI conducted in 1994 included the installation of two soil boreholes next to the O/WS (SWMU 15). Soil samples were collected at 2 ft to 8-ft intervals, and were analyzed for Volatile Organic Compounds (VOCs), Total Residual Petroleum Hydrocarbons (TRPH), metals, and Semivolatile Organic Compounds (SVOCs) in visibly contaminated soils. Methylene chloride was detected in two samples, but at concentrations significantly below trigger levels. Chromium was also detected above Upper Tolerance Limits (UTLs) in three samples, but all were below background levels. No chemicals of potential concern (COPCs) were identified by the risk screening process.

A qualitative Risk Assessment (RA) was conducted for SWMU 15. The results of the assessment concluded that a release was unlikely to have occurred at these sites. Since evidence of the existence of SWMU 120 was not confirmed and the concentrations of all detected contaminants at SWMU 15 were below trigger levels, both were recommended and approved for NFA.

Basis for Determination

SWMU 120 was determined to be appropriate for NFA status because its existence was not confirmed and the concentrations of all detected contaminants at the adjacent SWMU were below trigger levels.



SWMU 120 - Building 309 Waste Oil Tank

Figure 1

NFA CRITERION 3

NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from the SWMU/AOC.

2. SWMU 5--Building 137 Oil/Water Separator

Location

This SWMU is not located near any of the other SWMUs. SWMU 5, Building 137 O/WS, is approximately 4 ft long by 3 ft wide by 3 ft deep. The unit is installed below grade and is constructed of steel. The top of the unit is at ground level, and soil around the unit is covered with drain rock. For further description of the area, refer to Figure 2.

History

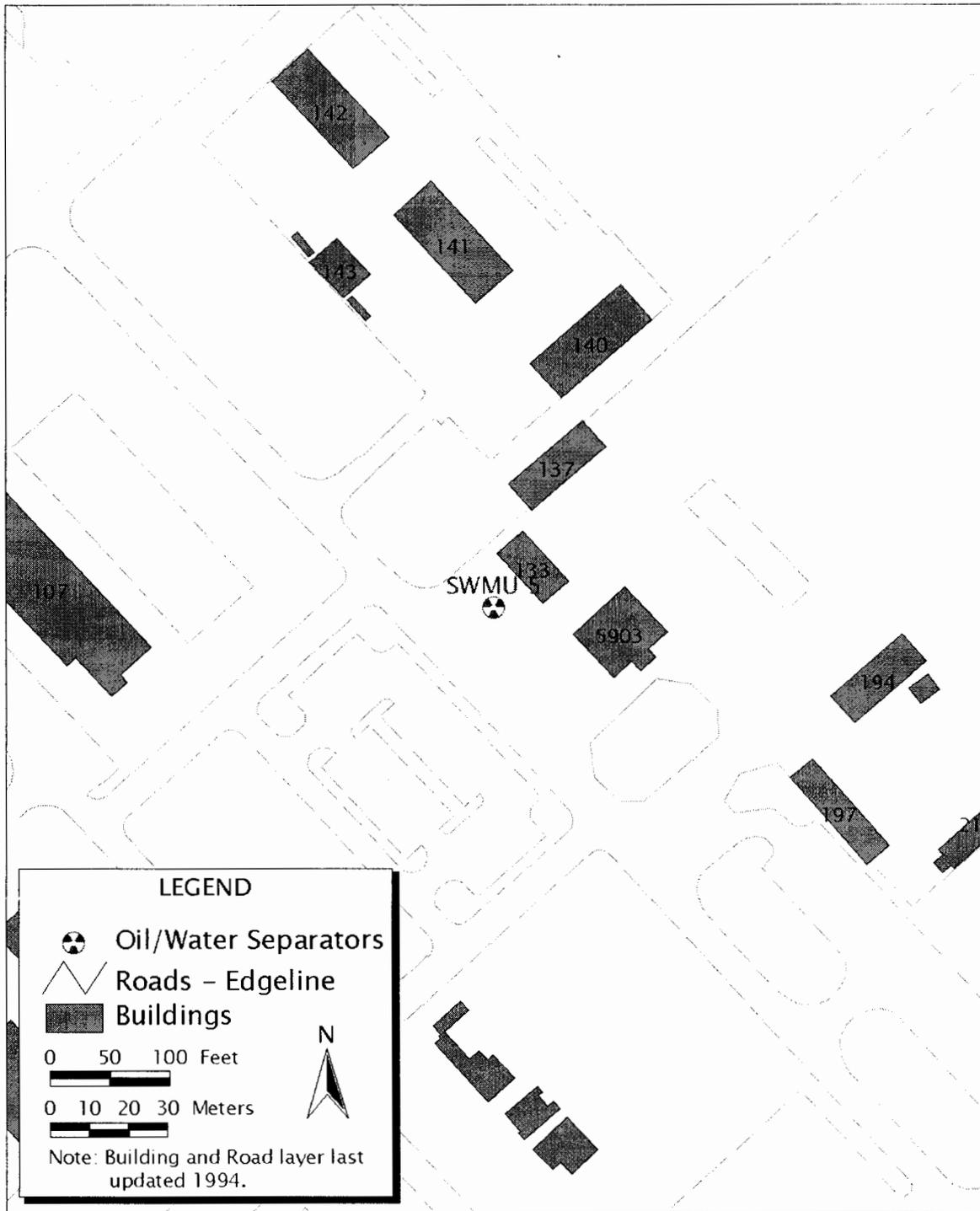
SWMU 5, Building 137 O/WS was in operation from 1964 to 1987. The source of waste was from the wash rack in Building 138. Oils, fuels, and wastes from various sources flowed from the wash rack to the O/WS. The amount of waste disposed of at this site is unknown. A visual inspection of the site indicated no evidence of a release.

Evaluation for Relevant Information

It was determined that a site investigation was not necessary at SWMU 5.

Basis for Determination

SWMU 5 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 5 - Building 137 Oil/Water Separator

Figure 2

3. SWMU 6--Building 193 Oil/Water Separator

Location

SWMU 6, Building 193 O/WS is adjacent to SWMU 4--Building 131 O/WS and to SWMU 3--Building 130 O/WS. SWMU 6 has a capacity of 400 gallons and is approximately 4 ft long by 4 ft wide by 4 ft deep. The unit is installed below grade and is constructed of concrete. The top of the unit is at the ground surface, and the soil around the unit is covered with asphalt. For further description of the area, refer to Figure 3.

History

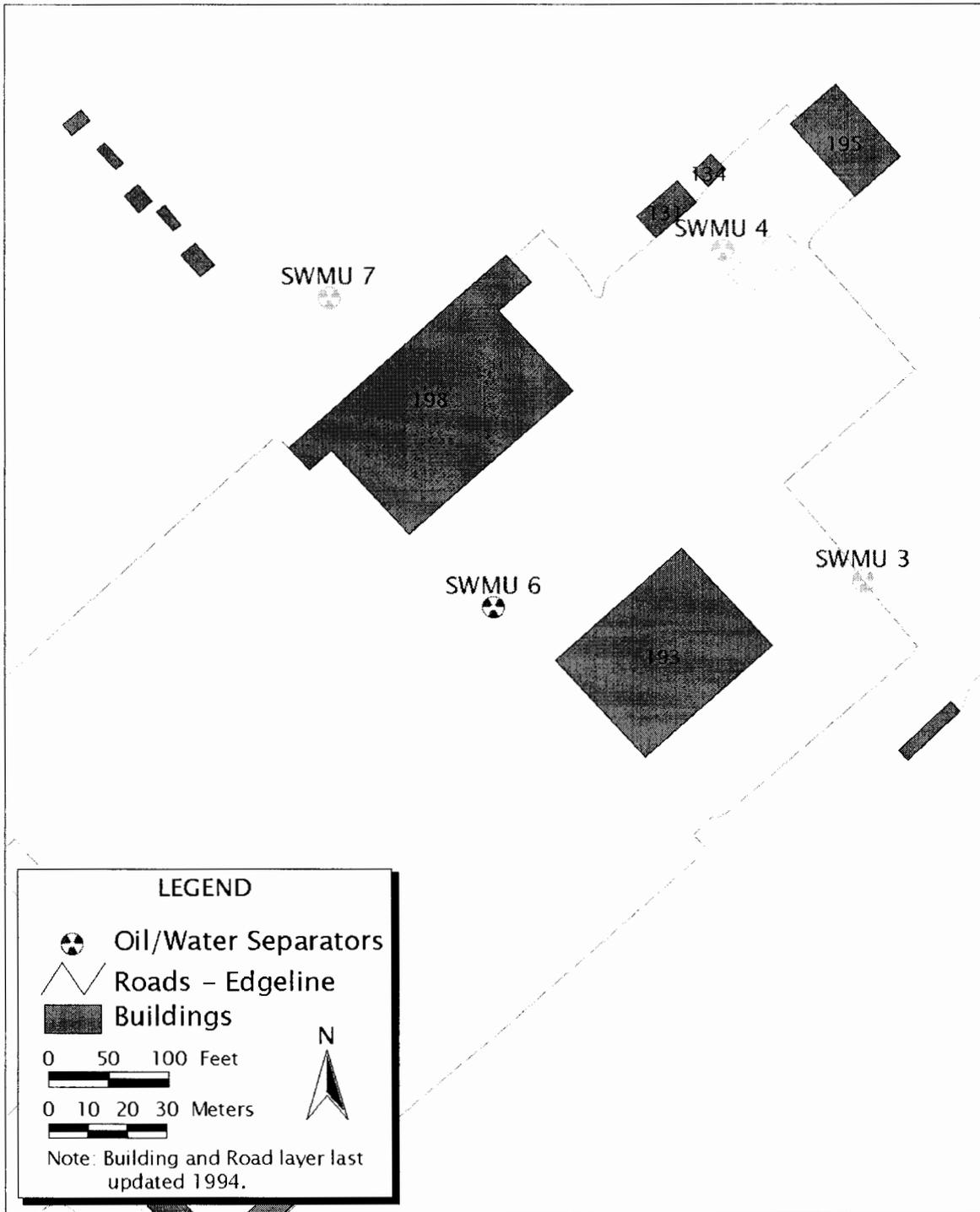
The beginning of the period of operation for this site is unknown. It is still in operation today. The source of waste is from Building 193's equipment area. A visual inspection of the site indicated no evidence of a release. The type and quantity of waste disposed is unknown.

Evaluation for Relevant Information

It was determined that a site investigation was not necessary at SWMU 6.

Basis for Determination

SWMU 6 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 6 - Building 193 Oil/Water Separator

Figure 3

4. SWMU 9--Building 282 Oil/Water Separator

Location

SWMU 9--Building 282 is adjacent to SWMU 10--Building 283 O/WS. SWMU 9, a three-chamber O/WS, services aircraft maintenance and corrosion operations in Building 282. The unit has a capacity of 500 gallons and an oil capacity of 180 gallons. The unit is installed below grade and is constructed of concrete. The top of the unit is approximately six inches above the ground surface, which is covered by drain rock. In 1991, a sediment trap was added upstream of this SWMU. For a further description of the area, see Figure 4.

History

This site began operation in 1978 and is still in operation today. The source of waste is from the equipment cleaning area in Building 282. The type and quantity of waste disposed is unknown. A visual site inspection did not indicate any releases.

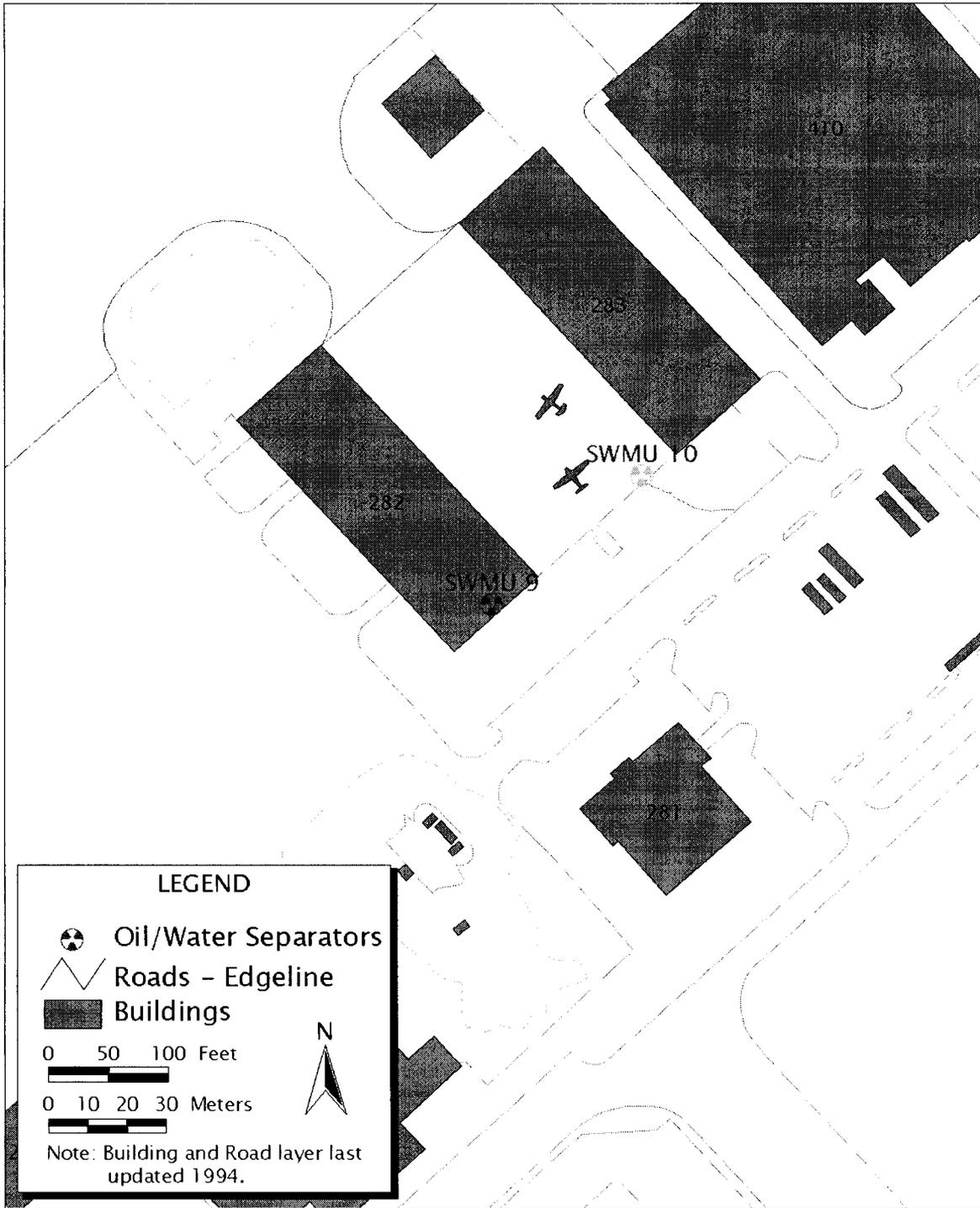
Evaluation of Relevant Information

SWMU 9 was investigated as part of the Table 3 RFI. During a Phase I RI, four locations were sampled on each of the four sides of the separator. In addition, one location was sampled down slope from the adjoining sediment trap. TRPH analysis was performed on each of the samples and results indicated no detection of TRPH above the release criterion.

Although TRPH results indicate that there has not been a release from the separator, slightly elevated concentrations at borehole 09-02 suggest that an isolated surface spill may have occurred at this location. The TRPH results, however, were well below the 100 mg/kg release criterion, and borehole logs show no evidence that contamination was observed during drilling.

Basis for Determination

SWMU 9 was determined to be appropriate for NFA status because no release to the environment is likely to occur in the future.



SWMU 9 - Building 282 Oil/Water Separator

Figure 4

5. SWMU 15--Building 309 Oil/Water Separator

Location

SWMU 15--Building 309 O/WS is adjacent to SWMU 120--Building 309 Waste Oil Tank. SWMU 15 is located approximately 10 ft from Building 309 on the southeast side of the building. The O/WS is level with the ground and surrounded by asphalt, and has a capacity of approximately 135 gallons. It is cracked and rusty, with no secondary containment features present. To view the exact location of SMWU 15, refer to figure 5.

History

This site was in operation from 1975 till 1989. A literature search and visual inspection during drilling activities indicated that no releases had occurred. However, a halon vapor monitoring system was not installed at the site to monitor possible leakage. The source of waste was oil and washwater discharged from the Building 309 vehicle wash rack. Rinsate and waste oils from Building 309 were routed though the O/WS for processing. The amount of waste disposed of at this site is unknown.

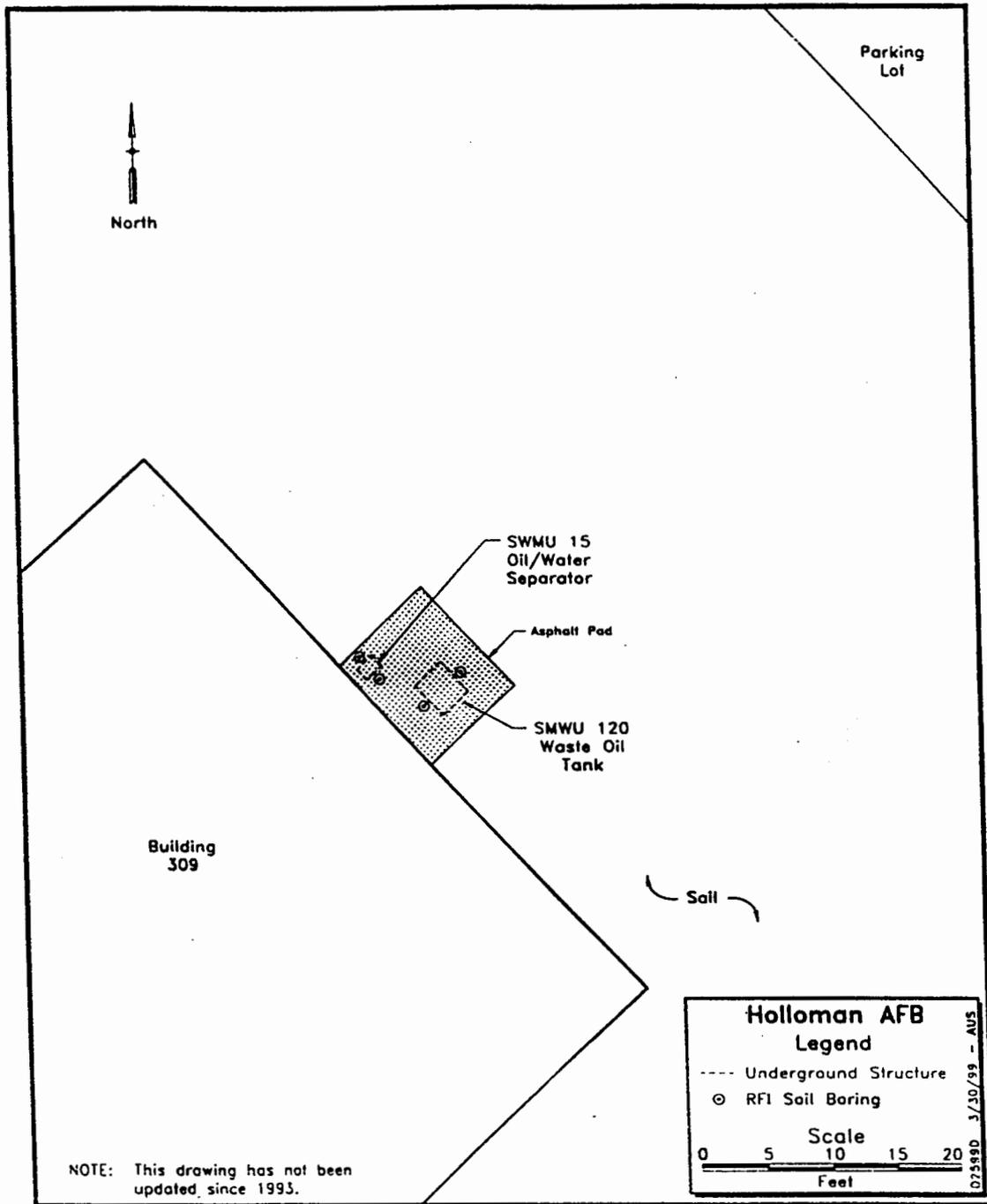
Evaluation of Relevant Information

A Phase I RI conducted in 1994 included the installation of two-soil boreholes next to the O/WS. Soil samples were collected at 2 ft to 8-ft intervals, and were analyzed for VOCs, TRPH, and metals. Methylene chloride was detected in two samples, but at concentrations significantly below trigger levels. Chromium was also detected above Upper Tolerance Limits (UTLs) in three samples, but all were below background levels. No COPCs were identified by the risk screening process.

Results from the remedial investigation indicate that a release had not occurred at this site from either SWMU 15 or SWMU 120. The concentrations of all detected constituents were below risk-based trigger criteria.

Basis for Determination

SWMU 15 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 15 - Building 309 Oil/Water Separator

Figure 5

6. SWMU 21--Building 702 Oil/Water Separator

Location

SWMU 21 is adjacent to SWMU 22--Building 704 Oil/Water Separator and SWMU 123--Building 704 Waste Oil Tank. SWMU 21, former Building 702 O/WS, was located adjacent to the POL wash rack, approximately 50 ft south of Building 703. The unit was constructed of steel and measured 1 ft wide by 1 ft long by 2 ft deep. The unit was installed below grade with the top at ground surface. The surrounding soil was uncovered. For further description of the site, refer to Figure 6.

History

The year this site was first used is unknown, and the site is still active today, but the O/WS was removed in 1997. The source of waste is from Building 703's wash rack (SWMU 89). Washwater, waste oil, and fuels from the adjacent wash rack were routed to the O/WS for processing. The quantity of waste disposed of at this site is unknown.

Neither a site visit nor a literature search revealed evidence of a past release. However, stained soils observed at the investigation may indicate that a release has occurred at this SWMU.

Evaluation of Relevant Information

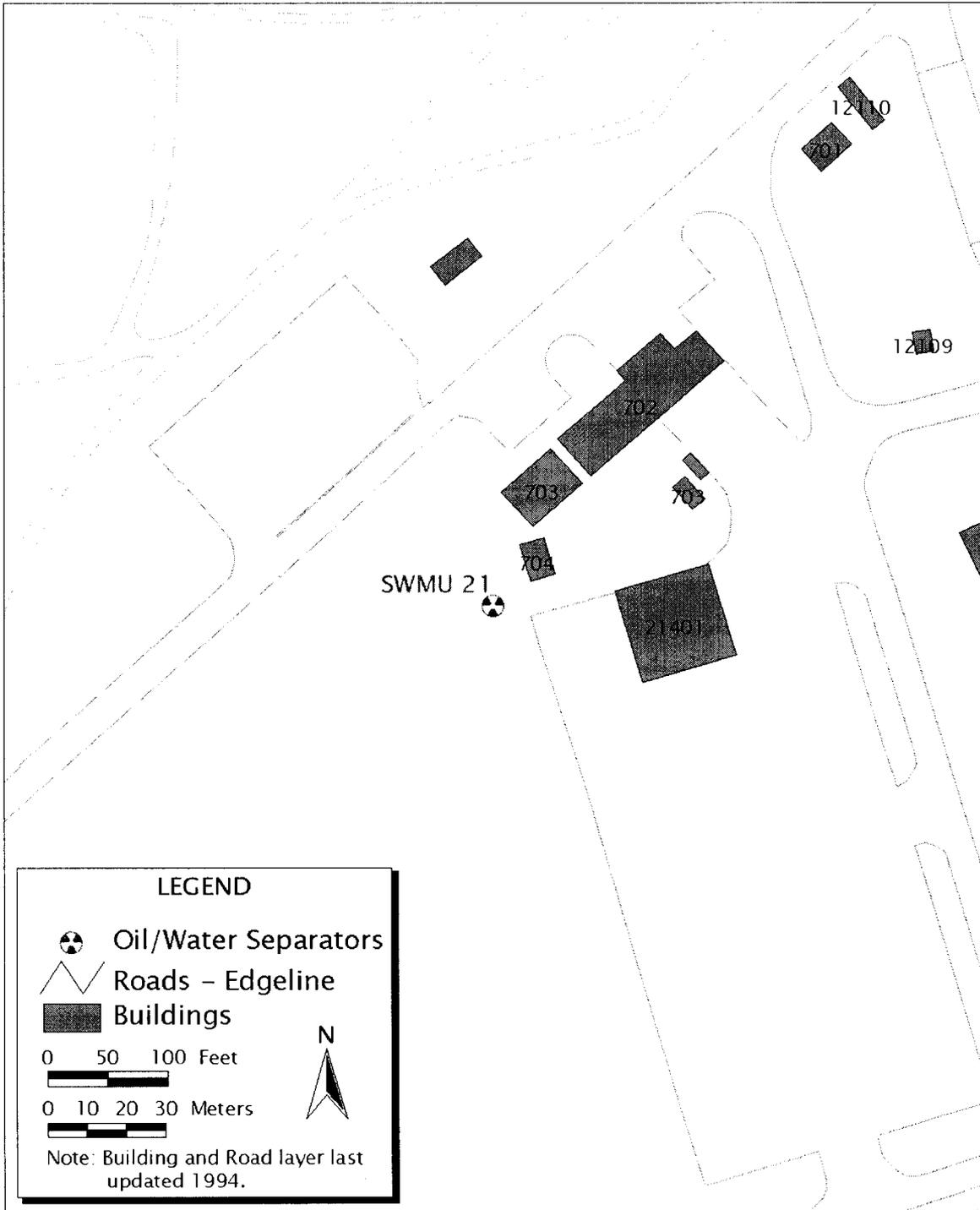
During a Phase I RI conducted in 1994, six soil boreholes were installed in the vicinity of SWMUs 21, 22, and 123. Samples were collected at 2-ft intervals to a depth of 12 ft. All samples were analyzed for VOCs, TRPH, and metals. Six additional samples, which showed visible evidence of contamination, were analyzed for SVOCs.

Chromium, lead, and mercury were detected at concentrations above background UTLs; however, none of the constituents exceeded trigger criteria. TRPH concentrations at SWMU 21 were well below the cleanup standard of 1,000 mg/kg.

By 1997, the SWMU 21 O/WS had been removed and decontaminated. Five closure samples were collected and analyzed for TRPH; analysis indicated that all samples were beneath 1,000 mg/kg.

Basis for Determination

SWMU 21 was determined to be appropriate for NFA status because no release to the environment has been discovered or is likely to occur in the future.



SWMU 21 – Building 702 Oil/Water Separator

Figure 6

7. SWMU 22--Building 704 Oil/Water Separator

Location

SWMU 22 is located adjacent to SWMU 123--Building 704 Waste Oil Tank, SWMU 54--Building 702 Waste Accumulation Area, SWMU 55--Building 702A Waste Accumulation Area, SWMU 21--Building 702 Oil/Water Separator, and SWMU 22--Building 704 Oil/Water Separator. SWMU 22, the former Building 704 O/WS, was located adjacent to the POL wash rack approximately 50 ft south of Building 703. For further description of this site, refer to Figure 7.

History

The period of operation for this site was 1980-1991. The source of waste was from the washwater from an adjacent POL wash rack. Washwater, waste oils, and fuels from the adjacent wash rack were routed to the O/WS for processing. The water in the O/WS was transferred by gravity to the waste oil tank via a subsurface pipe. The quantity of waste disposed of at this site unknown. By July 1997, the O/WS had been removed and decontaminated.

Neither a literature search nor site visit revealed evidence of a release.

Evaluation of Relevant Information

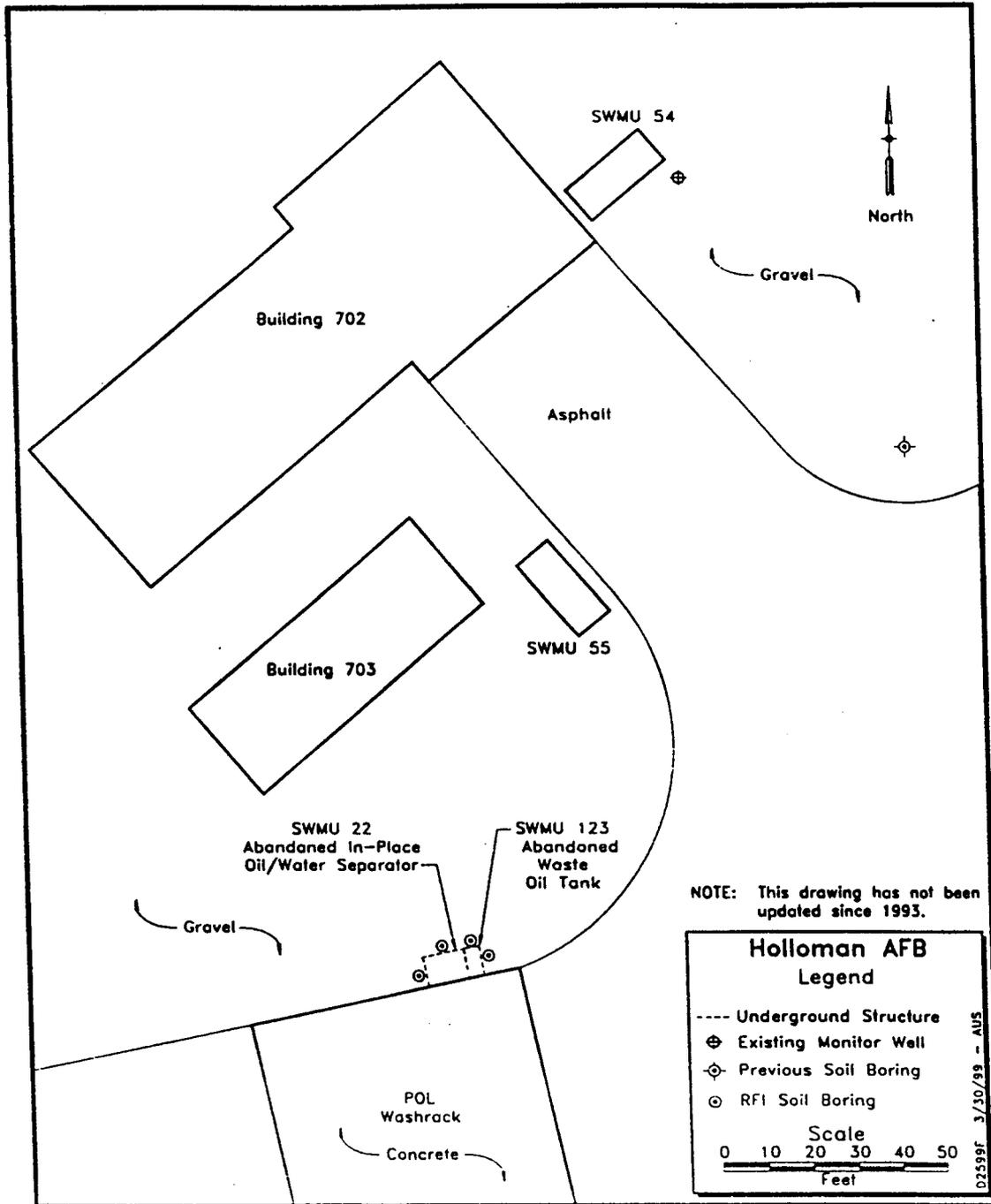
SWMUs 21, 22, and 123 were investigated during the same RI in 1994. For this study, six boreholes were installed and samples were collected at 2-ft intervals to a depth of 12-ft bgl. All samples were analyzed for VOCs, TRPH, and metals. In addition, six samples were analyzed for SVOCs because they appeared visibly contaminated.

Chromium, lead, and mercury were detected at concentrations above background UTLs; however, none of the constituents exceeded trigger criteria. TRPH concentrations were well below the cleanup standard of 1,000 mg/kg. Remedial action at adjacent SWMU 123 was extended to include SWMU 22. By 1997, the O/WS had been removed and decontaminated. In addition, 56 cubic yards of soil were excavated and removed from adjacent SWMU 123.

Five closure samples were collected to represent soil conditions upon completion of excavation. All samples were below the TRPH cleanup standard.

Basis for Determination

SWMU 22 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 22 - Building 704 Oil/Water Separator

Figure 7

8. SWMU 24--Building 801 Oil/Water Separator

Location

There are no SWMUs adjacent to this site. SWMU 24, Building 801 O/WS, services the aerospace ground equipment (AGE) wash rack (demolished in 1992). The total capacity of the unit was 100 gallons, with an oil capacity of 68 gallons. The unit was installed below grade and constructed of concrete. The top of the unit was raised a few inches above the ground surface, and surrounding soil was covered with asphalt. For a further description of this site, refer to Figure 8.

History

This site began operation in 1979 and is still in operation today. The source of waste was from Building 801's wash rack (SWMU 92). The type of waste that was disposed is unknown. The separator was converted to a sediment trap when a new O/WS was installed in 1991.

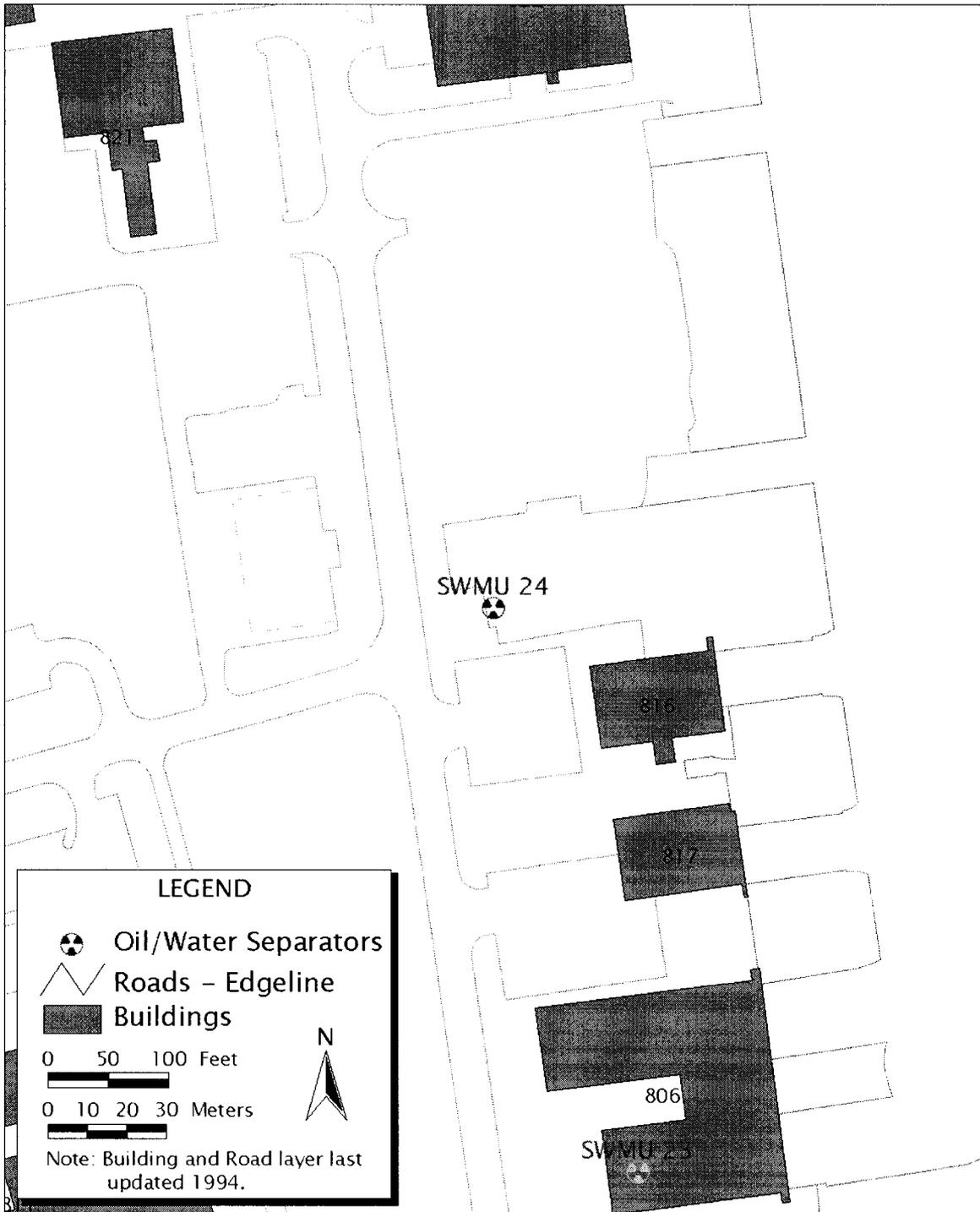
A visual site inspection revealed no evidence of releases at this unit.

Evaluation of Relevant Information

In 1997, the area around the current location of the sediment trap (former location of SWMU 24) was investigated to determine whether a release of a hazardous constituent had occurred from the unit. Eight soil samples from four boreholes were collected around SWMU 24 and analyzed for TRPH. As no TRPH concentrations exceeded the 100-mg/kg-release criterion, it was concluded that there had not been a release from SWMU 24.

Basis for Determination

SWMU 24 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 24 – Building 801 Oil/Water Separator

Figure 8

9. **SWMU 25--Building 805 Oil/Water Separator**

Location

SWMU 25 is adjacent to SWMU 31--Building 855 O/WS. SWMU 25, Building 805 O/WS, serviced vehicle maintenance operations in nearby Building 855. The total capacity of the unit was 50 gallons, with dimensions of 2 ft long by 2 ft wide by 2 ft deep. The unit was installed below grade and constructed of steel. The top of the unit was at ground surface, and the surrounding soil was covered with drain rock. For a further description of the area, refer to Figure 9.

History

This site began operation in 1987 and is still in service today. In 1987, the original O/WS was replaced with a new unit. The new separator was then converted to a sediment trap when a third O/WS was installed in 1991. The waste that was generated at SWMU 25 was from Building 855 Maintenance Areas. Fuels, lubricants, and other chemicals associated with vehicle maintenance activities were disposed of at this site. The amount of waste disposed of at SWMU 25 is unknown.

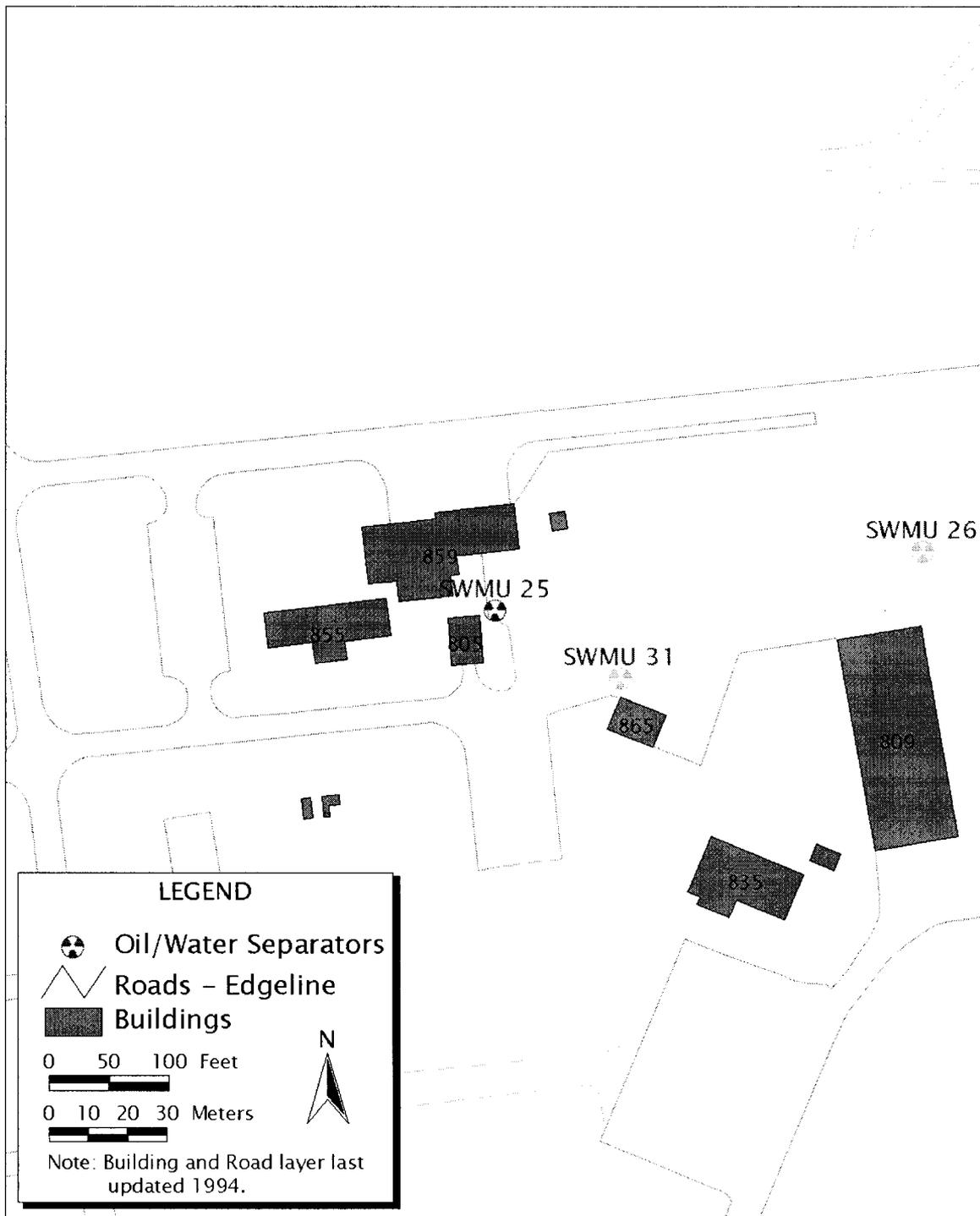
The previous unit was perforated prior to being taken out of service in 1987, indicating a potential release may have occurred from this unit.

Evaluation of Relevant Information

SWMU 25 was investigated as part of the Table 3 RFI in 1997. To determine whether a release had occurred from the unit, samples were collected from three boreholes adjacent to the existing O/WS at two depths. The analytical data indicated that a release from SWMU 25 had not occurred, as TRPH concentrations for all samples were below the 100-mg/kg-release criterion.

Basis for Determination

SWMU 25 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 25 – Building 805 Oil/Water Separator

Figure 9

10. **SWMU 26--Building 809 Oil/Water Separator**

Location

There are no SWMUS adjacent to SWMU 26. SWMU 26 is an O/WS located near Building 809. The total capacity of the unit is unknown, but the manway is approximately 2 ft by 2 ft. The unit is installed below grade and is constructed of concrete. The top of the unit is at the ground surface, and the soil around the unit is covered with concrete. For a further description of the site, refer to Figure 10.

History

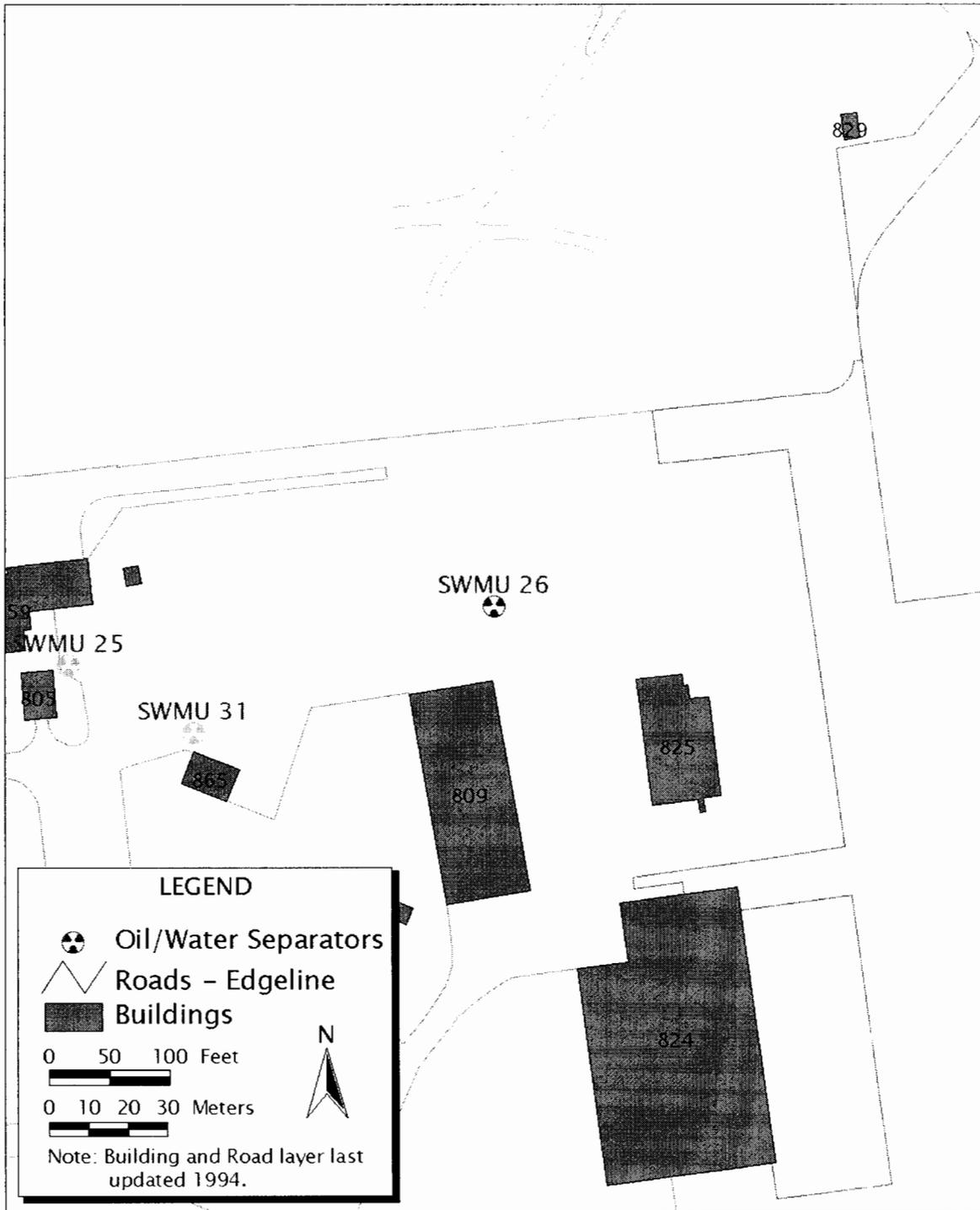
The period of operation for SWMU 26 was from 1978 to 1982. The source of waste was from Building 809's Maintenance Areas, but the type of waste that was disposed of is unknown. A site inspection revealed no evidence of releases at this unit.

Evaluation of Relevant Information

It was determined that a site investigation was not necessary.

Basis for Determination

SWMU 26 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 26 - Building 809 Oil/Water Separator

Figure 10

11. SWMU 30--Building 830 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 30. SWMU 30 is an O/WS that services the wash rack at Building 830. The capacity of the single-chamber unit is 240 gallons and its dimensions are 15 ft wide by 6 ft long by 10 ft deep. The unit is installed below grade, and is constructed of steel. The top of the unit is raised a few inches above the ground surface, and the soil around the unit is covered with drain rock. For a further description of the area, refer to Figure 11.

History

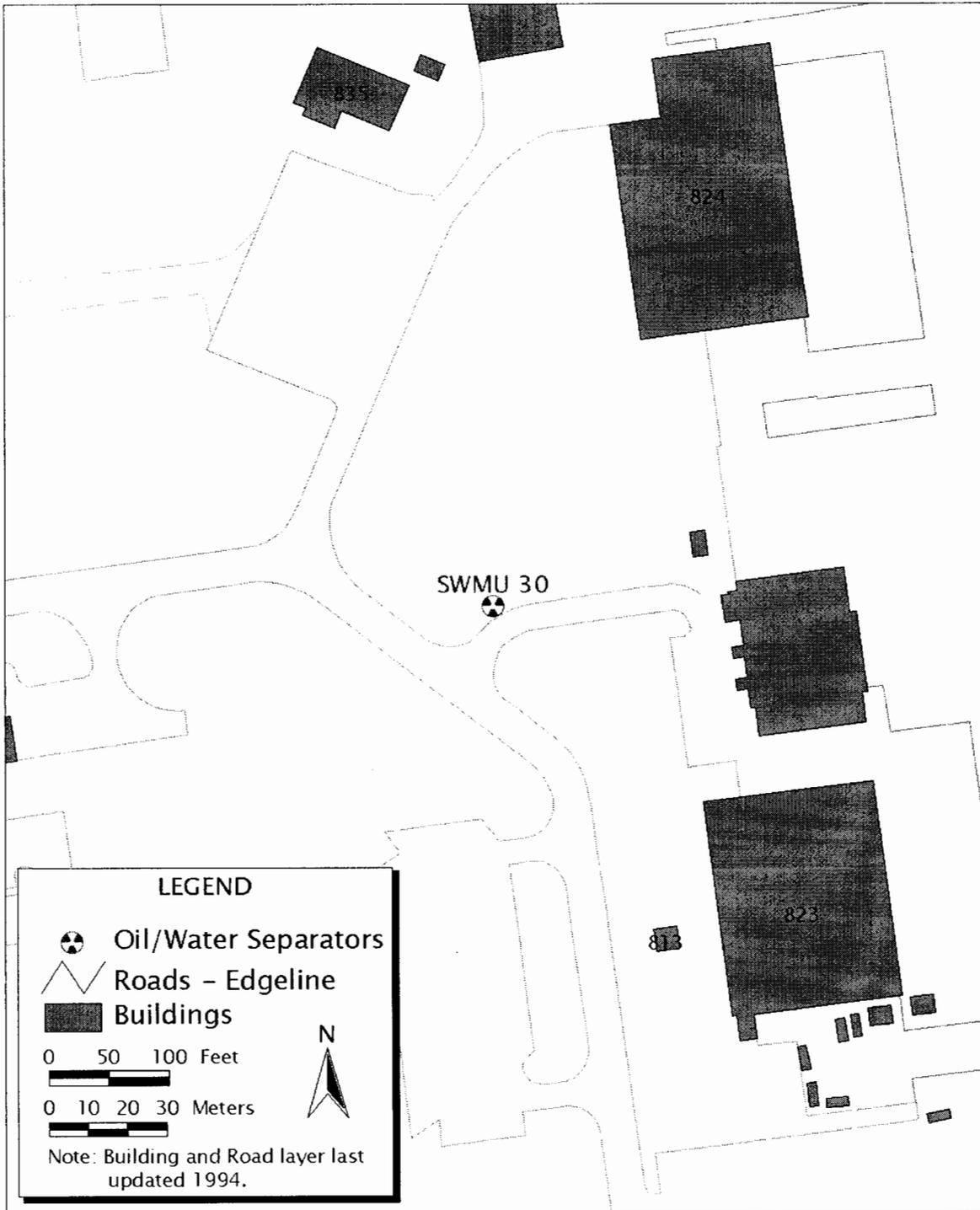
This site began operation in 1986 and is still in operation today. The source of waste is from the wash rack in Building 830. Detergents, oils, and other chemicals associated with wash rack activities were disposed of at this site, but the amount of waste disposed of is unknown. A visual site inspection revealed no evidence of release at this unit.

Evaluation of Relevant Information

It was determined that a site investigation was not necessary at SWMU 30.

Basis for Determination

SWMU 30 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 30 - Building 830 Oil/Water Separator

Figure 11

12. SWMU 33--Building 869 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 33. SWMU 33, Building 869 O/WS, serviced the maintenance area near Building 869. The unit is installed below grade. It is constructed of steel and has dimensions of 4 ft wide by 4 ft long by 4 ft deep. The top of the unit is raised slightly above the ground surface, and the soil around the unit is covered with drain rock. For a further description of the area, refer to Figure 12.

History

The period of operation for this site is unknown. The source of waste is from the maintenance area of Building 869. Detergents, oils, and other chemicals associated with maintenance activities were disposed of at this site, but the amount of waste disposed of at this site is unknown.

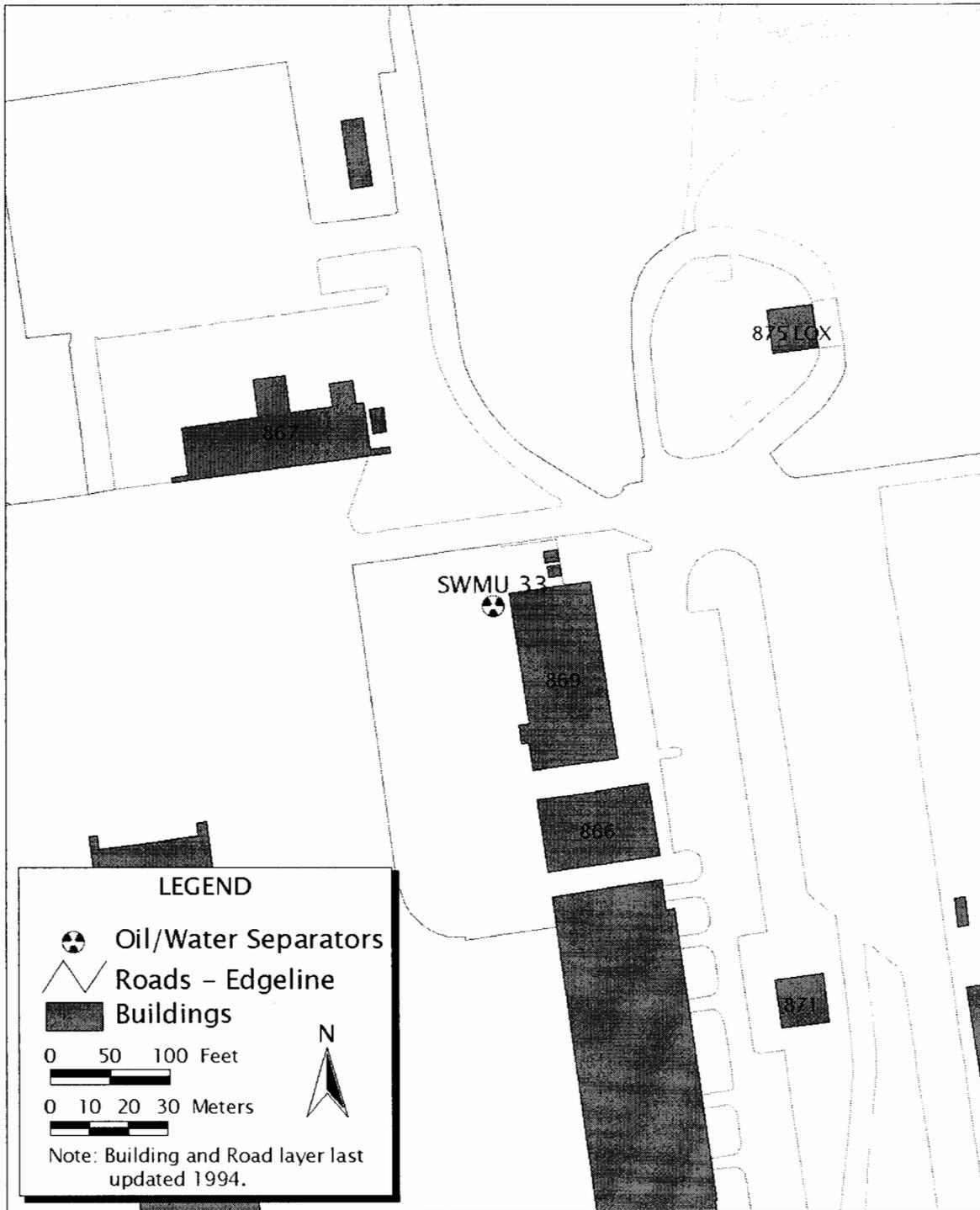
A visual site inspection did not reveal any evidence of releases from this unit.

Evaluation of Relevant Information

It was determined that a site investigation was not necessary at SWMU 33.

Basis for Determination

SWMU 33 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 33 – Building 869 Oil/Water Separator

Figure 12

13. SWMU 35--Building 903 Oil/Water Separator

Location

SWMU 35 is adjacent to SWMU 34--Building 902 Oil/Water Separator. SWMU 35, Building 903 O/WS, serviced corrosion control and vehicle maintenance operations for mobility equipment. The unit was approximately 2 ft long by 2 ft wide by 2 ft deep within a circular concrete vault. The unit was installed below grade and was constructed of steel. The top of the unit was raised approximately 2 ft above the ground surface. For a further description of the area, refer to Figure 13.

History

The period of operation for this site was 1986 – 1991. The source of waste was from painting and sandblast residuals. The type and quantity of waste disposed of is unknown. Although there is no record of a release at SWMU 35, stained soil around the unit suggested the possibility of a release. The soil around the unit was uncovered, and the soil around the vault was covered by drain rock. The separator was removed and replaced with a new sediment trap in 1991.

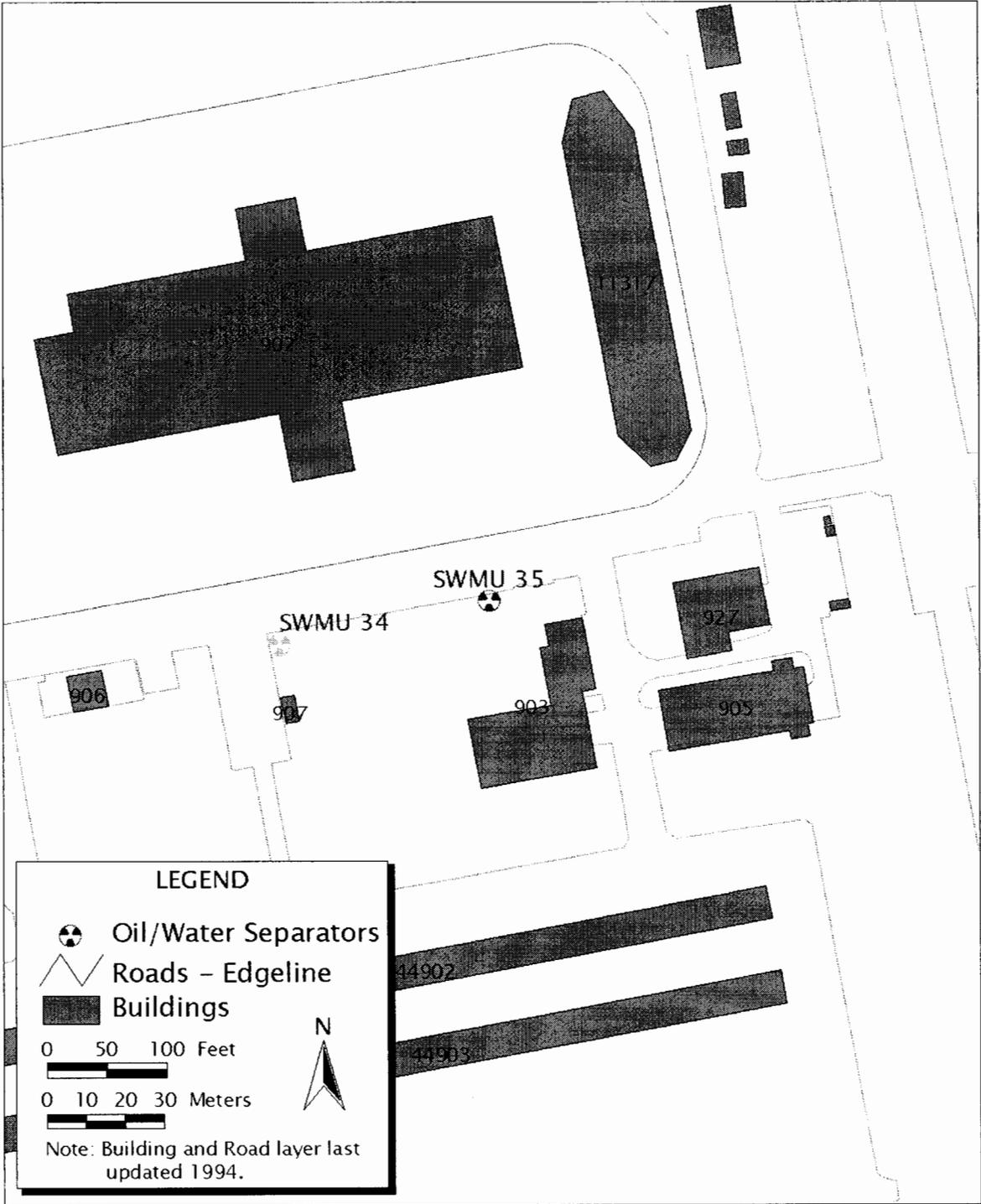
Evaluation of Relevant Information

A Phase I RI was conducted at SWMU 35 to investigate the possibility of a release. Six soil samples were collected at three locations around the unit and were analyzed for TRPH. Analytical results revealed low levels of TRPH in all samples, with a maximum concentration of 21.4 mg/kg. It was concluded from the results of the Phase I investigation that a release had not occurred at SWMU 35.

In July 1997, a waste oil tank related to SWMU 35 was removed. The WOT was removed, decontaminated, and transported off-site for recycling by Basin Pipe and Metal. Based on the results of the Phase I RI, it was not necessary to remove any soil from the site. Five closure samples were collected and analyzed for TRPH. Analytical results indicated all samples were below the 1,000-mg/kg cleanup level for TRPH.

Basis for Determination

SWMU 35 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 35 - Building 903 Oil/Water Separator

Figure 13

14. SWMU 42--Building 1 Waste Accumulation Area

Location

There are no SWMUs adjacent to SWMU 42. SWMU 42 (SS-09) is the Waste POL Drum Storage/Spill Area site located west of Building 195 in the main base area. Groundwater occurs from 5 to 40 ft below ground level (bgl), and the regional groundwater flow direction is controlled by southwest-trending arroyos. For a further description of the area, refer to Figure 14.

History

The period of operation for this site was from 1965 to 1980. The source of waste was 55-gallon drums containing waste engine oils, hydraulic and transmission fluids, solvents, and waste fuels. Between 1965 and 1980, waste oils and solvents were stored at this location. Periodically, stored material was either burned during fire training exercises or processed for off-base recycling or disposal. Although numerous small spills and drum overflows occurred, the overall quantity of spilled waste is unknown. Site reconnaissance revealed an area of 500 ft by 600 ft where numerous small spills were visible.

Evaluation of Relevant Information

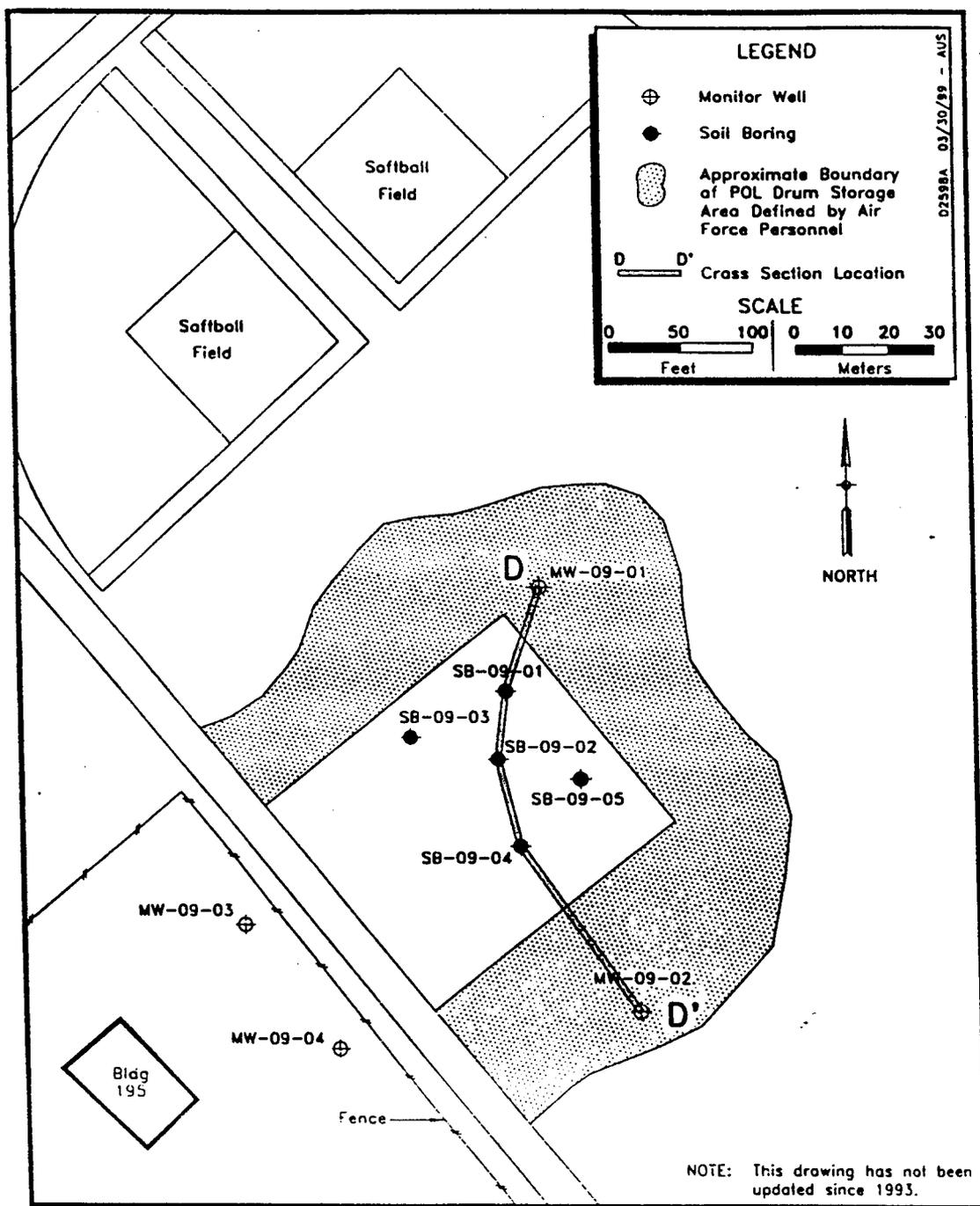
A record search for SWMU 42 in 1983 indicated the need for a remedial investigation, which took place in 1991 and 1992. Three samples were collected from each of five soil boreholes installed at potential spill locations. Chemical analysis confirmed that contamination was restricted to the surface soil. Petroleum hydrocarbons were detected above 1,000 mg/kg in surface soils, and lead exceeded the background level for Holloman AFB (400 mg/kg).

Four groundwater-monitoring wells were installed at the site and analyzed for VOCs, total metals, anions, and total dissolved solids (TDS). With the exception of chloride and sulfate, water quality parameters were detected at concentrations below the established background levels for Holloman AFB.

A risk assessment performed in 1992 determined that the site's current level of use presents an acceptable health risk. However, if the area's usage changes in the future, a reevaluation of the risks would be necessary. No remedial action has taken place at SWMU 42.

Basis for Determination

SWMU 42 was characterized in accordance with current applicable state or federal regulations and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.



SWMU 42 - Building 1 Waste Accumulation Area

Figure 14

15. SWMU 55--Building 702A Waste Accumulation Area

Location

SWMU 55 is adjacent to both SWMU 123--Building 704 Waste Oil Tank and SWMU 22--Building 704 Oil/Water Separator. SWMU 55 is located approximately 3-ft northeast and 20-ft southeast of Building 702. SWMU 55, Building 702A Waste Accumulation Area, consists of an 8 ft by 20 ft steel building used to store flammable liquids. For a further description of the area, refer to Figure 15.

History

This site began operation in 1987 and is still being used today. Waste oil from Building 702 Vehicle and Equipment Maintenance, and flammable liquids stored at Building 702A are the sources of waste for this site. Waste oils were stored in drums in the temporary buildings at the SWMU. Some drums may have been stored outside the building in metal drip pans on wooden pallets. No staining was visible. The amount of waste disposed of at this site is unknown.

Spills were reported to have occurred at SWMU 55 inside of the building, but were cleaned up. During site visits, stains were observed on pallets and drip pans, suggesting releases may have occurred outside the building. Soil staining observed during drilling at SWMU 55 provided additional evidence of a release from this site.

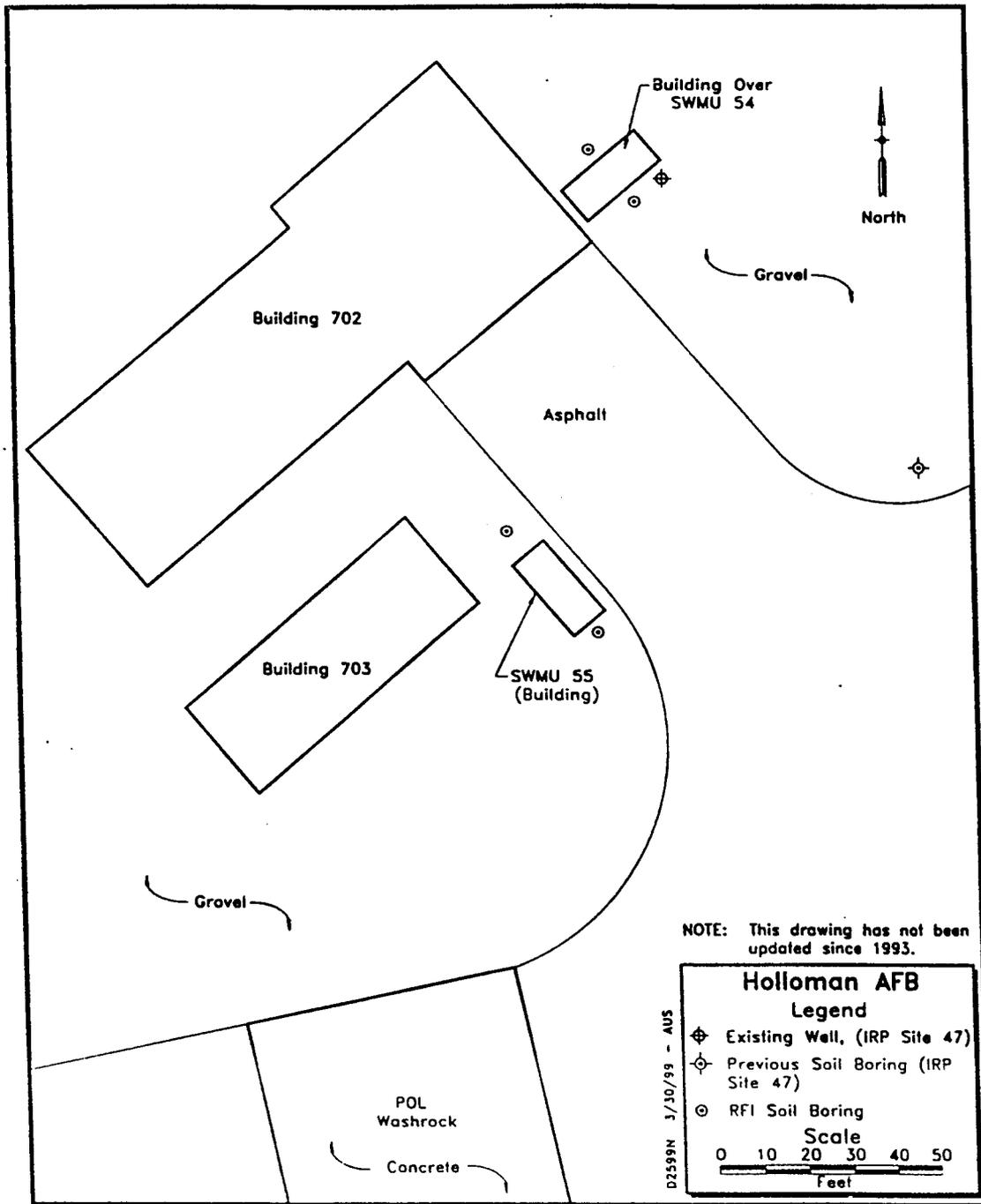
Evaluation of Relevant Information

During a Phase I site investigation, two soil boreholes were installed at SWMU 55. Soil samples were collected at 2-ft intervals to the groundwater. All samples were analyzed for TRPH, VOCs, and metals. Three samples were also analyzed for SVOCs because they appeared visibly contaminated.

2-Hexanone, 4-methyl-2 pentanone, acetone, and methyl ethyl ketone were detected in one sample, although similar concentrations were found in the method blank associated with the sample. Acetone was detected in several samples at concentrations higher than the method blank. All VOCs were detected at concentrations below trigger criteria. Barium, cadmium, chromium, lead, and mercury were detected at concentrations above background UTLs in several samples. TRPH was also detected in five samples. However, none of the concentrations of metals or TRPH exceeded trigger criteria. Stained soils were noted at these locations during drilling. All constituents detected at SWMU 55 were below trigger criteria. The results of a RA concluded that the SWMU did not pose an unacceptable risk to human health or the environment.

Basis for Determination

SWMU 55 was determined to be appropriate for NFA status because even though a release to the environment has occurred, the release did not pose an unacceptable risk to human health or the environment.



SWMU 55 - Building 702A Waste Accumulation Area

Figure 15

16. SWMU 56--Building 807 Waste Accumulation Area

Location

There are no SWMUs adjacent to SWMU 56. SWMU 56, Building 807 Waste Accumulation Area, is located approximately 60 feet northwest of former Building 807 in the West Base area. For a further description of the area, refer to Figure 16.

History

SWMU 56 began operation in 1978 and ended operation in 1990. The SWMU consists of an approximately 45 ft by 75-ft area where drums containing waste oil and solvents were stored on runway matting. The drums have been removed and the area is now covered with gravel. The source of waste was from the Test Cell in Building 807. Drums containing waste oil and solvents from the former Building 807 Test Cell were stored at SWMU 56. In addition, drums of waste fuels and product fuels were stored at this site.

Although there is no record of a release at the site, some stained surface soil was observed at the site indicating the possibility of a release.

Evaluation of Relevant Information

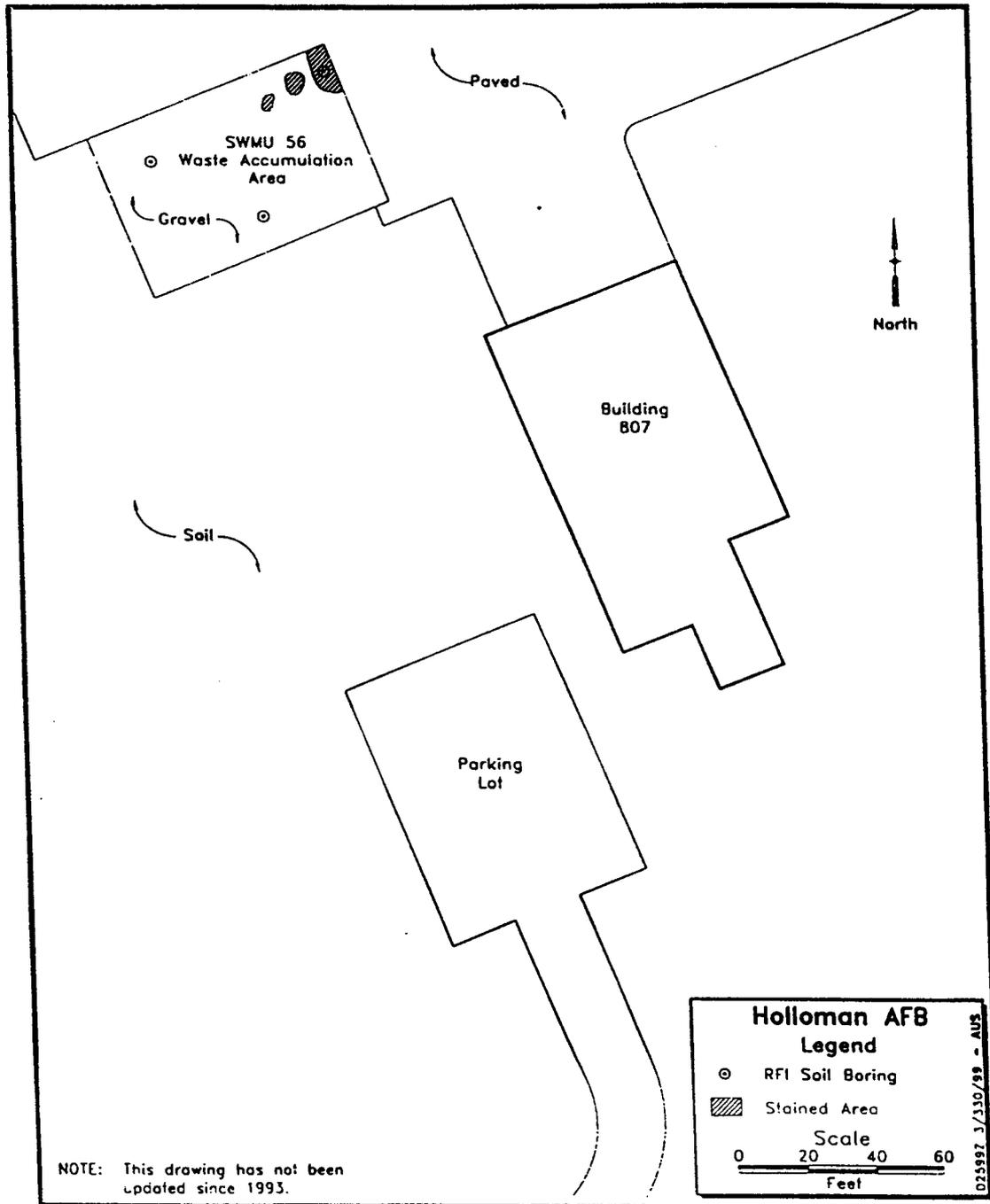
During a Phase I site investigation, three soil boreholes were installed at SWMU 56. Soil samples were collected at 2-ft intervals to the groundwater. All samples were analyzed for TRPH, VOCs, and metals. In addition, any soils that appeared contaminated were analyzed for SVOCs.

Although several VOCs were detected, none were detected above trigger criteria. Barium, chromium, and mercury were detected at concentrations above background UTLs in several samples, but were below trigger criteria. TRPH was detected in all of the samples, but were also detected below trigger criteria.

A RA for SWMU 56 was conducted, and it was determined that the site did not pose a significant risk to human health or the environment. The concentrations of all detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard.

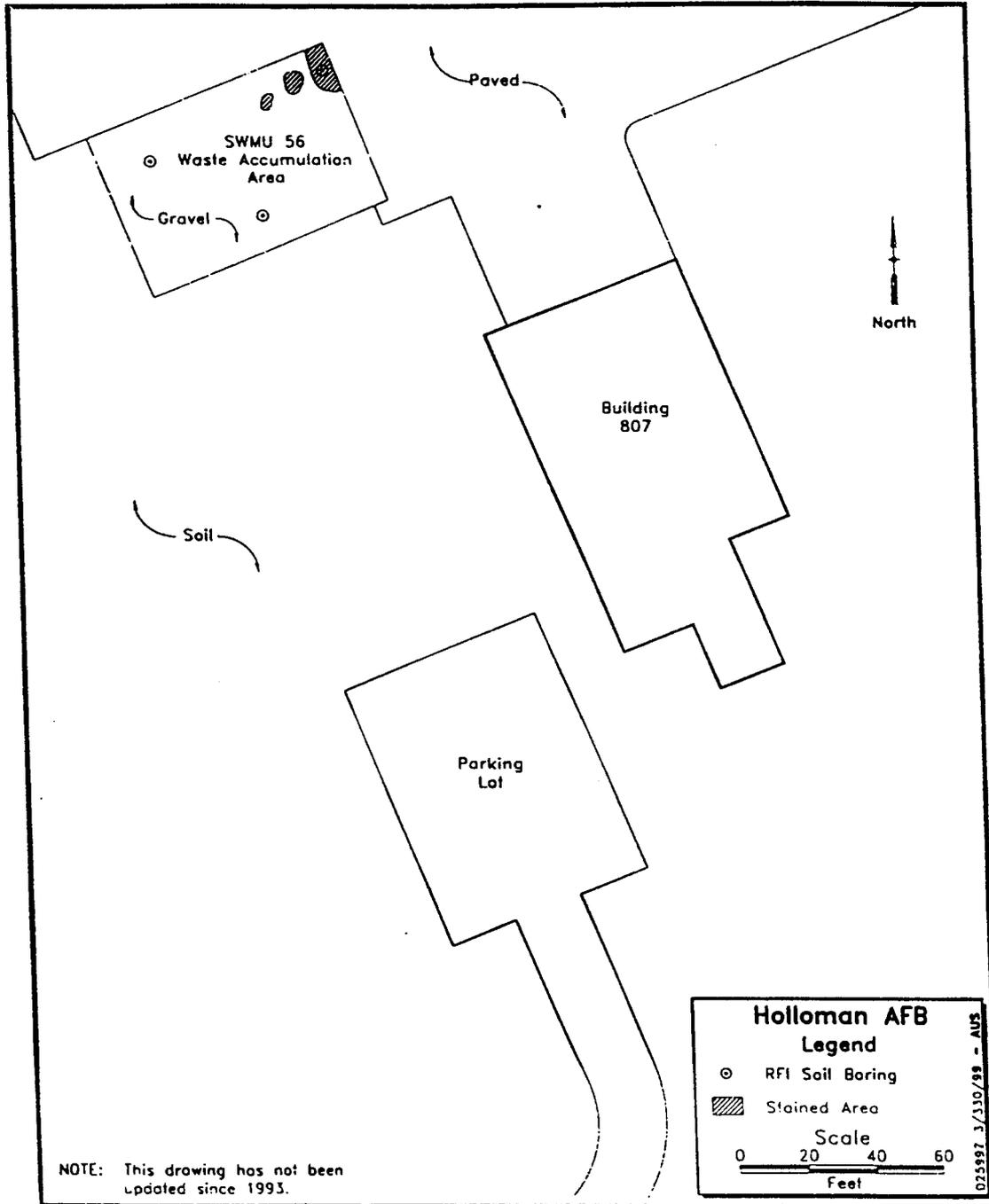
Basis for Determination

SWMU 56 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the potential release did not pose an unacceptable risk to human health or the environment.



SWMU 56 - Building 807 Waste Accumulation Area

Figure 16



SWMU 56 - Building 807 Waste Accumulation Area

Figure 16

17. SWMU 63--Building 867 Waste Accumulation Area

Location

There are no SWMUs adjacent to SWMU 63. SWMU 63 is located approximately 50 ft northwest of Building 867, and is now covered with gravel and some asphalt. For a further description of the area, refer to Figure 17.

History

SWMU 63, Building 867 Waste Accumulation Area, consists of an area of soil approximately 10 ft by 10 ft where drums of excess paint and paint thinners were stored on wooden pallets prior to disposal. Occasionally, drums were placed on bare ground with no secondary containment. The period of operation for this site was from 1984 to 1987. Waste consisted of excess paint and paint thinners from Building 867. The drums were transferred to the Building 809 Waste Accumulation Area for disposal.

There is no record of a release at this SWMU. However, the area was reportedly taken out of service because of mismanagement. In the past, light surface staining was observed at the site, suggesting a possible release.

Evaluation of Relevant Information

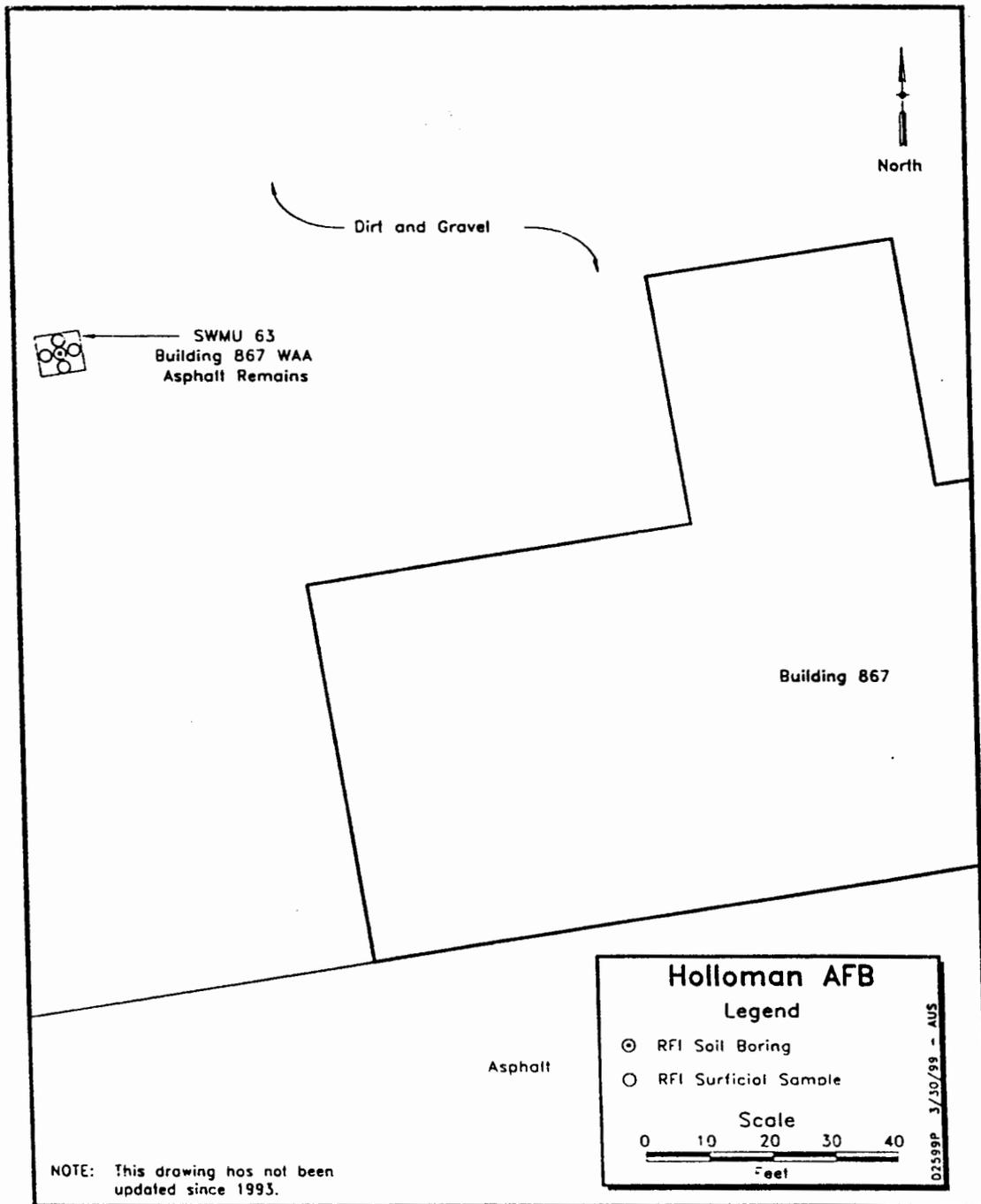
During a Phase I conducted in 1994, one soil borehole was installed at the site. Soil samples were collected at 2-ft intervals to the groundwater. Hand auger samples were also collected from 0 ft to 1-ft bgl at four locations surrounding the borehole. All samples were analyzed for VOCs, nonhalogenated VOCs, SVOCs, and metals.

Acetone was detected in all of the samples, methylene chloride in several samples, and methanol in one sample at concentrations above detection limits. However, no organic compounds were detected at concentrations above trigger criteria. Chromium and lead were detected at concentrations above background UTLs; however, none exceeded trigger criteria.

A quantitative RA was conducted for SWMU 63 to determine the need for further investigation at the site based on potential risk to human health or the environment. Contamination was determined to have little impact to local wildlife or human activities. Because all detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard for Holloman AFB, it was concluded that a release from SWMU 63 had not occurred.

Basis for Determination

SWMU 63 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 63 - Building 867 Waste Accumulation Area

Figure 17

18. SWMU 71--Building 1178A Waste Accumulation Area

Location

There are no SWMUs adjacent to SWMU 71. SWMU 71, Building 1178A Waste Accumulation Area, is located approximately 50 ft southwest of Building 1178A. For a further description of the area, refer to Figure 18.

History

The period of operation for SWMU 71 was from 1954 to 1988. The source of waste was from parking activities in Building 1178A. The waste consisted of paint, lacquer thinner, paint thinners (F005), PD-80 solvent, and toluene (F005) mixed with acetone (F003). These wastes were stored in one 55-gallon drum that was picked up by the Defense Reutilization and Marketing Office (DRMO) approximately once a week, and replaced with a new, empty drum. The SWMU consists of three concrete pads upon which the 55-gallon drums were stored. Two smaller pads, approximately 3 ft by 3 ft, are located adjacent to a larger pad that is 3 ft by 7 ft. All three concrete pads are in good condition and are currently surrounded by gravel. No secondary containment structures are present.

There is no record of a release at this SWMU; however, some staining on the pads indicates that releases may have occurred.

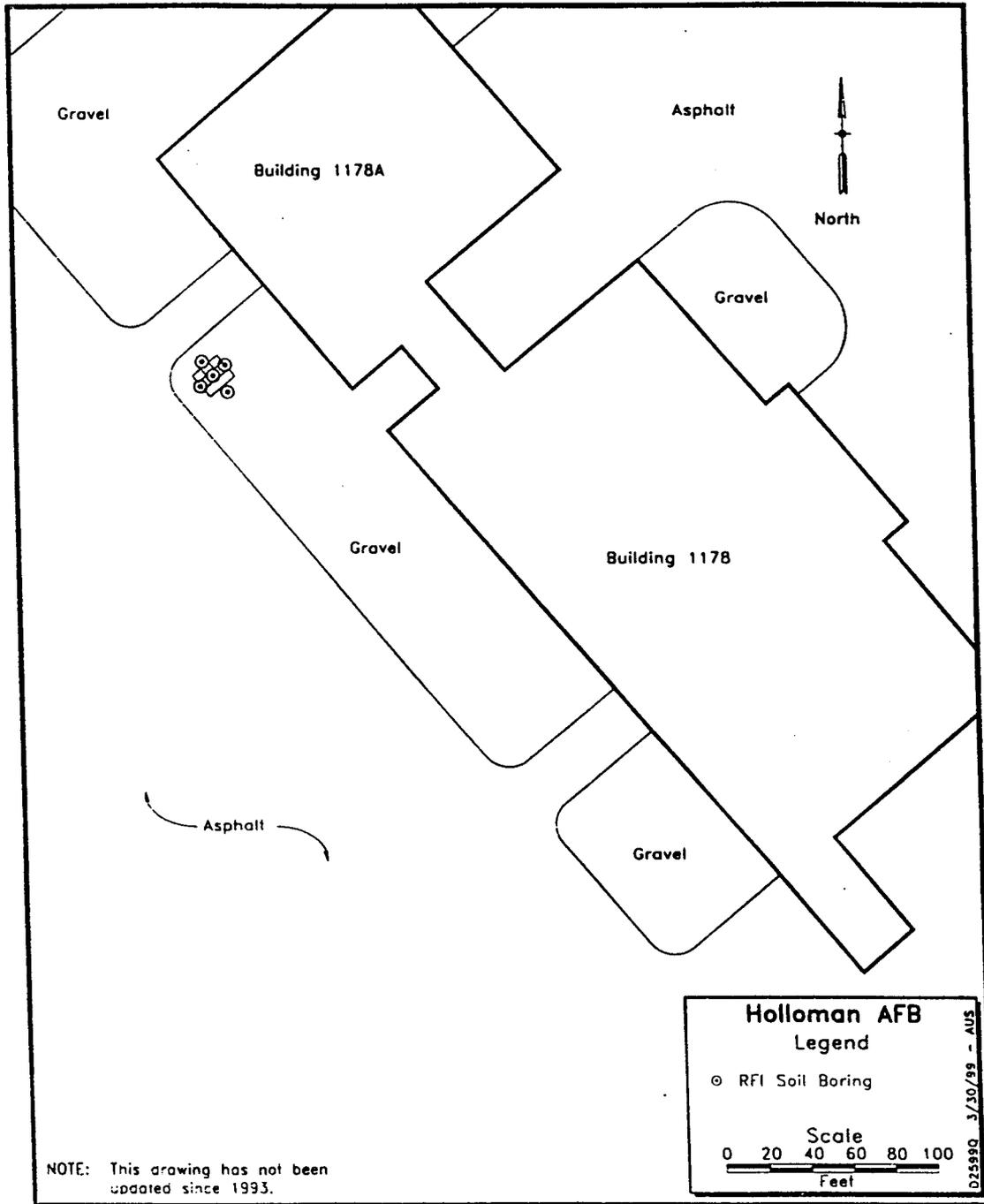
Evaluation of Relevant Information

As part of a Phase I RI conducted in 1994, five soil boreholes were installed at the site. Soil samples were taken from the surface to 6-ft bgl in four outer boreholes, and from the surface to groundwater in the central borehole. All samples were analyzed for TRPH, VOCs, nonhalogenated VOCs, SVOCs, PCBs, and metals. No organic constituents were detected at concentrations exceeding trigger criteria. Arsenic was detected at concentrations above background UTLs in two samples. However, no metals concentrations exceeded trigger criteria. TRPH was not detected in any of the samples.

A qualitative RA was conducted for SWMU 71 to determine the need for further investigation based on potential risk to human health or the environment. It was determined that because of the small size of the SWMU as well as the low levels of contamination, the site did not contribute significantly to ecological risk. Because concentrations of all detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard for Holloman AFB, it was concluded that a release from SWMU 71 had not occurred.

Basis for Determination

SWMU 71 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 71 - Building 1178A Waste Accumulation Area

Figure 18

19. SWMU 78--Trim Pad 3 Waste Accumulation Area

Location

There are no SWMUs adjacent to SWMU 78. SWMU 78, Trim Pad 3 Waste Accumulation Area, is located approximately 150 ft west of the F-117A Squadron Operations Facility. For a further description of the area, refer to Figure 19.

History

The period of operation for this site was from 1986 to 1990. There were various sources of waste at this location. Waste oils were stored in drums and bowzers on the pad, and waste oils and hydraulic fluid were stored in 55-gallon drums within the shed. The SWMU consists of a sloping circular concrete pad approximately 150 ft in diameter on which the 55-gallon drums and the 400-gallon oil bowzers of waste oil had been stored. The drums were staged on wooden pallets, and the bowzers were on wheels positioned over metal drip pans. A portable, fully enclosed shed with a 570-gallon spill reservoir was located on the pad but is no longer present. The shed was designed for the safe storage of flammable liquids. The pad, once weathered, cracked, and patched in places, has been replaced with a new pad. A brick wall, previously constructed around a portion of the pad near the drainage ditch, has been removed.

There is no record of a release at the SWMU; however, staining observed on the former concrete pad near the bowser and drum locations indicate the possibility of a release.

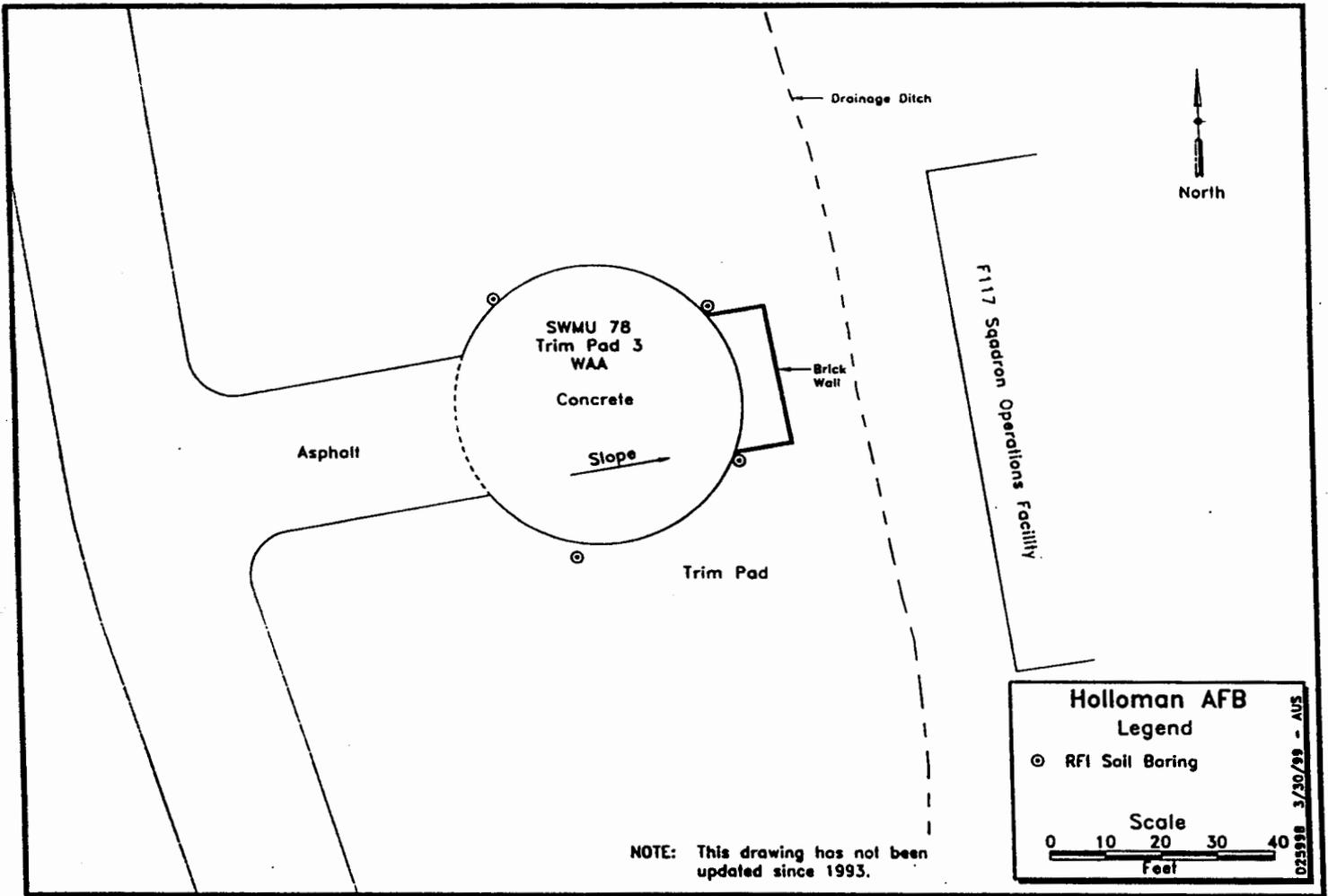
Evaluation of Relevant Information

As part of a Phase I RI conducted in 1994, four soil boreholes were installed at the SWMU. Soil samples were collected at 2-ft intervals to the groundwater. All samples were analyzed for TRPH, VOCs, pesticides/PCBs, and metals. In addition, samples were analyzed for SVOCs if soil appeared contaminated during collection. No organic constituents, metals, or TRPH were detected at concentrations exceeding trigger criteria.

A qualitative RA was conducted for SWMU 78 to determine the need for further investigation based on potential risk to human health or the environment. It was determined that the SWMU is unlikely to pose a risk to wildlife or the environment due to the low levels of detected constituents. Because concentrations of all detected contaminants were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard for Holloman AFB, it was concluded that a release from SWMU 78 did not occur.

Basis for Determination

SWMU 78 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 78 - Trim Pad 3 Waste Accumulation Area

Figure 19

20. SWMU 91--Building 816 Wash Rack

Location

There are no SWMUs adjacent to SWMU 91. SWMU 91, Building 816 Wash Rack, consists of a 15 ft by 25 ft concrete pad, curbed on two sides and sloped to a catch basin that discharged to an O/WS and waste oil tank. The pad is currently in poor condition and cracking is evident. For a further description of the area, refer to Figure 20.

History

The period of operation for this site is unknown. The source of waste is washwater containing oil and fuel from cleaning vehicles and equipment. The quantity of waste disposed of is unknown. No information concerning spills was available for this site. A new O/WS was installed in 1991 and the old unit is now used as a grit chamber. The age and material of construction of the old unit are unknown. However, each end of the pad is open to the surrounding soil, and the pad itself is in poor condition, making the probability of a release high.

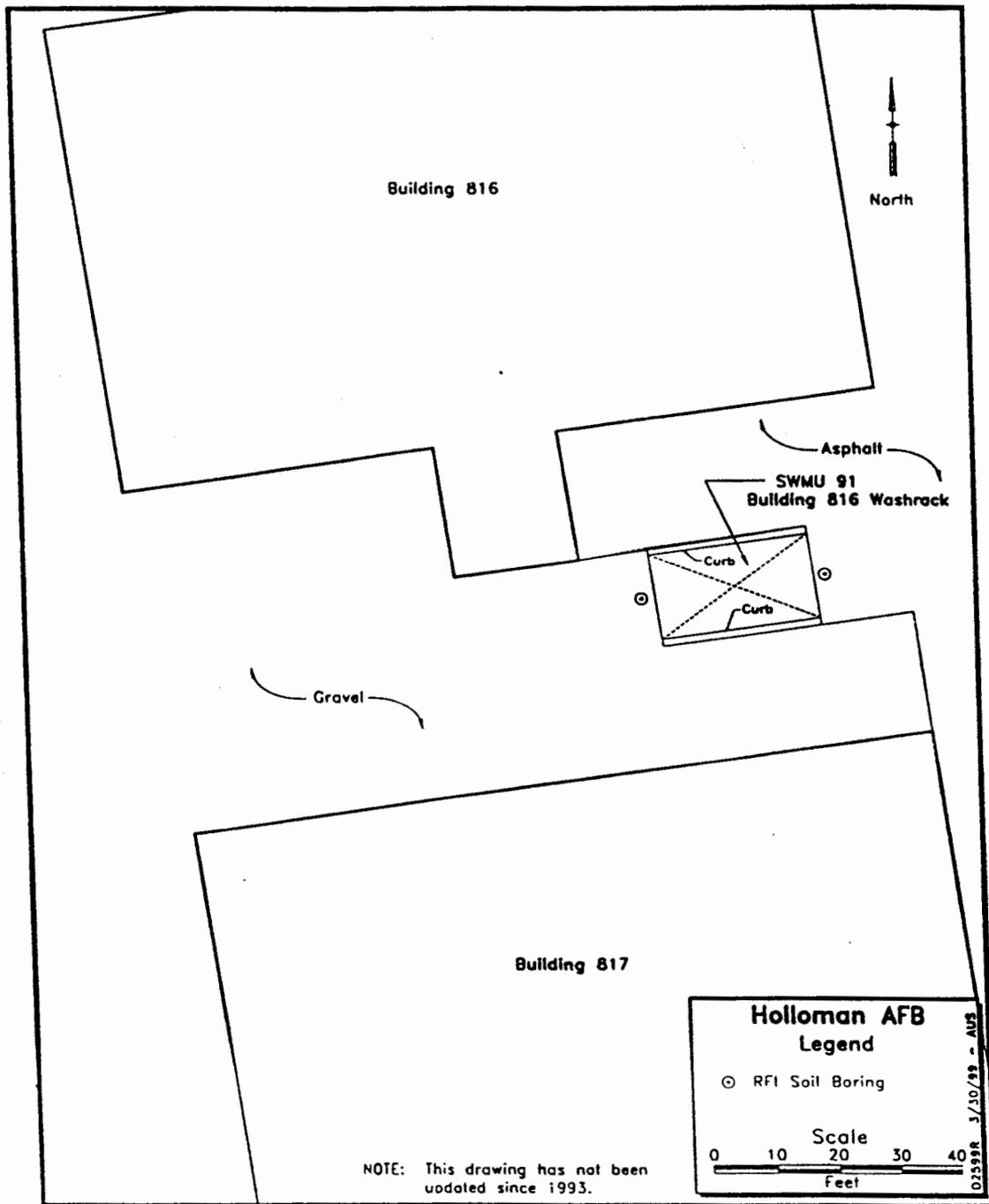
Evaluation of Relevant Information

As part of a Phase I RI conducted in 1994, two soil boreholes were installed at the SWMU. Soil samples were collected every 2-ft to a depth of 6 ft bgl. Samples were analyzed for TRPH, VOCs, and metals. In addition, samples were analyzed for SVOCs if soil appeared visibly contaminated during collection. No VOCs or TRPH were detected at concentrations above trigger criteria. Barium and chromium were detected in both boreholes at concentrations above the background UTLs; however, none exceeded trigger criteria. No constituents were identified as COPCs through the risk-based screening process.

A qualitative RA was conducted for SWMU 91 to determine the need for further investigation based on potential risk to human health and the environment. It was determined that wildlife were not expected to be at risk from SWMU 91 activities. Because concentrations of detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard for Holloman AFB, it was concluded that a release from SWMU 91 had not occurred.

Basis for Determination

SWMU 91 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 91 – Building 816 Wash Rack

Figure 20

21. SWMU 124--Building 752 Waste Oil Tank

Location

SWMU 124 is adjacent to SWMU 155--Sludge Drying Beds and SWMU 156--Imhoff Tanks. SWMU 124, Building 752 waste oil tank, is located approximately 150 ft west of Building 752, near the Base sewage lagoons. For a further description of the site, refer to Figure 21.

History

The period of operation is unknown. Various vehicle and equipment areas near Building 752 were the source of waste. The waste oil tank has historically been used to store waste oil from various vehicle and equipment areas near building 752. The SWMU consists of an aboveground steel tank with a capacity of 250 gallons. The tank rests on a wooden cradle over a concrete pad, with no secondary containment. Gravel and soil cover the area surrounding the tank. Analytical results indicate that ethyl benzene and trichloroethylene (TCE), in addition to waste oil, are currently being stored in the tank.

A small release was reported to have occurred during the attachment of a drain valve to the tank. A small area of stained soil was observed at the SWMU. The released quantity was reportedly less than ten gallons.

Evaluation of Relevant Information

A Phase I site investigation began in 1994. One surface soil sample was collected beneath the tank spigot, in the area of the stained soil. The contents of the tank were also sampled to characterize the material for disposal. The surface soil sample was analyzed for TRPH, VOCs, SVOCs, and metals. Several VOCs and SVOCs (TCE and bis (2-ethylhexyl)-phthalate) were estimated to have been present at concentrations below detection limits. However, no VOCs or SVOCs were detected at concentrations exceeding trigger criteria. Lead was detected at concentrations above background UTL; however, no detected metals concentrations exceeded trigger criteria.

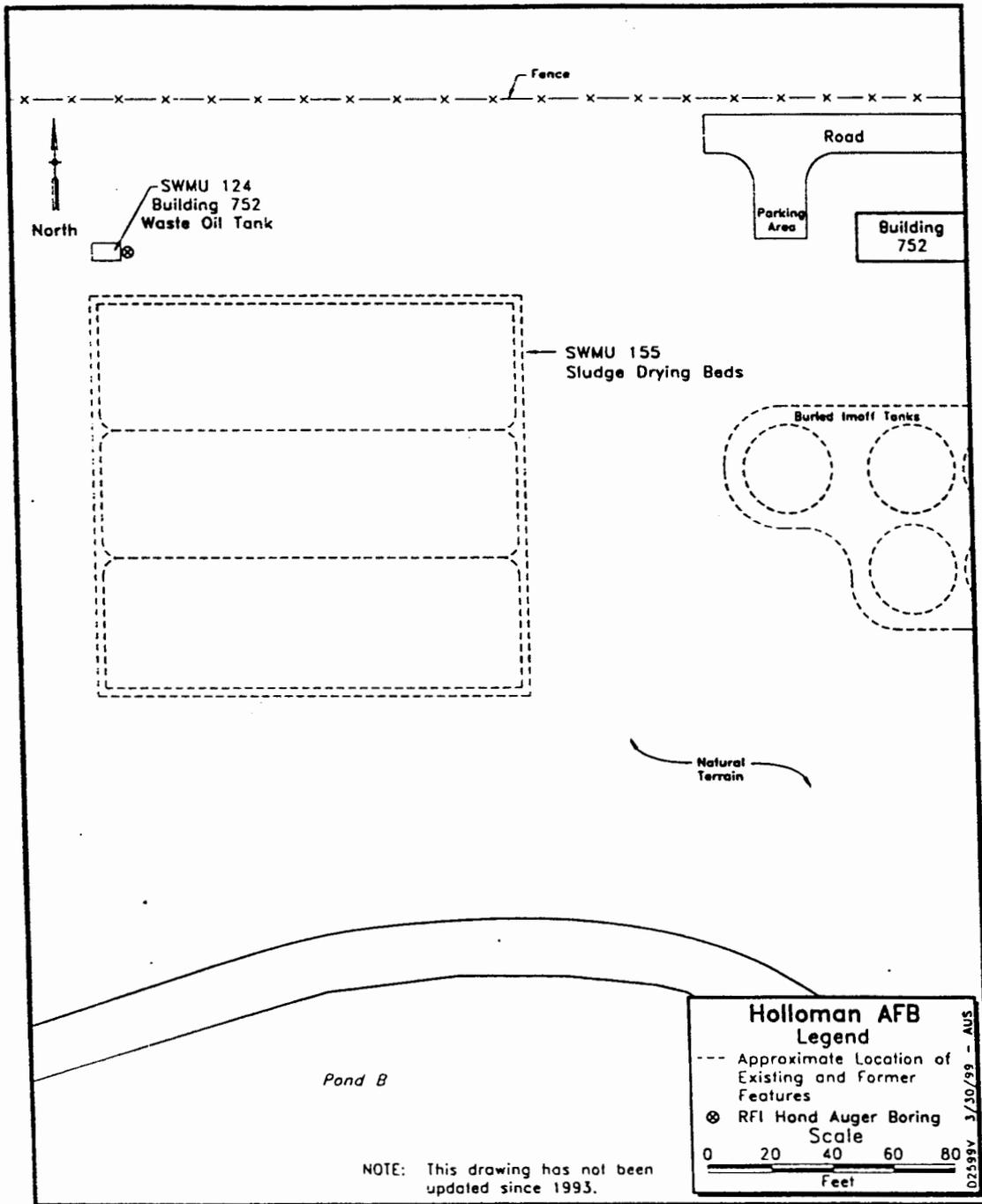
The tank sample was analyzed for VOCs, SVOCs, metals, and ignitability. The analytical results of the tank sample indicate that the waste oil is not ignitable below 140 °C, but that it is hazardous for TCE.

Results of a quantitative RA concluded there had not been a release of hazardous constituents to the soil from SWMU 124. The concentrations of all detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard for Holloman AFB.

The waste oil tank and its contents have been removed and disposed of properly.

Basis for Determination

SWMU 124 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future



SWMU 124 - Building 752 Waste Oil Tank

Figure 21

22. SWMU 125--Building 868 Fire Water Tank

Location

SWMU 125 is adjacent to SWMU 32--Building 868 Oil/Water Separator. For a further description of the site, refer to Figure 22.

History

The site began operation in 1986 and is still in operation today. SWMU 125, the fire water tank, consists of a large underground concrete tank measuring approximately 50 ft long by 50 ft wide by 5.5 ft deep, with a total capacity of 10,000 gallons. Building 868 O/WS receives wash water from Building 868 hangar floors containing waste oil, fuel, and fire suppressants. Waste oil skimmed from the O/WS is transferred by to a second chamber of the separator. The separated water is discharged to the sewer system. When the hangars require high volumes of water and fire suppressants, a bypass valve redirects hangar drainage to the fire water tank (SWMU 125). The quantity of waste disposed of at this site is unknown.

There is no record of a release at this site. Furthermore, no evidence of leakage from the fire water tank was observed during drilling activities.

Evaluation of Relevant Information

During a Phase I RI conducted in 1994, four soil boreholes were drilled in the vicinity of SWMU 125. Soil samples were collected at 2 ft to 4-ft intervals. All samples were analyzed for VOCs, TRPH, and metals. Seven samples that appeared contaminated during collection were also analyzed for SVOCs. A sludge sample from SWMU 125 was analyzed for VOCs, SVOCs, metals, and for ignitability. TRPH was detected in six samples, but all concentrations were below trigger criteria. VOCs were also detected at concentrations below trigger criteria. A variety of SVOCs were detected at parts per billion (ppb) levels in several samples. Arsenic, lead, and chromium were also detected above background UTLs in several samples. However, none of these constituents were detected in concentrations exceeding trigger levels.

A qualitative RA was conducted for SWMU 125 to help determine the need for further investigation based on potential human health or ecological risk. Although the presence of visibly contaminated soil provided some evidence of a release from the SWMU, no constituents were detected at levels exceeding trigger criteria in any sample from this site. Furthermore, the area surrounding SWMU 125 is completely paved with asphalt and concrete, so the soil is virtually inaccessible.

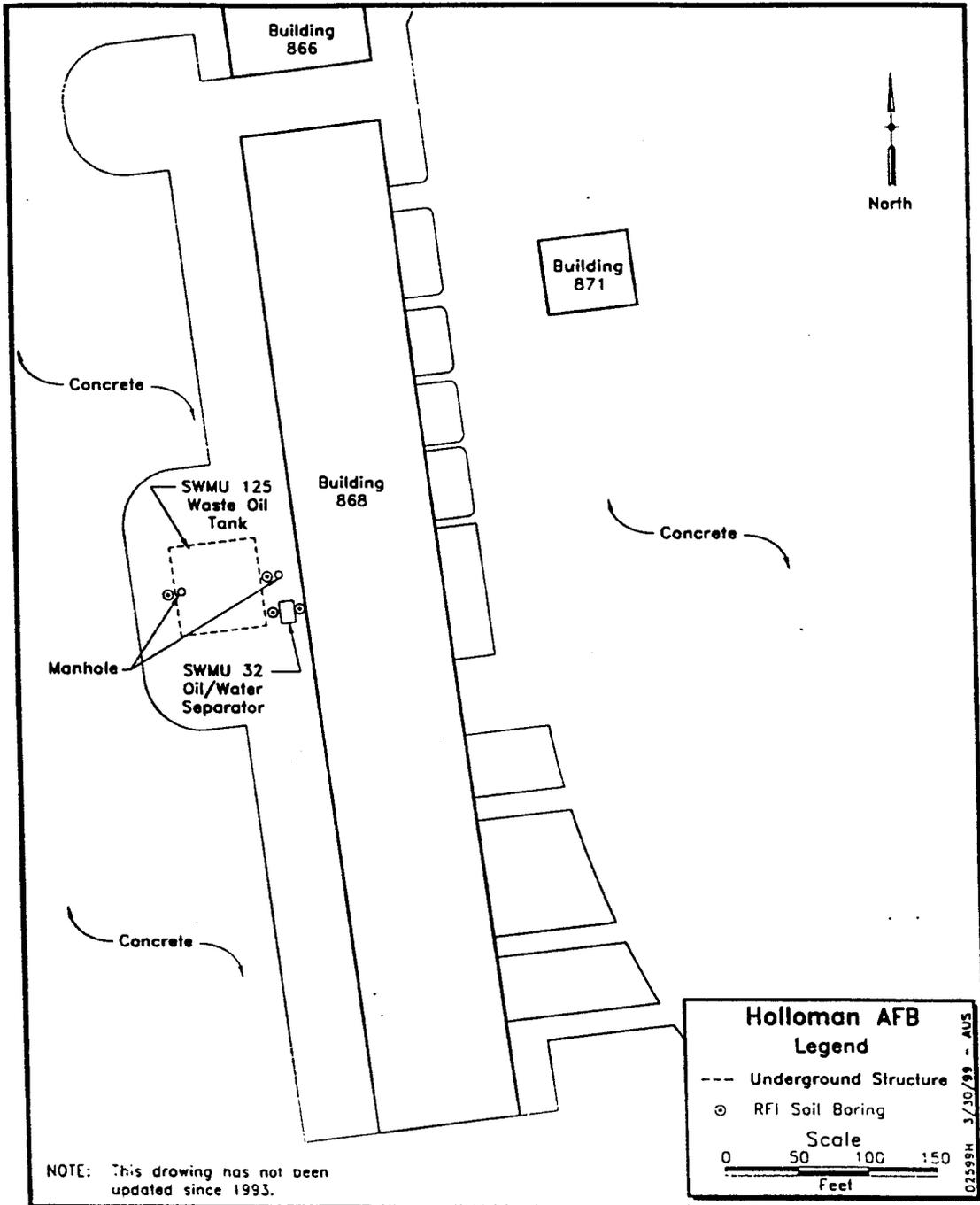
Basis for Determination

SWMU 125 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.

Handwritten notes:
2500 x 50 = 25000
2500 x 5.5 = 13750
25000 / (5 + 5.5) = 13750 cu ft

Handwritten notes:
Phase I RFI 1997 Sept, Page 4-32 says 100,000 gallons

Handwritten calculations:
1 cu ft = 7.48052 gal
∴ 13,750 = 7.48052 x 13,750 = 102,857 gallons



SWMU 125 - Building 868 Fire Water Tank

Figure 22

23. SWMU 129--Building 1191 and 1192 Spill Tanks

Location

SWMU 129 is adjacent to SWMU 178--Building 1191 Fuel Runoff Pits. SWMU 129, the Buildings 1191 and 1192 Spill Tanks consist of a total of four collection tanks associated with the buildings. Their size and exact locations are unconfirmed. The tanks were reportedly replaced with new tanks in 1978, filled with concrete, and left in place. For further information on the location of this site, refer to Figure 23.

History

The estimated period of operation of this site was from 1952 till 1964. The four tanks received all spilled fuels and floor washings from the concrete pad storage and mixing areas. Among the fuels managed at this site were unsymmetrical dimethylhydrazine, JP-4, inhibited red fuming nitric acid, inhibited white fuming nitric acid, and aniline. Building 1192 stored oxidizers and Building 1191 stored propellants. The quantity of waste disposed of at this site is unknown.

Results of a Phase I RI completed in 1992 indicated that petroleum contamination was present at the site. However, a Phase II RI in 1994 determined that while a small amount of TRPH was present in soils, groundwater contamination was not present. Also, petroleum hydrocarbons and some VOCs were detected in monitoring wells.

Evaluation of Relevant Information

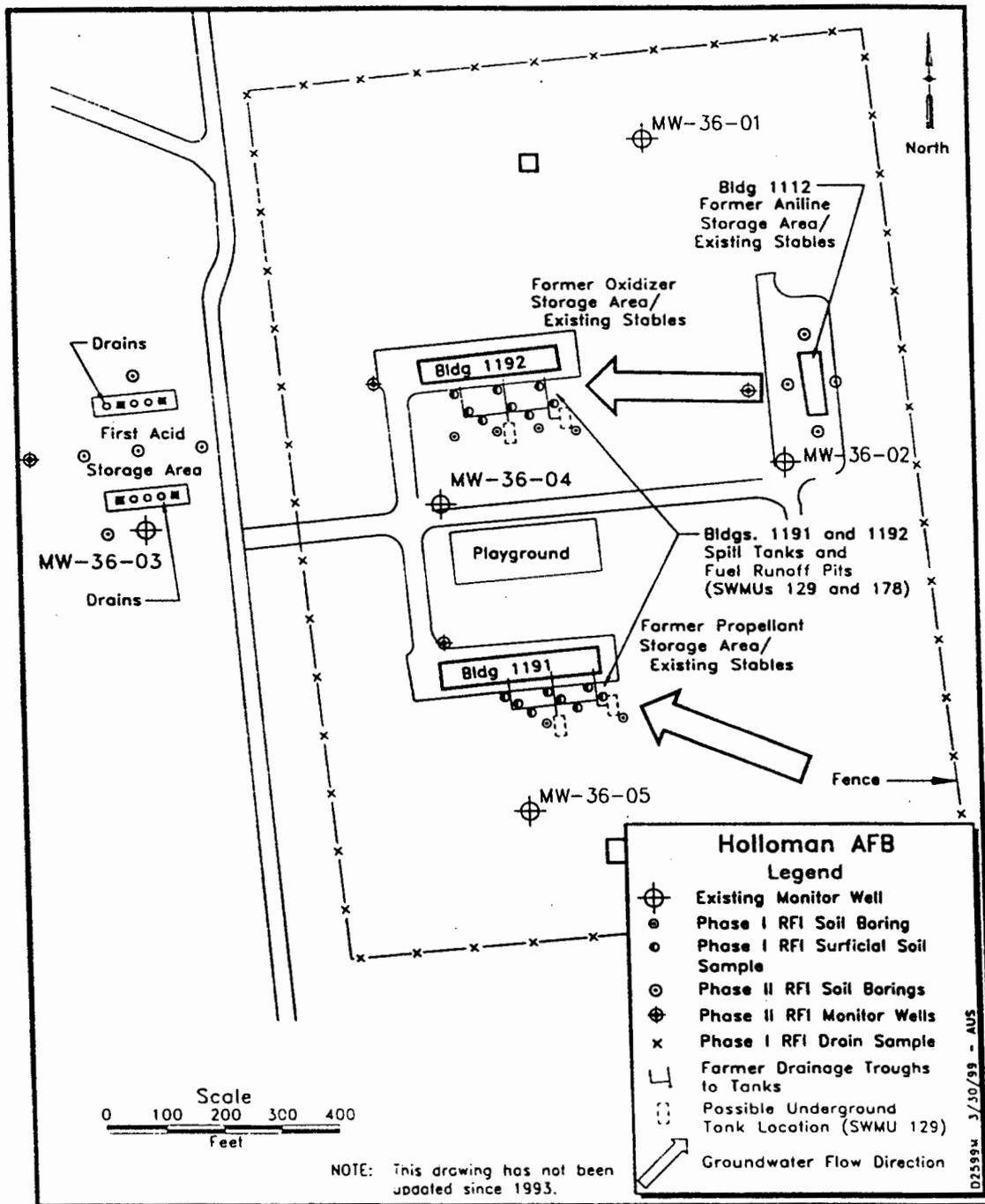
A record search in 1983 indicated the need for remedial investigation, and a Phase I RI began in 1991. Five groundwater-monitoring wells were monitored for VOCs, TRPH, total metals, TDS, and anions. Results from the analyses recommended that groundwater monitoring continue, and in 1994, four additional wells were installed. Samples were analyzed for lead, nitrate-nitrite, TRPH, and SVOCs. Although two constituents (lead and nitrate-nitrite) were detected above background levels during Phase I, no constituents were detected above background levels during Phase II.

During Phase II, soil samples were collected from one borehole at each tank and the surface samples along the drainage troughs leading to the tanks. A total of 59 samples were analyzed for VOCs, lead, TRPH, and SVOCs (if soils were visibly contaminated). While TRPH was detected, concentrations exceeded the cleanup level from only two locations. Lead was detected above background levels in seven samples, and exceeded trigger criteria in only one location. Elevated lead levels were detected in all four drain samples, indicating that the metal drains may be the contamination source.

A RA conducted in 1994 indicated that the site did not pose unacceptable risk to human health, although a small area of TRPH-contaminated soil was present. Holloman AFB removed the TRPH-contaminated soil during a voluntary remedial action in 1995. The excavation was performed in accordance with the approved *Base-Wide POL Remediation Plan* (Holloman AFB, 1995), and less than 1 cubic yard of petroleum-contaminated soil was removed from the site.

Basis for Determination

SWMU 129 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the potential risk does not pose a threat for human health or the environment.



SWMU 129 - Buildings 1191 & 1192 Spill Tanks

Figure 23

24. SWMU 134--Buildings 920-924 Drainage Ditch

Location

There are no SWMUs adjacent to SWMU 134. SWMU 134 (IRP Site OT-24), the former Equipment Maintenance Area, occupies approximately 14 acres south of the Kelly Road and Hale Drive intersection in the western portion of the base. Two drainage ditches run north south along the east and west sides of the site. Hale Drive runs along the eastern ditch, and buildings 920-924 are located along the western side of the road. A large earthen berm is located east of the ditch. Groundwater occurs approximately 12 to 16.5-ft bgl, and flows to the south-southwest toward Dillard Draw. For a further description of the area, refer to Figure 24.

History

The period of operation for this site was from 1959 to 1970. The septic tanks and cleaning equipment were the source of waste. Previous reports indicated conflicting waste disposal practices. One report claimed spent solvents, cleaners, and oils from industrial operations were discharged through the septic system, while another indicated that the waste was disposed in a drainage ditch. Employees interviewed agreed that wastes were not disposed in a drainage ditch, but were most likely discharged into the septic system. The ditches were inspected and no evidence of waste disposal was observed.

SWMU 134 was identified as a potential contaminant source during an IRP record search. A subsequent Phase I RI indicated that while low levels of BTEX (Benzene, Toluene, Ethylbenzene, and total Xylenes) were detected in the groundwater, it was doubtful that a release had occurred.

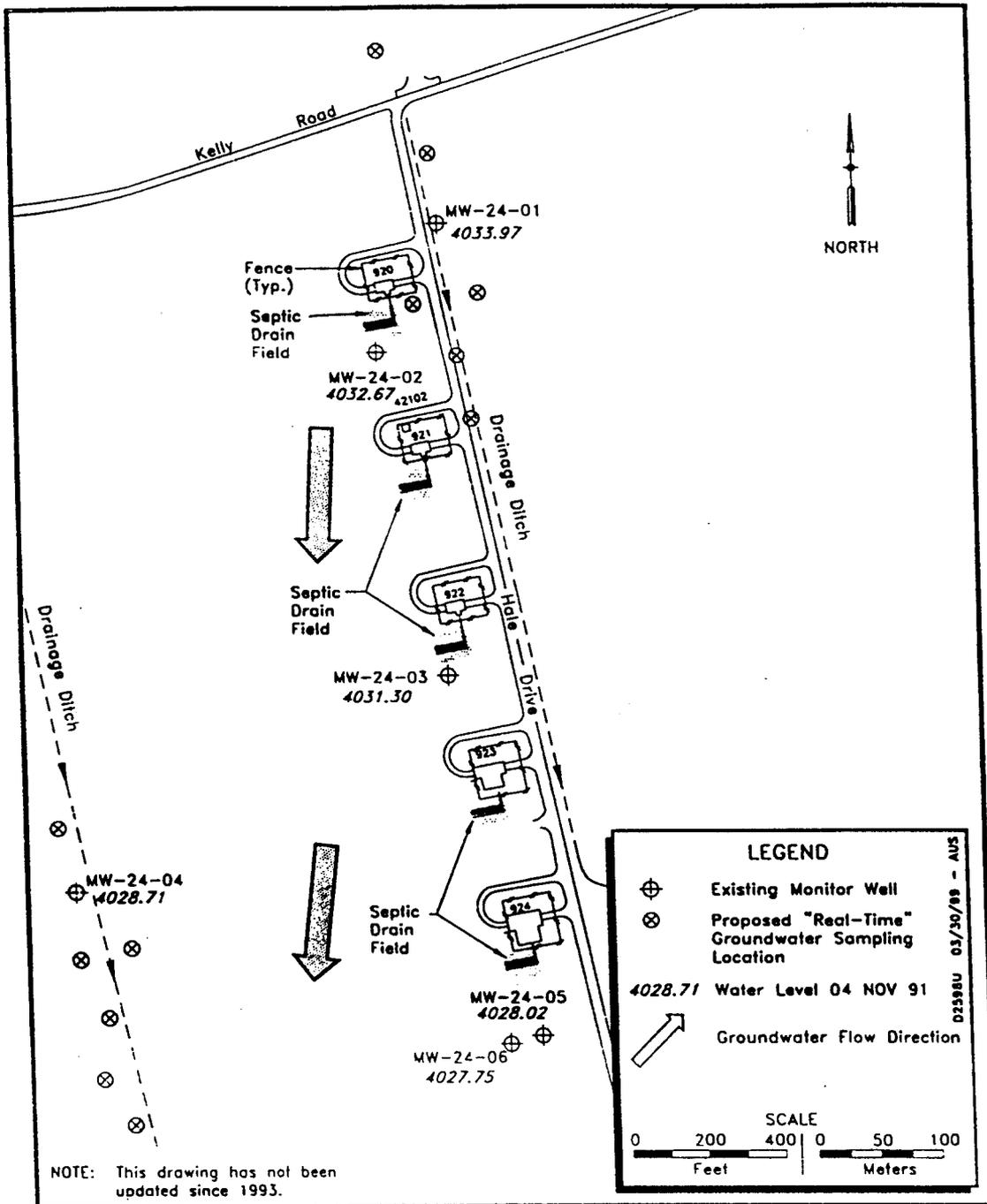
Evaluation of Relevant Information

During the Phase I RI, six groundwater monitoring wells (MW-24-01 through MW-24-06) were installed and sampled for VOCs, TRPH, total metals, anions, and TDS. Benzene was detected in the northernmost well, MW-24-01 (5.5 µg/l), and the southernmost well, MW-24-04 (16 µg/l). Both of these wells, located adjacent to drainage ditches, contained detectable concentrations of other BTEX constituents. During the Phase II RFI, groundwater samples were collected from 14 temporary standpipes installed with a direct push technology rig, and recollected from the two existing monitoring wells. BTEX was not detected in either monitoring well, but concentrations of benzene (0.55 µg/L and 69 µg/l) were detected in two isolated temporary standpipe locations in the northern portion of the site.

A risk assessment in 1992 investigated the possibility of residents being exposed to contaminated groundwater via an off base agricultural well. Groundwater modeling indicated that none of the contaminants originating from SWMU 134 would reach the well, thereby presenting almost no risk to human health.

Basis for Determination

SWMU 134 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 134 - Buildings 920-924 Drainage Ditch

Figure 24

25. SWMU 165--Building 1176 Pond

Location

There are no SWMUs adjacent to SWMU 165. SWMU 165 (IRP Site SS-39), the Fuel Missile Spill Area, is located approximately 3.5 miles northwest of the Main Base near Building 1176. The site consists of two outfall areas from the oxidizer and propellant spill drainpipes located south of the Test Tracks and the drainage troughs and sumps near Building 1176. Groundwater occurs at a depth of 20-ft bgl, and flows south toward the Lost River drainage basin. For a further description of the area, refer to Figure 25.

History

This site began operation in the 1950's and is still being used today. The source of waste is from fueling tanks and maintenance equipment for test sleds. Fuels used at the test track consisted of unsymmetrical dimethylhydrazine (UDMH), aniline, JP-4, inhibited red fuming nitric acid (IRFNA), inhibited white fuming nitric acid (IWfNA), liquid oxygen (LOX), JPX (1:1 JP-4 and UDMH), dyes, solid rocket propellants, and possibly other compounds. In addition, solvents, such as trichloroethane, were commonly used in sled activities. The amount of waste disposed of at SWMU 165 is unknown.

Fuel spills were uncommon, owing to stringent safety precautions. However, interviews with past employees have indicated that natural, topographic drainage trenches and drainage troughs could have received wastes.

Evaluation of Relevant Information

A record search in 1983 identified SWMU 165 as a possible contaminant source, and in 1992 and 1994, Phases I and II of the RI were completed, respectively. During the Phase I RI, five surface samples were collected from the 0 ft to 2 ft intervals, and two soil boreholes were installed. The samples were analyzed for VOCs, total metals, and petroleum hydrocarbons.

In the area of the oxidizer and propellant drainpipe outfalls, arsenic, beryllium, and lead were detected above background levels. The highest concentrations of metals were arsenic at 28 mg/kg, beryllium at 0.58 mg/kg, and lead at 1,300 mg/kg. VOCs, predominantly chlorinated compounds (tetrachloroethene, 0.95 mg/kg), were detected in soils around the drainage sumps at Building 1176. During the Phase II RFI, soil samples were obtained from the drainage ditches located downstream from the site, and analyzed for SVOCs and total metals. These constituents were not detected at concentrations above RCRA action levels.

Four groundwater-monitoring wells were installed during the Phase I RI. One round of samples was collected and analyzed for VOCs, total metals, anions, and TDS. It is likely that the sumps near Building 1176 have contributed to groundwater contamination at this site, since the highest concentrations of 1,1,1-trichloroethane (0.24 mg/l), carbon tetrachloride (0.0058 mg/l), and trichloroethene (0.059 mg/l) were detected in wells near this region. Lead was detected in one sample above established background levels (0.019 mg/l).

During the Phase II RFI, 15 standpipes were installed downgradient of the sumps using a direct-push technology (DPT) rig. Groundwater samples were collected from the standpipes, as well as from two existing downgradient-monitoring wells and analyzed for halogenated VOCs. Several VOCs were detected at or below detection limits; however, many were not confirmed, so their presence is uncertain. 1,1,1-trichloroethane concentrations detected in the monitoring wells (maximum, 0.418 mg/l) decreased dramatically 200-ft downgradient of the sumps (0.038 mg/l).

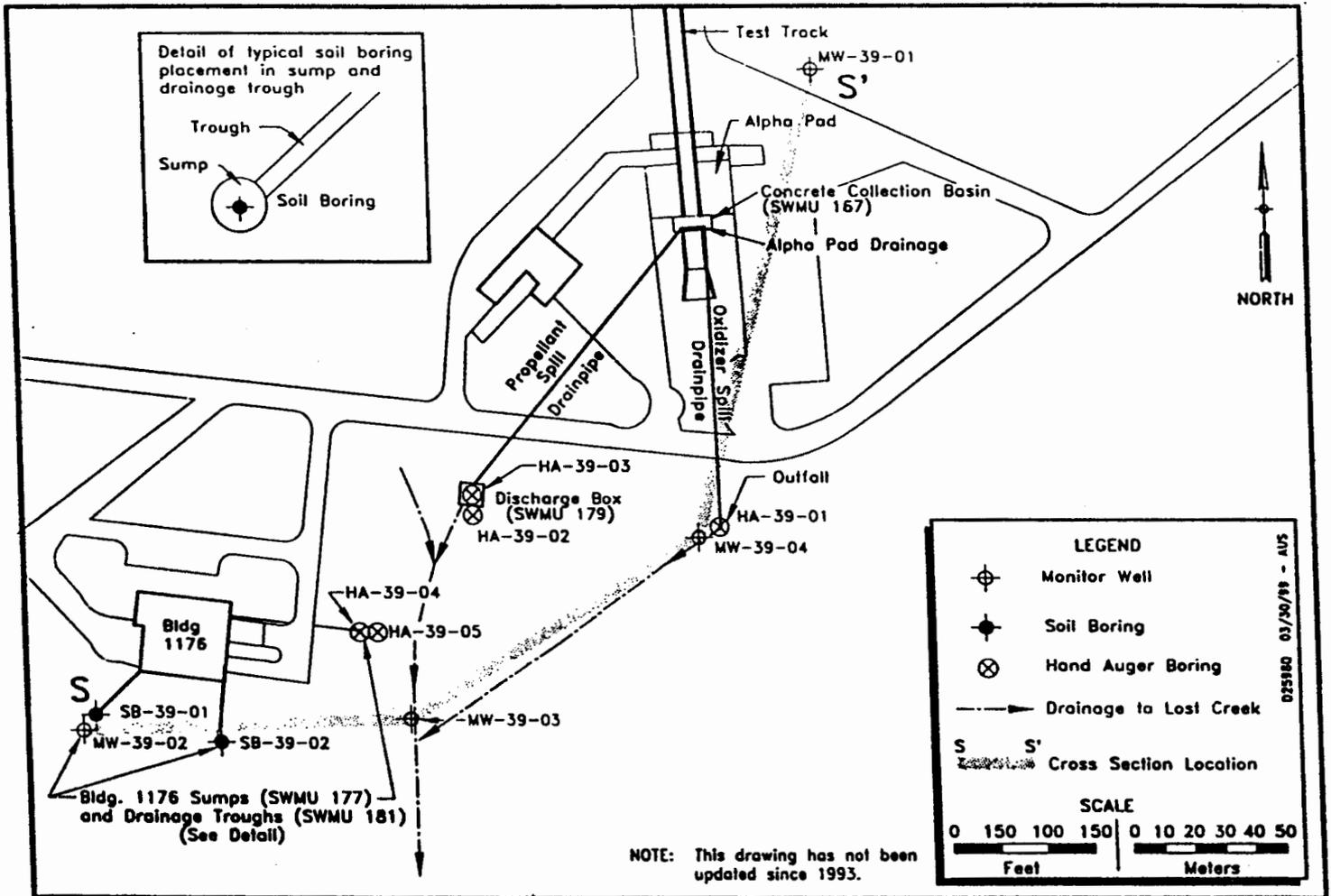
A RA concluded that this site did not pose an unacceptable risk to human health and the environment. As part of the action remedy, a long-term monitoring program will be initiated to ensure that the remedy continues to provide adequate protection of human health and the environment.

In 1998, groundwater samples were collected and analyzed to fulfill a request for supplemental information by the NMED for the Phase II, Table 2 RFI Report. A total of sixteen DPT boreholes were installed to approximately 7 ft below the water table. Groundwater was collected directly from the aquifer after releasing

the drive point and partially refracting the rods. TCE was detected above the reporting limit in groundwater samples from eight of the DPT boreholes (SS39-1, SS39-2, SS39-4, SS39-7, SS39-8, SS39-12, SS39-13, and SS39-14) at concentrations ranging from 1.1 µg/l (SS39-12) to 280 µg/l (SS39-7). Maximum TCE concentrations (27 µg/l to 280 µg/l) were detected in DPT points located approximately 300 ft to 500-ft south-southwest of Building 1176. Benzene was detected in SS39-9 at 1.0 µg/L. No other VOCs were detected above the reporting limit (RL) in the groundwater samples.

Basis for Determination

SWMU 165 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 165 - Building 1176 Pond

Figure 25

26. SWMU 171--Fire Department Training Area 2

Location

SWMU 171 is adjacent to SWMU 135--Building 1092 Oil/Water Separator Drainage Pit, SWMU 127--Building 1092 Waste Oil Tank, and SWMU 39--Building 1092 Oil/Water Separator. SWMU 171 is a circular gravel-covered burn area, approximately 60 ft in diameter, located in the northeastern portion of the Fire Training Area (FTA). The SWMU is surrounded by a 6-in. high gravel berm and contains mock rocket engines. For a further description of the area, refer to Figure 26.

History

SWMU 171 was used from 1945 to 1991. The source of waste was from training exercises at the FTA, which included the use of waste oils, solvents, and fuels. From 1945 - 1979, approximately 1,800 to 2,700 gallons of waste fuels, oils, and some solvents were delivered to the FTA in drums each month. Approximately 2,500 gallons of JP-4 were used every six weeks in the training exercises.

Fuels, oils, and solvents were regularly sprayed onto the burn areas (SWMU 170/171) for ignition during training exercises. Although the wastes were burned, residue was regularly washed onto the gravel with water following training exercises.

Evaluation of Relevant Information

Site FT-31 was identified as a possible source of hazardous waste during the IRP Phase I Records Search in 1983. The site was investigated and a soil borehole, 31B-2, was installed at SWMU 171. One monitoring well (31W1) was installed downgradient of the O/WS area. Oil and grease, total organic halogens (TOH), and phenolics were detected in both soil and groundwater samples. In 1989, a remedial investigation was performed in which seven monitoring wells and two soil boreholes were installed

A Phase I investigation was launched in 1993, but was primarily focused on sites adjacent 171 (SWMUs 39, 127, and 135). In 1994, a Phase II investigation was initiated to address concerns at 171. Fifty-three soil gas samples were collected from various locations near SWMU 170, 171, and the JP-4 tank area. The sample points were installed with a DPT rig, and the soil gas samples were screened for BTEX and chlorinated VOCs. From the results of the shallow gas survey, 10 soil boreholes were installed in the areas suspected of highest contamination. A similar procedure was utilized to determine the locations for new groundwater monitoring wells. Forty-five soil gas samples were collected and analyzed; based on these results, four new monitoring wells were installed downgradient of the areas suspected of highest contamination. Groundwater samples were collected from the four new monitoring wells as well as from eight existing ones; the samples were then analyzed for VOCs and SVOCs. The following summarizes the analytical results:

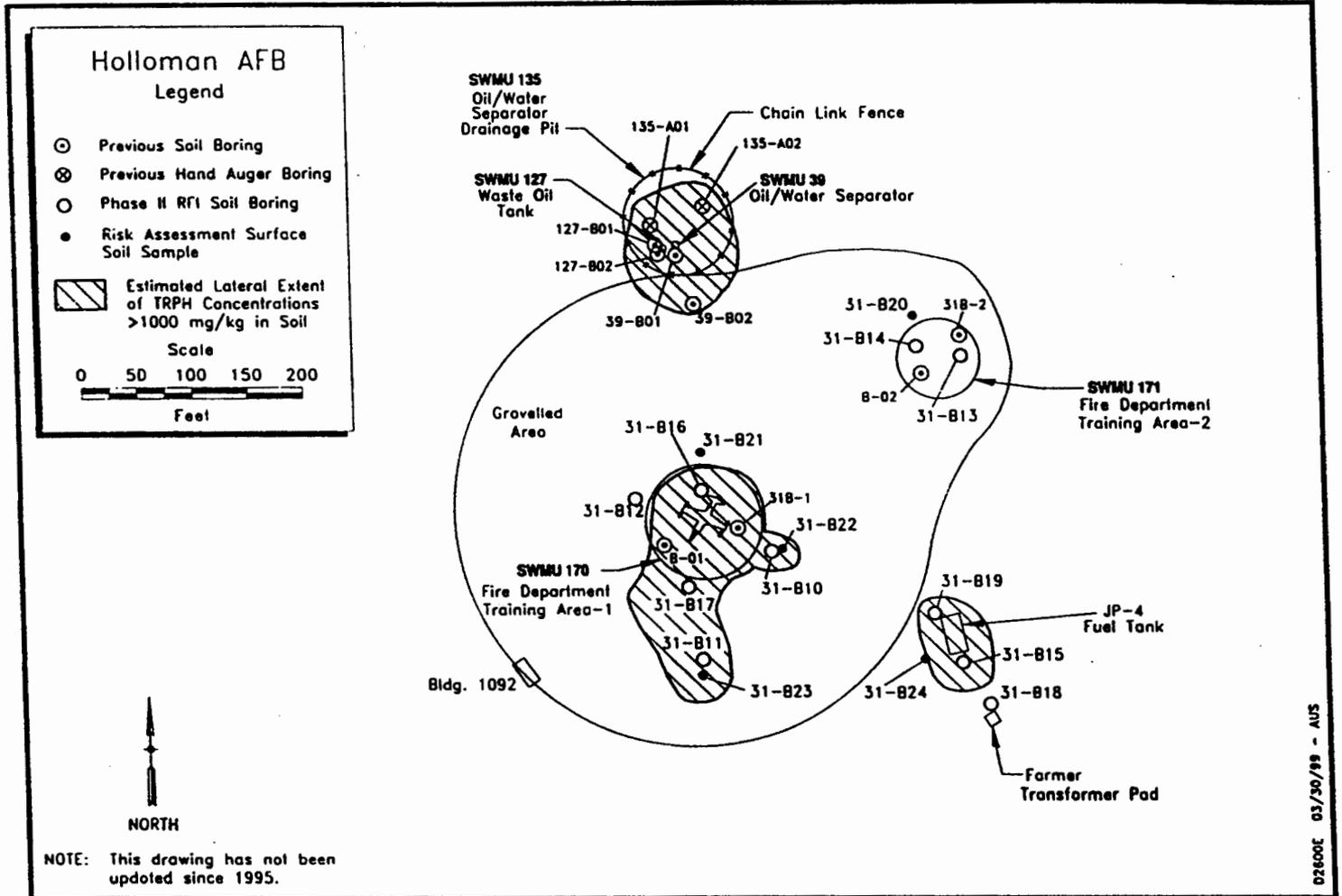
<u>SWMU 171 Soils:</u>	Two of the ten boreholes were installed at 170. After analyzing the samples for TRPH and VOCs, it was reported that TRPH concentrations were below detection limits in all samples. However, acetone (120 µg/kg), ethylbenzene (310 µg/kg), and total xylenes (920 µg/kg) were measured above detection limits in 31-B14.
<u>JP-4 Tank Area Soils:</u>	The remaining three boreholes were installed in the vicinity of the JP-4 tanks. After analysis for TRPH and VOCs, it was determined that concentrations of TRPH exceeded Base cleanup criteria in boreholes 31-B15 and 31-B19.
<u>Site Groundwater:</u>	Groundwater results for the site indicated elevated levels of BTEX in several monitoring wells. The highest concentrations of BTEX (ranging from 2,800 to 6,900 µg/l) were detected in samples from the three monitoring wells near the O/WS area (MW-08, MW-09, and 31W1).

Several solvents, including 1,1-dichloroethene (8.7 µg/l) were measured in monitoring well MW-13.

It was decided that the extent of the contamination was limited to the shallow soils near SWMU 170 and the JP-4 tank, which is undergoing bioremediation.

Basis for Determination

SWMU 171 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



03/30/99 - AUS

SWMU 171 - Fire Department Training Area 2

Figure 26

27. SWMU 178--Building 1191 Fuel Runoff Pits

Location

There are no SWMUs adjacent to SWMU 178. SWMU 178 (IRP Site SS-36), the Unconventional Fuel Spill site, is located near former Buildings 1191 and 1192 at Holloman AFB. The first acid storage area and the former aniline storage area (former Building 1112) are also included in Site SS-36. The acid storage area is located west of Building 1191 and the aniline area to the east. For a further description of the area, refer to Figure 27.

History

The time frame for operation of this site was 1952-1964. The site has been converted to the Base Equestrian Facility and fuels are no longer stored on site. The foundations for former Buildings 1191, 1192, and 1112 now serve as horse stables.

The source of waste was from the fuel storage vessels. Site SS-36 served as an unconventional fuels storage area. Fuels received, stored, and mixed at this site included unsymmetrical dimethylhydrazine, JP-4, IRFNA, IWFNA, and aniline. Building 1192 stored oxidizers and Building 1191 stored propellants. Between the two buildings, there were a total of four runoff pits that received all spilled fuels and floor washings from the concrete pad storage and mixing areas. The quantity of waste disposed of at this site is unknown.

Results of a Phase I RI completed in 1992 indicated that petroleum contamination was present in the soil and groundwater beneath the site. A Phase II RI in 1994 determined that while a small amount of TRPH was present in soils, groundwater contamination was not present, and any release from SS-36 was manageable.

Evaluation of Relevant Information

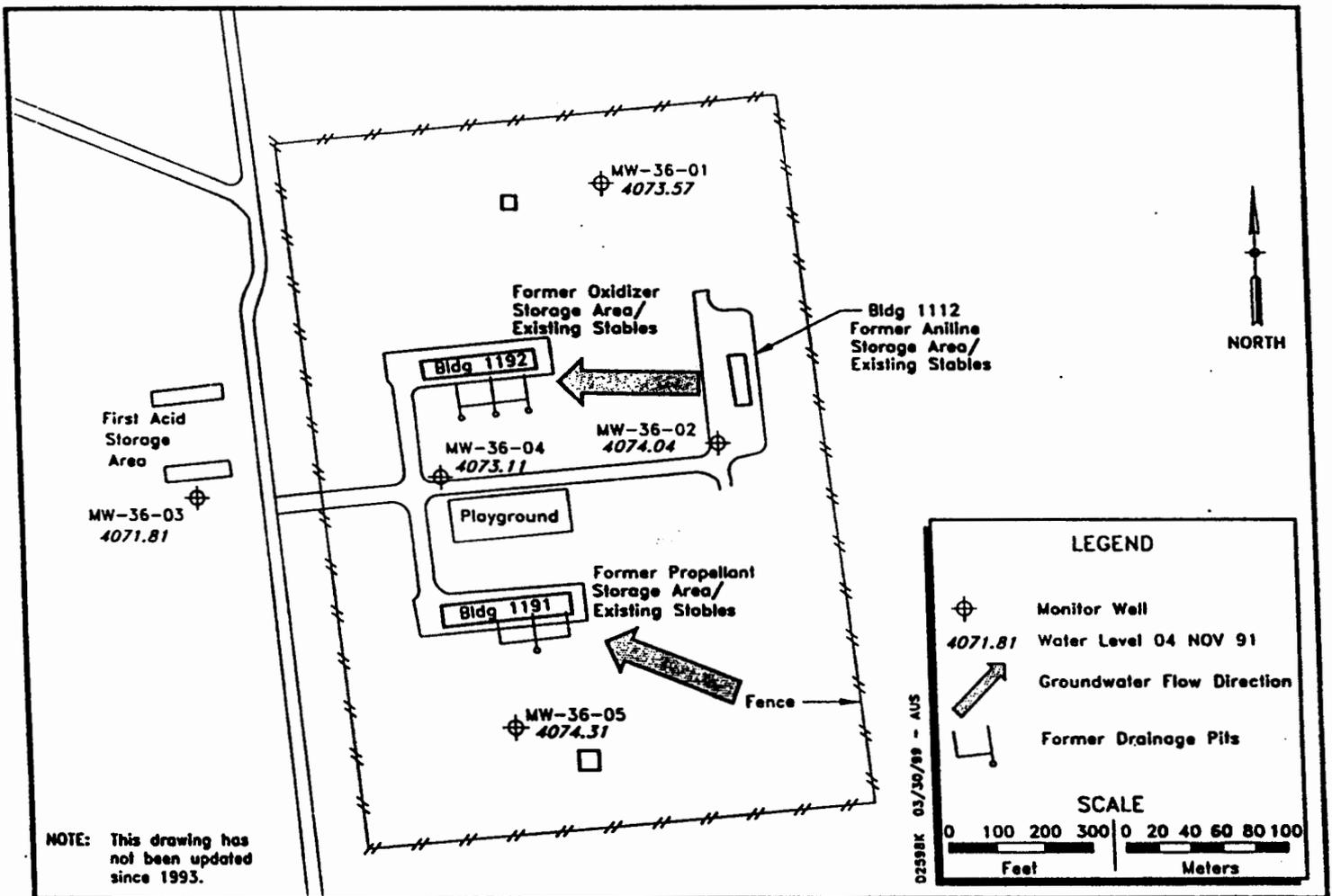
A record search in 1983 indicated the need for remedial investigation, and a Phase I RI was launched in 1991. Five groundwater-monitoring wells were installed and monitored for VOCs, TRPH, total metals, TDS, and anions. Results from the analyses suggested that monitoring continue, and in 1994, four additional wells were installed. Samples were analyzed for lead, nitrate-nitrite, TRPH, and SVOCs. Although two constituents (lead and nitrate-nitrite) were detected above background levels during Phase I, no constituents were detected above background levels during Phase II.

While no visibly contaminated soil was observed, a total of 59 soil samples were collected during Phase II. TRPH was detected in 19 samples; however, only two samples exceeded the TRPH cleanup standard of 1,000 mg/kg. No VOCs or SVOCs were detected at concentrations above RCRA action levels. Lead was detected above background levels in seven samples, and exceeded trigger criteria in only one location. Elevated lead levels were detected in all four drain samples, indicating that the metal drains may be the contamination source.

A RA conducted in 1994 indicated that the site did not pose an unacceptable risk to human health, although a small area of TRPH-contaminated soil (less than 1 cubic yard) was present. Holloman removed the TRPH-contaminated soil during a voluntary remedial action in 1994.

Basis for Determination

SWMU 178 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the potential risk does not pose a threat for human health or the environment.



SWMU 178 - Building 1191 Fuel Runoff Pits

Figure 27

28. SWMU 192--Coco Block House Disposal Well**Location**

There are no SWMUs adjacent to SWMU 192. SWMU 192 (IRP Site 41), the Coco Block House Borehole Disposal Site, is located in the northernmost section of Holloman AFB. For a further description of the area, refer to Figure 28.

History

The period of operation for this site was during the mid-1960s. The source of waste was the sled-launching fuels and equipment. Unconventional fuels and nitric acid from spills during launch operations were reportedly disposed of at this site. Previous reports indicate that one or two 250-ft deep boreholes were used to dispose of unconventional fuels spilled during launching operations, although conclusive evidence of this practice has not been found. As-built drawings indicate that there were two sumps located on the north end of the north pad at the Coco Block House.

No conclusive evidence from either interviews with Base personnel or from literature reviews support the location or existence of the boreholes. The release history is unknown.

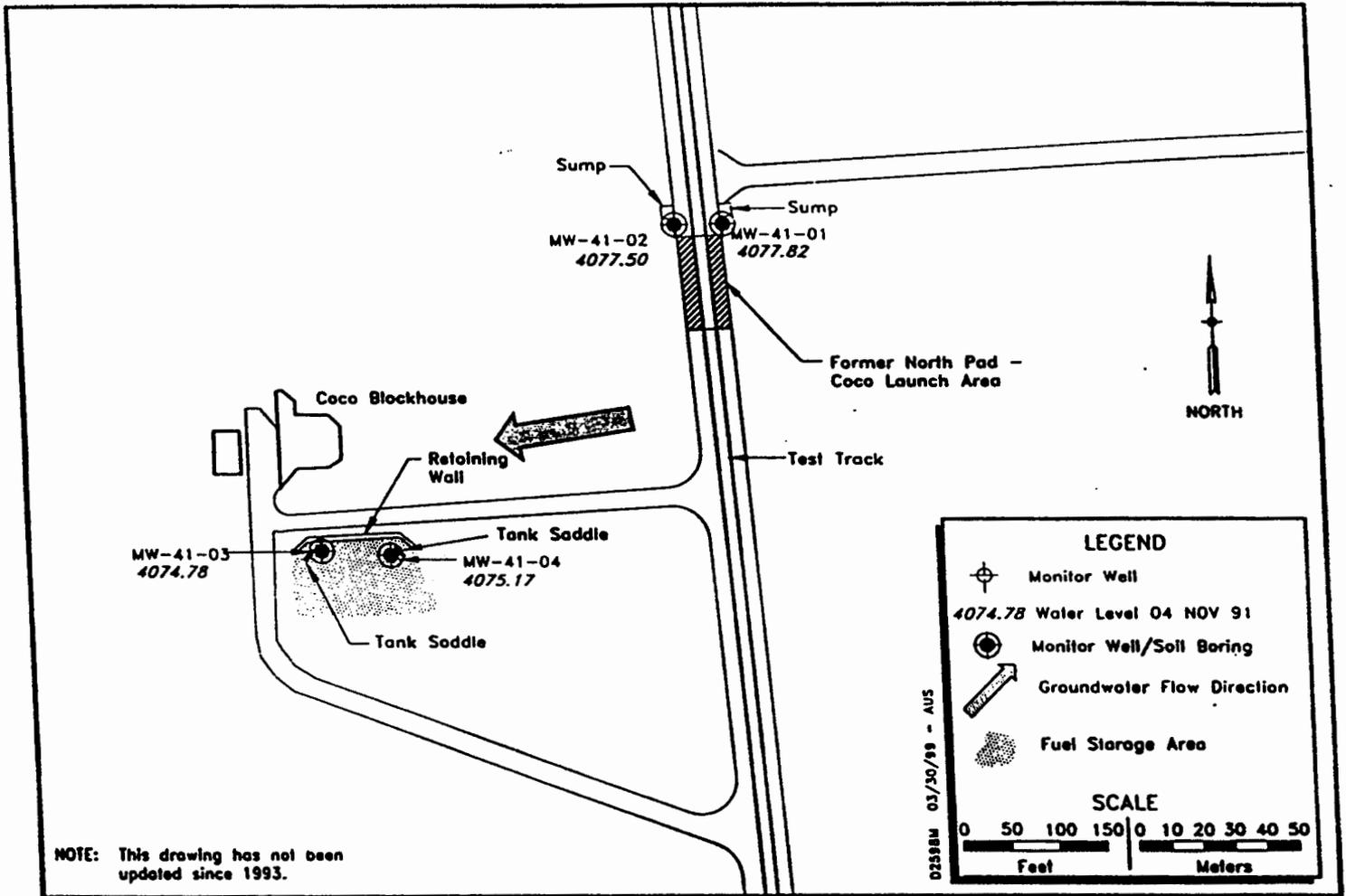
Evaluation of Relevant Information

A record search in 1983 identified OT-41 as a possible contaminant source, and in 1991 a RI was conducted. During Phase I, four soil boreholes were drilled at the site in areas suspected of contamination and analyzed for VOCs, metals, and TRPH. No constituents were detected at concentrations above health-based action levels. Four groundwater monitoring wells were installed, and a single round of samples was collected and analyzed for VOCs, total metals, anions, and TDS. All water quality parameters were detected below established background levels for Holloman AFB. Chloroform was the only VOC detected above the health-based action level. Because the unconfined aquifer at Holloman is designated as unfit for human consumption, exposure is unlikely. The results after clean-up are unknown.

A RA performed for this site determined that there were no existing or future potential risks to human receptors.

Basis for Determination

SWMU 192 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the potential risk does not pose a threat for human health or the environment.



SWMU 192 - Coco Block House Disposal Well

Figure 28

29. SWMU 212—Former North Area Wash Rack

Location

There are no SWMUs adjacent to SWMU 212. SWMU 212 (IRP Site SD-28), the Former North Area Wash Rack, is located west of Building 108 and adjacent to the drone flight line. Portions of the site are paved, and unpaved areas have little or no vegetation. The topography is generally flat, thus inhibiting runoff of surface water to the adjacent lands. Groundwater occurs from 5 ft to 40 ft bgl, and groundwater flow is influenced by southwest-trending arroyos in the vicinity. For a further description of the area, refer to Figure 29.

History

SWMU 212 was in operation during the 1950s. The source of waste was from the wash rack for vehicles and equipment. During the 1950s, this wash rack was the main wash area for vehicles and equipment located in the north base area. Oils, detergents, and possibly some fuels were washed off the rack area and allowed to drain into the surrounding soils.

Two soil boreholes were installed adjacent to the separator and wash rack to determine if a release had occurred at the site. Metals concentrations in soils and constituents analyzed in the groundwater were all within their statistical background values, making a release from SD-28 highly unlikely.

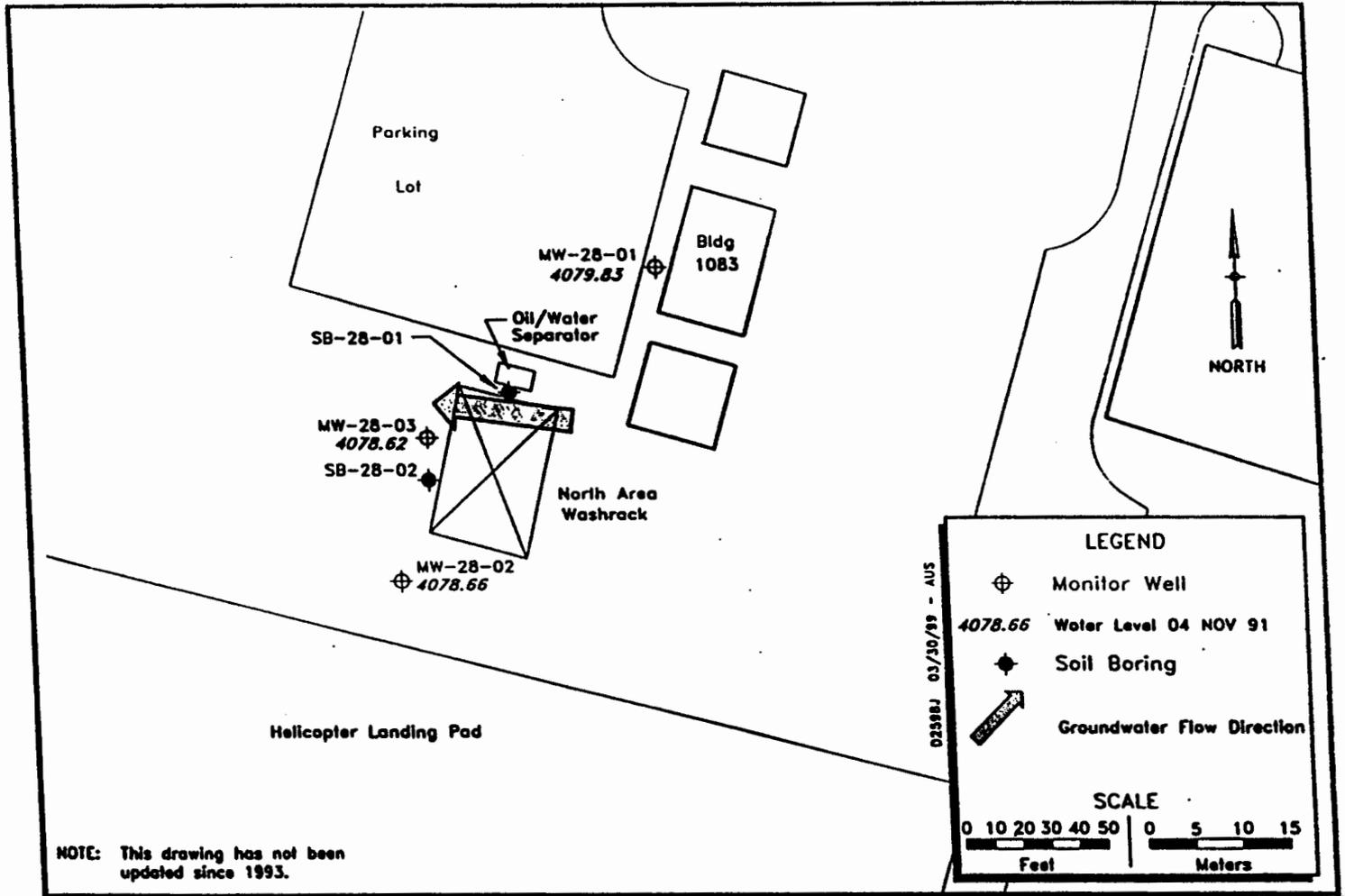
Evaluation of Relevant Information

A records search in 1983 indicated the possibility of contamination at SD-28, and a remedial investigation began in 1991. Two soil boreholes were installed, and samples collected at 2.5 ft intervals were analyzed for VOCs, petroleum hydrocarbons, and total metals. Several organic compounds were detected, although their detection in method blanks makes their presence in the original samples uncertain. Three groundwater monitoring wells were installed and samples were collected and analyzed for VOCs, total metals, anions, and TDS. All water-quality parameters were detected below statistical background levels for Holloman AFB.

A RA investigated the possibility of human exposure to contaminants originating from SD-28. The exposure evaluation for this site determined that there are no existing or potential human receptors for this site.

Basis for Determination

SWMU 212 was determined to be appropriate for NFA status because no release to the environment has occurred or is likely to occur in the future.



SWMU 212 - Former North Area Wash Rack

Figure 29

30. AOC-D--Building 882 Spills

Location

There are no SWMUs adjacent to SWMU AOC-D. AOC-D (IRP Site SD-26), the Possible Missile Fuel Spill Site, is located just south of Pad 8, near Buildings 887 and 882. The Navy used this area for missile testing during 1976. Groundwater occurs from 5 ft to 40 ft bgl, and local groundwater flow is governed by south-trending arroyos in the vicinity. For a further description of the area, refer to Figure 30.

History

This site was in operation in 1976. Waste fuels from missile testing were reportedly disposed of on the ground just south of Pad 8. Fuels that have been used for missiles at the Base include, but are not limited to, the following: JP-4, UDMH, aniline, IRFNA, IWFNA, LOX, JPX, dyes, and other compounds. Records do not indicate the dates or amounts of any fuel waste that may have been disposed of at this site.

Records of the spills were not available. The testimony of former personnel (unknown to Base authorities) and previous reports provided only an approximate location of the spill site. Soil sample analyses yielded concentrations of petroleum hydrocarbons, ethyl benzene, styrene, and xylene above background levels. All water-quality parameters were below background levels, indicating that a release to the groundwater from SD-26 is unlikely to have occurred.

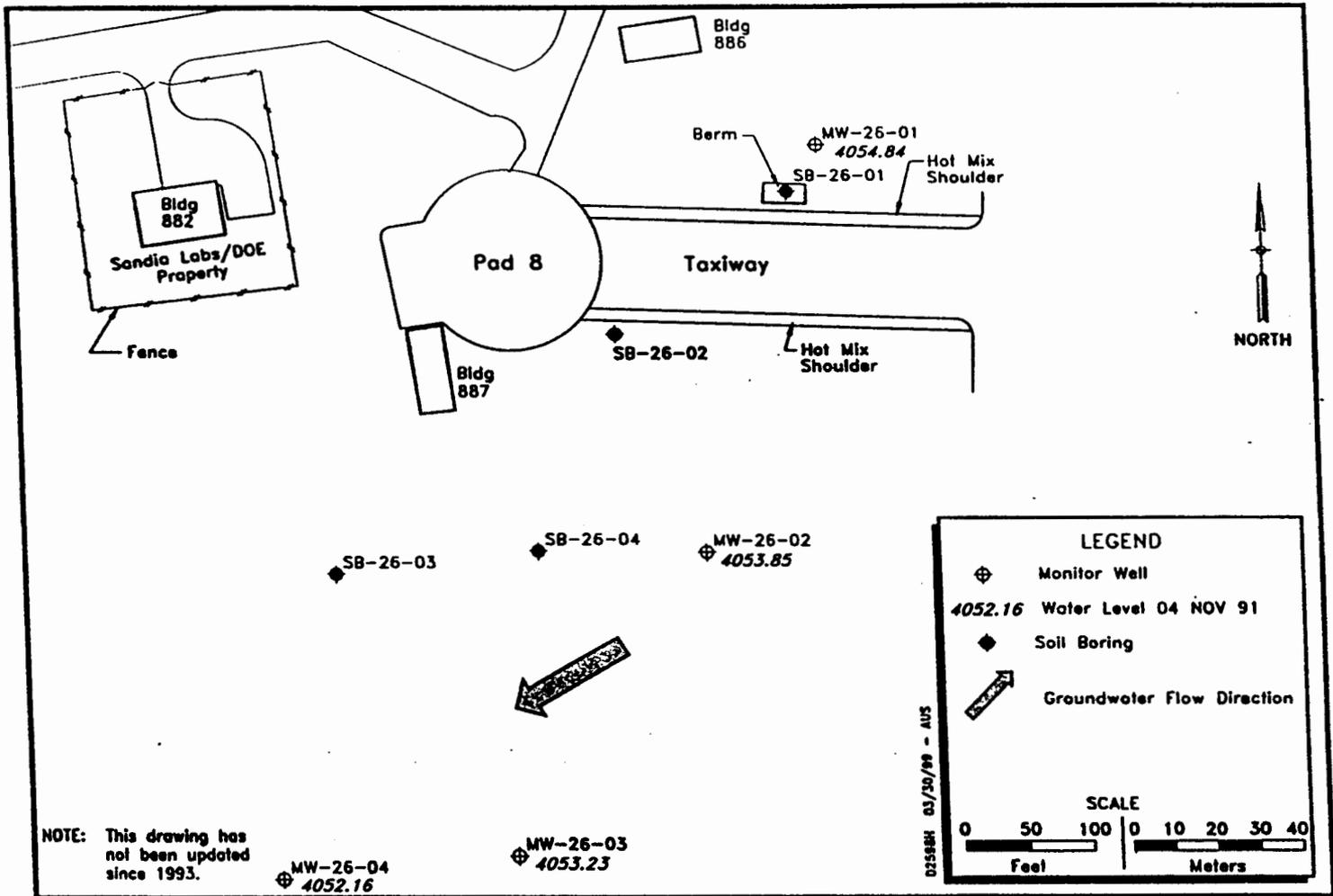
Evaluation of Relevant Information

A records search in 1983 indicated the possibility of contamination at SD-26, and a remedial investigation began in 1991. Four soil boreholes were drilled, and samples were collected and analyzed for VOCs, petroleum hydrocarbons, and total metals. Petroleum hydrocarbons and ethyl benzene were detected in two of the boreholes; styrene and xylene were detected in one borehole each. No metals were detected above established background levels for the area. Four groundwater monitoring wells were installed and samples analyzed for VOCs, total metals, anions, and TDS. All water-quality parameters were detected below statistical background levels for Holloman AFB.

A RA investigated the possibility of human exposure to contaminants in the groundwater. The assessment concluded that the site did not pose an unacceptable risk to human health; and, no remedial action was recommended.

Basis for Determination

SWMU AOC-D was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the potential risk does not pose a threat for human health or the environment.



AOC D - Building 882 Spills

Figure 30

NFA CRITERION 4

NFA Criterion 4: A release from the SWMU/AOC to the environment has occurred, but the SWMU/AOC was characterized and/or remediated under another authority (such as NMED's Underground Storage Tank or Ground Water Quality Bureaus (GWQB)), which adequately addressed RCRA corrective action, and documentation, such as a closure letter, is available.

31. SWMU 29--Building 827 Oil/Water Separator**Location**

SWMU 29 is adjacent to SWMU 230—Building 828 Fuel Spill site. SWMU 29, Building 827 O/WS, serviced the aerospace ground equipment (AGE) wash rack and was located 80 ft east of the building. The capacity of the single-chamber O/WS was 900 gallons. The unit was installed below grade, and was constructed of concrete. The top of the unit was approximately 2 inches above the ground surface, and the soil surrounding the unit was covered with asphalt. For a further description of the site, refer to Figure 31.

History

SWMU 29 was in service from 1977–1991. The source of waste was from the wash rack in Building 827 (SWMU 95). Detergents, oils, and other chemicals associated with wash rack activities were disposed of at this site. The amount of waste disposed of at this site is unknown.

A visual site inspection revealed no evidence of releases at this unit. However, SWMU 29 is in close proximity to SWMU 230, Building 828 Fuel Spill Site; consequently diesel, JP-4, and other petroleum-based compounds associated with the spill site are likely contaminants of this site.

Evaluation of Relevant Information

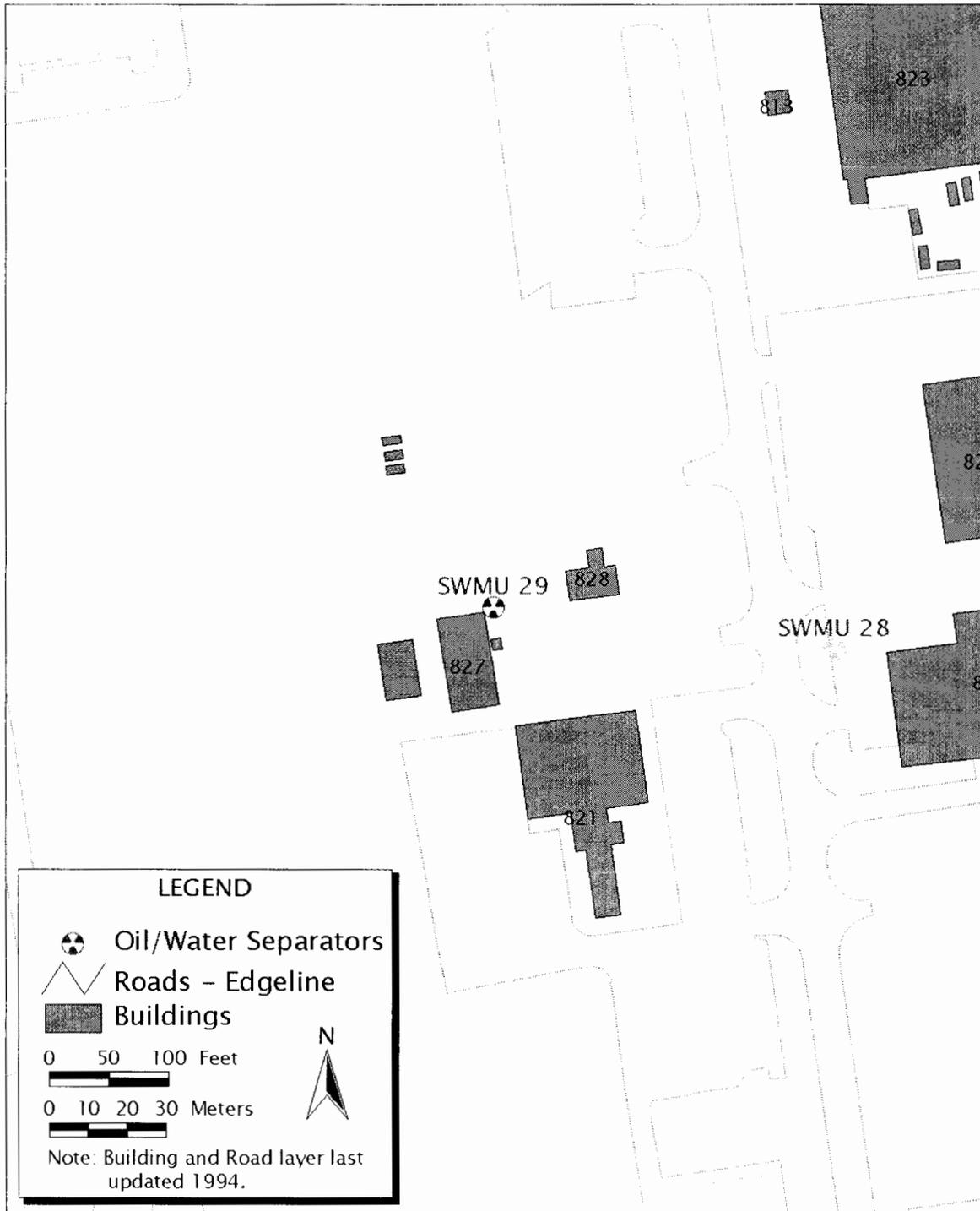
The area around SWMU 29 had previously been investigated for the diesel, JP-4, and unleaded fuel contamination in conjunction with RFI for SWMU 230, the fuel spill site. However, to identify whether or not a release had occurred at this unit, SWMU 29 was investigated under the Table 3 RFI in 1997.

During Phase I, four soil boreholes were installed and eight samples were collected for TRPH analysis. Seven of the samples revealed TRPH concentrations above 1,000 mg/kg release criterion. Four of those samples were collected at a depth 6 ft to 8 ft bgl, which is consistent with the depth of the contaminant plume associated with SWMU 230. It is, therefore, thought that these samples are representative of the contaminated media from the fuel spill at SWMU 230, and not a release from SWMU 29. The remaining three samples, however, were collected at a shallow depth and are believed to be associated with a release from SWMU 29. Based on the TRPH concentrations in these soil samples, this site was recommended for conditional NFA, with the requirement that soil exceeding 1,000 mg/kg be remediated.

By July 1997, a new unit had replaced the O/WS at SWMU 29. In addition, approximately 124 cubic yards of TRPH-contaminated were excavated and remediated by the high vacuum dual phase extraction (HVDPE) system at Building 828. Confirmation soil borings were planned to be taken across SWMU 29, to ensure that the system has remediated the site to less than 1,000 mg/kg TRPH.

Basis for Determination

SWMU 29 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the site was characterized and/or remediated under another authority which adequately addressed RCRA corrective action.



SWMU 29 - Building 827 Oil/Water Separator

Figure 31

32. SWMU 119--Building 121 Waste Oil Tank

Location

SWMU 119 is adjacent to SWMU 101--Building 121 Landfill, and to SWMU 2--Building 121 Oil/Water Separator. For a further description of the site, refer to Figure 32.

History

The period of operation for this site was from 1984-1993. SWMU 119 is the former location of a waste oil tank. The waste oil tank was an underground storage tank with a capacity of 200 gallons. Its construction material was unknown. The source of waste was the nearby vehicle wash rack. Rinsate and waste oils from the nearby vehicle wash rack were routed to the O/WS. The waste oil skimmed in the O/WS was transferred by gravity to the waste oil tank via a subsurface pipe.

A halon vapor monitoring system was installed to monitor the tank's integrity. The system has shown evidence of past leakage. A single fuel spill is known to have occurred at the site; however, no information concerning the spill is available.

Evaluation of Relevant Information

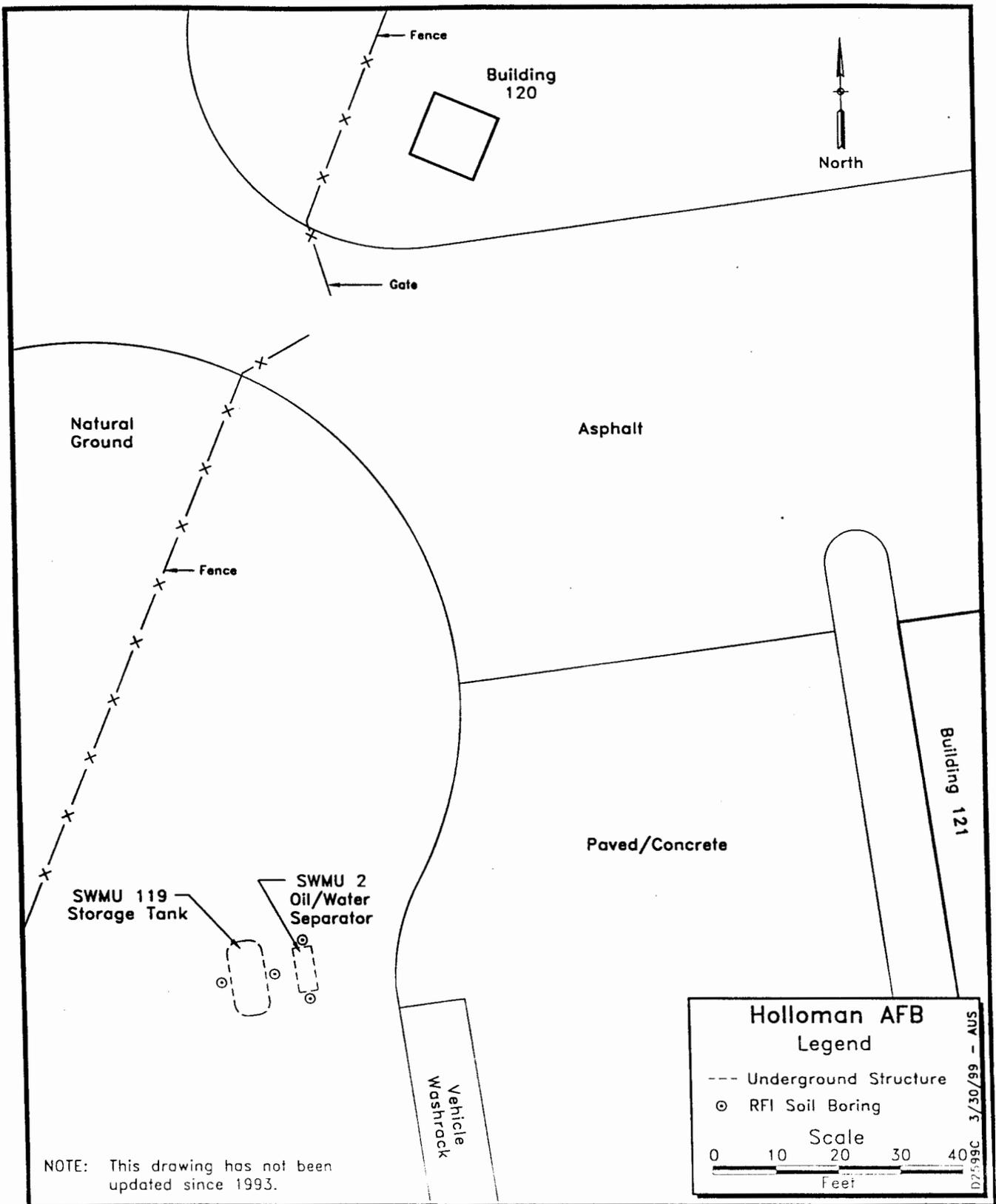
A Phase I Remedial Investigation (RI) was conducted in 1994, in which Solid Waste Management Unit (SWMU) 119 and SWMU 2 were jointly investigated. Four soil boreholes were installed at SWMU 119, and samples were collected at 2-ft to 12-ft intervals. A soil sample was collected for geotechnical analysis from one boring. All samples were analyzed for VOCs, metals, and TRPH, and visibly contaminated samples were analyzed for SVOCs.

Several VOCs and SVOCs were detected at or below detection, but all concentrations were below risk-based trigger criteria. None of the metals exceeded risk-based trigger criteria. The risk screen and TRPH identified no COPCs above trigger criteria in any sample. Although SWMU 119 was recommended for no further action, the WOT was removed by 1997 as part of the Base-wide Petroleum, Oils, and Lubricant (POL) Remediation Project. Landscaping rock was stockpiled, the WOT was removed and decontaminated, the piping associated with the WOT was capped, and the excavation was backfilled and compacted. A total of 20 cubic yards of soil was removed at SWMU 119.

Five closure soil samples were collected at each SWMU after restoration activities were completed. Analytical results were less than Base cleanup criteria for all closure samples. Two soil stockpile samples were collected for SWMU 119 and analyzed for TRPH, VOCs, and SVOCs. Analytical results were less than Base cleanup criteria for all stockpile samples.

Basis for Determination

SWMU 119 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the site was characterized and/or remediated under another authority which adequately addressed RCRA corrective action.



SWMU 119 - Building 121 Waste Oil Tank

Figure 32

NFA CRITERION 5

NFA Criterion 5: The SWMU/AOC has been characterized or remediated in accordance with current applicable state or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

33. SWMU 1--Building 55 Oil/Water Separator**Location**

There are no SWMUs adjacent to SWMU 1. For a further description of the area, refer to Figure 33.

History

SWMU 1, a three-chamber O/WS serviced the wash rack near Building 56. The oil capacity of the unit is 50 gallons, and its design flowrate is 50 gal/min. The total capacity of the unit is unknown. The O/WS was installed below grade and constructed of fiberglass reinforced plastic. The wash rack is also known as IRP Site SD-15 and has recently undergone a Preliminary Assessment/Site Investigation (PA/SI) as part of that program.

This site began operation in 1984 and is still being used today. Oils, fuels, and wastes from various sources flowed from the wash rack to the O/WS. The amount of waste disposed of at this site is unknown. The wash rack is known to have overflowed numerous times since its installation in 1984. The O/WS is reported to have overflowed as well. (August 1992 records indicate an overflow occurred at both the wash rack and O/WS.) In addition, a visual site inspection noted dark stains adjacent to the unit indicating a possible release to the soil and groundwater.

Evaluation of Relevant Information

In 1997, SWMU 1 was investigated under the Table 3 RCRA Facility Investigation (RFI) to determine whether a release had occurred. During the Phase I investigation, seven soil boreholes were installed and samples were collected for TRPH analysis. At each location, samples were collected from the surface and from a depth that corresponded to the bottom of the O/WS. TRPH was detected at all of the Phase I locations above the 100 mg/kg release criteria.

Eight additional soil samples and three groundwater samples were taken to determine the extent of the contamination. Elevated levels of TRPH in soil were found in the area between the wash rack and the O/WS, as well as west of the separator. In addition, TRPH concentrations are elevated to the south and east of the O/WS; however, site geology suggests that these contaminants are not related to a release at SWMU 1.

One groundwater sample was collected upgradient of the separator. One was collected inside the area of contaminated soil, and one was collected downgradient of the release. At location MW-01-04, TRPH concentrations exceeded the 10 mg/kg release criterion, indicating a release to the groundwater. Results of the investigation conclude that a surface release has occurred at this site. Light Non-Aqueous Phase Liquid (LNAPL) was not detected at any groundwater sampling point or in any soil boring.

A site-specific RA was conducted after a risk-based screen identified benzo (a)-pyrene, mercury, and thallium as chemicals of concern (COCs) from the release. Conditional NFA was recommended, with the requirement that soil exceeding 1,000 mg/kg in TRPH concentration would be remediated.

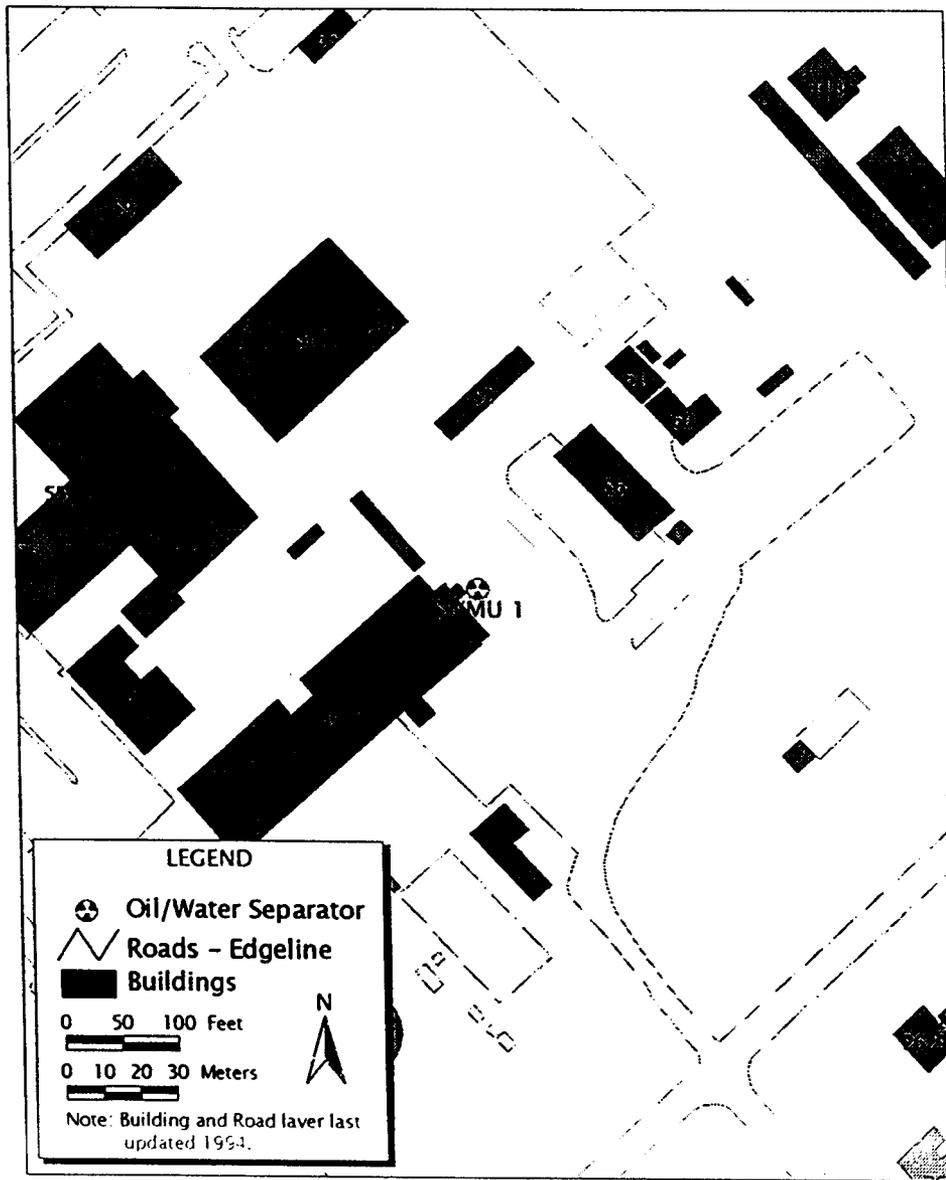
In 1997, approximately 10 cubic yards of asphalt and 372 cubic yards of contaminated soil were excavated from SWMU 1. Additional fill was imported and the excavation was backfilled and compacted.

Ten closure samples were collected from the excavation at this site. The analytical results, which represent in-place soil conditions upon completion of excavation, were less than 1,000 mg/kg TRPH for all closure

samples. SWMU 1 remains active, and is managed in accordance with the *Guidance on Management of Oil/Water Separators*.

Basis for Determination

SWMU 1 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 1 - Building 55 Oil/Water Separator

Figure 33

34. SWMU 2--Building 121 Oil/Water Separator

Location

SWMU 2 is adjacent to SWMU 119--Building 121 Landfill and SWMU 101--Building 121 Oil/Water Separator. SWMU 2, Building 121 Oil/Water Separator, was located approximately 100 ft north of Building 121. For further description of the site, refer to Figure 34.

History

The period of operation for this site was from 1984-1993. Rinsate and waste oils from the nearby vehicle wash rack were routed to the O/WS. The waste oil skimmed in the O/WS was transferred by gravity to the waste oil tank via a subsurface pipe. The O/WS had a capacity of 300 gallons and was constructed of steel. The O/WS was removed in 1997.

A single fuel spill is known to have occurred at the site; however, no information concerning the spill is available.

Evaluation of Relevant Information

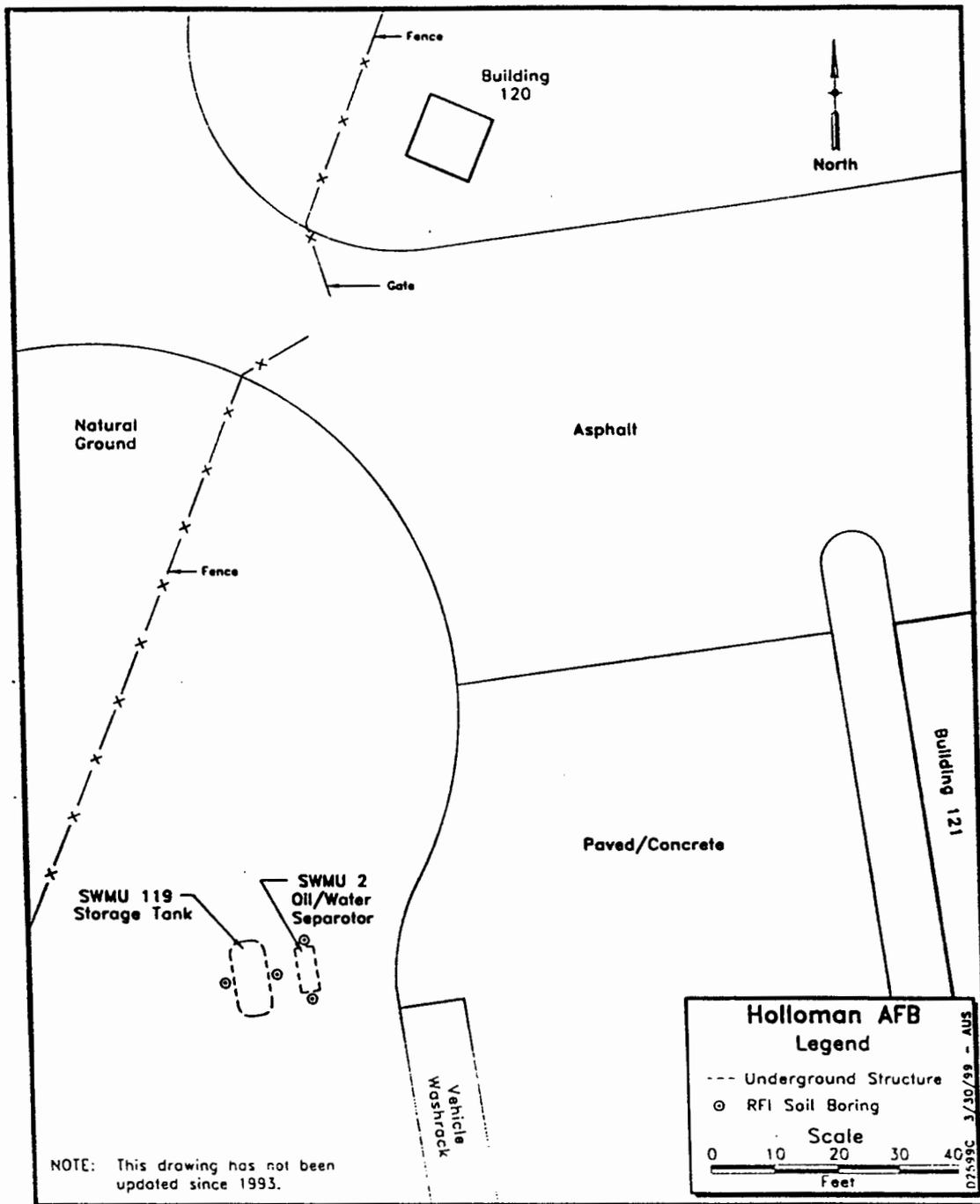
A Phase I RI was conducted in 1994, in which SWMU 119 and SWMU 2 were jointly investigated. Two soil boreholes were installed at SWMU 2, and samples were collected at 2-ft intervals. Samples were analyzed for VOCs, metals, and TRPH, and a soil sample was collected for geotechnical analysis from one boring.

Several VOCs were detected at or below detection limits; however, all concentrations were below risk-based trigger criteria. TRPH and metals did not exceed risk-based trigger criteria in either sample. The risk screen identified no COPCs. Although SWMU 2 was recommended for no further action, the O/WS was removed in 1997 as part of the Base-wide POL Remediation Project. Landscaping rock was stockpiled, the O/WS was removed and decontaminated, the piping associated with the O/WS was capped, and the excavation was backfilled and compacted. A total of 24 cubic yards of soil was removed at SWMU 2.

Five closure soil samples were collected at SWMU 2 after restoration activities were completed. Analytical results were less than Base cleanup criteria for all closure samples.

Basis for Determination

SWMU 2 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 2 - Building 121 Oil/Water Separator

Figure 34

35. SWMU 3--Building 130 Oil/Water Separator

Location

SWMU 3 is adjacent to SWMU 4--Building 131 O/WS, and to SWMU 6--Building 193 O/WS. SWMU 3, former Building 130 O/WS, was located south of demolished Building 130. For a further description of the site please refer to Figure 35.

History

The date of when this site was first used is unknown. The O/WS was removed during Phase I POL restoration activities and the last day the site was in service was in 1988. The unit had a capacity of 150 gallons and was approximately 3 ft long by 3 ft wide by 3 ft deep. The unit was installed below grade and was constructed of concrete. The O/WS received rinsate containing oils, detergents, and fuels from equipment wash rack located adjacent to the unit. The quantity of waste disposed of at this site is unknown.

A visual site inspection noted that the ground surface was stained on the east and west ends of the unit.

Evaluation of Relevant Information

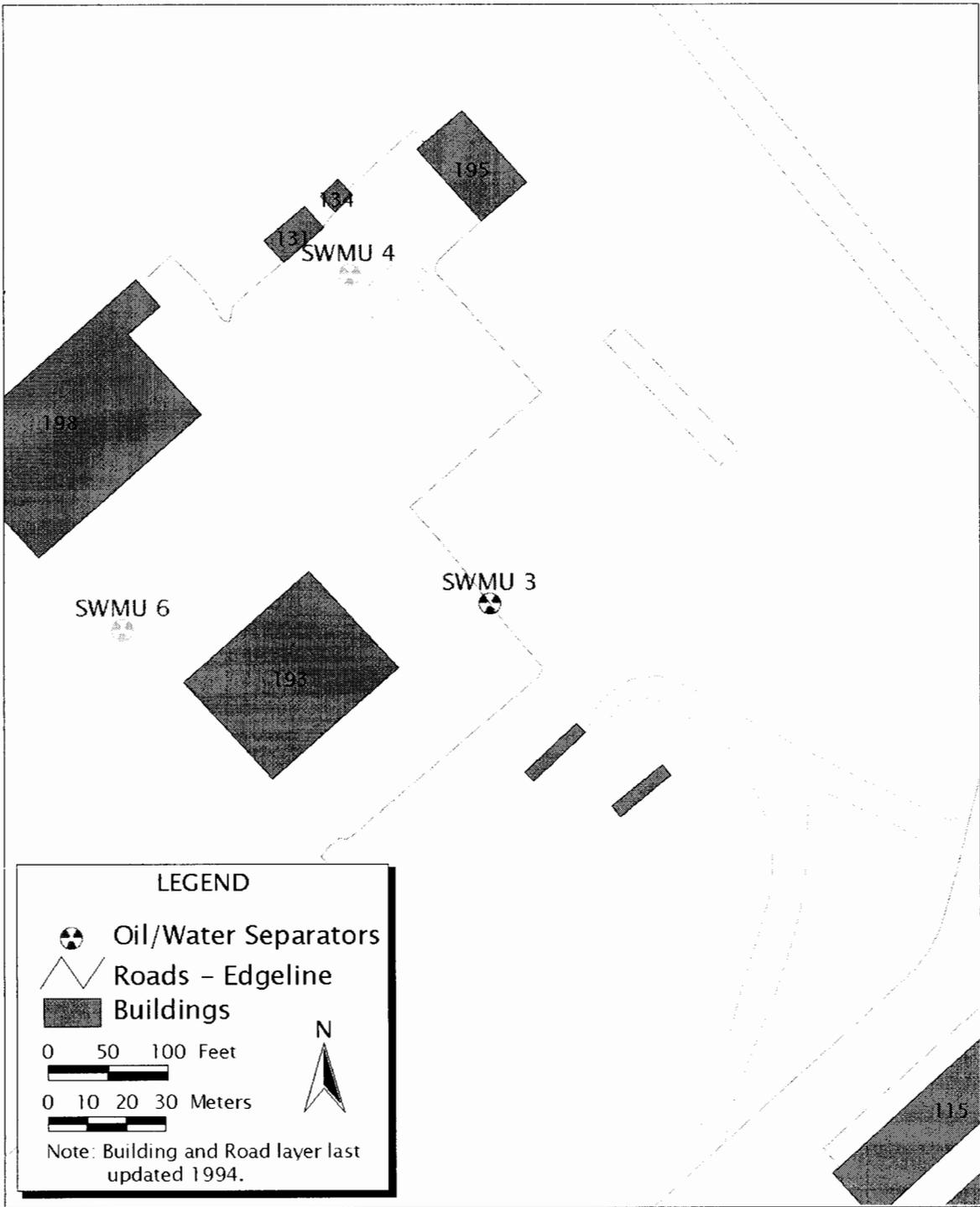
Soil sampling was not conducted during the Table 3 RFI in 1997 because the unit was scheduled for removal. Instead, soil samples were collected during Phase I POL restoration activities and analyzed for TRPH, Toxic Characterization Leaching Procedure (TCLP) constituents (metals, VOCs, and SVOCs), and metals. Results for TRPH were greater than 1,000 mg/kg in four of the five Phase I closure samples. VOCs, SVOCs, and metals were detected in several samples; however, concentrations were below Base cleanup criteria.

By December 1997, the excavation of the O/WS was complete. During its removal, landscaping rock was removed and stockpiled. An abandoned 6-inch pipe and two previously unknown O/WSs were removed. The excavation was backfilled and compacted. Approximately 931.1 cubic yards of TRPH-contaminated soil was transported off site to the Rhino Environmental facility for disposal.

Following excavation activities, eight closure samples were collected from the side walls of the excavation and analyzed for TRPH, metals, and selected VOCs and SVOCs. The highest TRPH concentration (24 mg/kg) was well below the cleanup standard of 1,000 mg/kg. Eleven soil stockpile samples were also collected from this site and analyzed for TRPH, PCBs, TCLP, VOCs, lead, and RCRA characteristics. All samples exceeded Base cleanup criteria for TRPH.

Basis for Determination

SWMU 3 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 3 - Building 130 Oil/Water Separator

Figure 35

36. SWMU 7--Building 198 Oil/Water Separator

Location

SWMU 7 is adjacent to SWMU 4--Building 131 O/WS and to SWMU 6--Building 193 O/WS. For more information on the location, refer to Figure 36.

History

This site began operation in 1953 and is still in use today. SWMU 7, former Building 198 O/WS, serviced the vehicle maintenance area in Building 198. The original O/WS was installed in 1953, but was converted to a sediment trap in 1991. The unit had a capacity of 500 gallons and an oil capacity of 30 gallons. The unit was installed below grade and constructed of concrete. The top of the unit was approximately 4 inches above the ground surface, and the soil around the unit was covered with a concrete pad. A new two-chamber O/WS was installed in 1991. The source of waste is from the activity in Building 198. The amount of waste that has been generated during the period of operation is unknown.

There is no record of a release at this site.

Evaluation of Relevant Information

SWMU 7 was investigated under the Table 3 RFI in two phases. Samples from five soil boreholes were collected and analyzed for TRPH. TRPH concentrations at two of the Phase I boreholes were detected above the 100 mg/kg release criterion. It was, therefore, determined that a release had occurred from the SWMU. Higher TRPH concentrations were detected between 6 and 8 ft, indicating the release pathway was most likely from the separator chamber or piping.

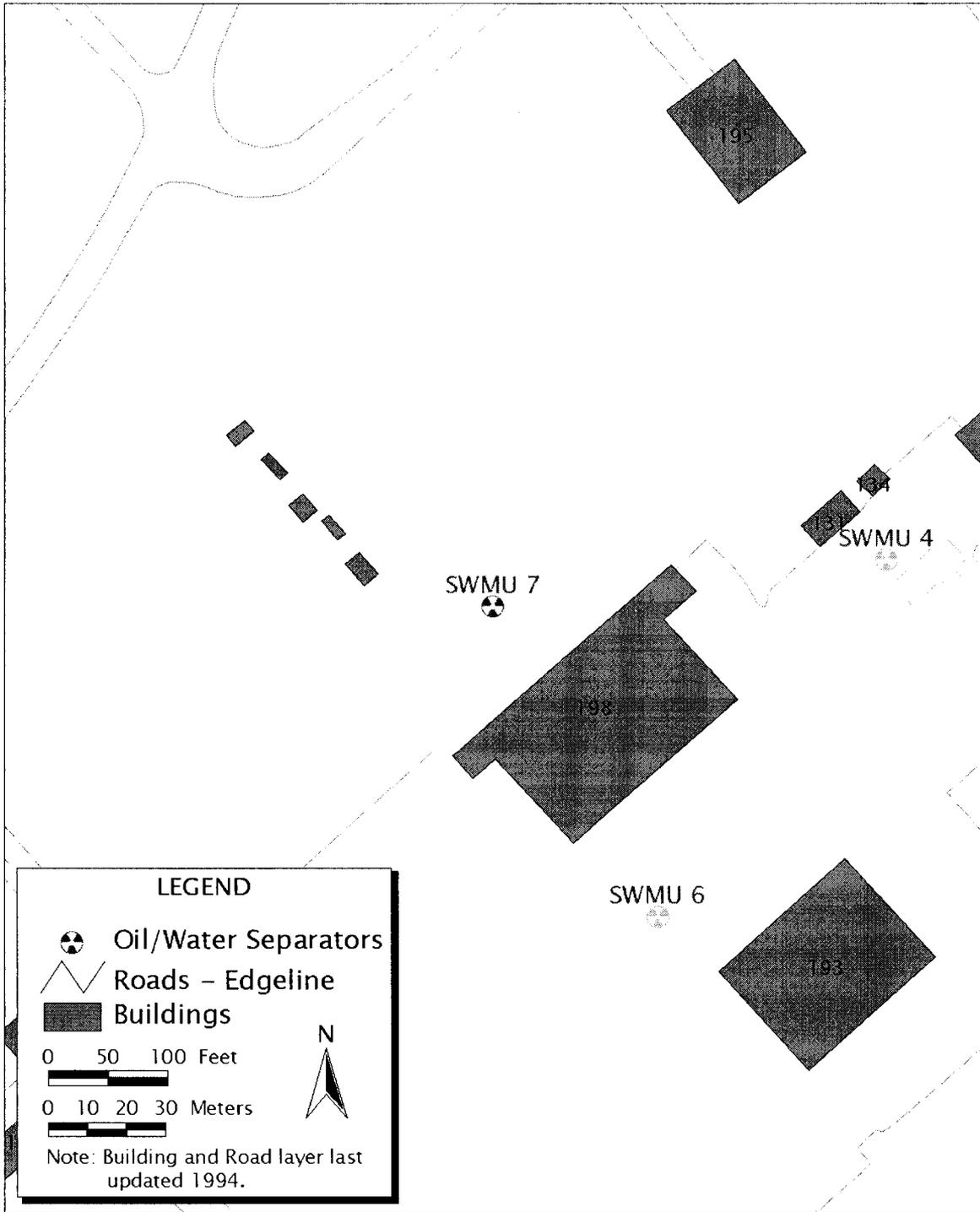
Additional soil and groundwater samples were then collected to define the nature and extent of the release. Four soil samples were collected and analyzed. Data indicated that dichlorobenzenes, ethyl benzene, total xylenes, benzoic acid, and naphthalene were detected at concentrations above the reporting limit within the TRPH-contaminated soils. The highest concentration was observed at borehole 07-04, which had a TRPH concentration of 11,400 mg/kg.

Groundwater samples were collected from four locations. TRPH results were greater than the 10 mg/l release criterion at location 07-08. Ethyl benzene, toluene, total xylenes, and carbon disulfide were reported at elevated concentrations at location 07-04. LNAPL was not detected at any groundwater sampling point or in any borehole. The results of the RFI concluded that the subsurface release was confined to an area directly north and west of the O/WS.

The risk-based screen did not identify any COCs, and conditional NFA was recommended for SWMU 7 with the requirement that soils exceeding 1,000 mg/kg TRPH be remediated. By July 1997, SWMU 7 had been excavated, removed, decontaminated, and broken into manageable pieces. The piping was plumbed into the new O/WS, a new cleanout was installed, and the excavation was backfilled and compacted. Five closure samples were collected from the excavation and analyzed for TRPH only; all sample results were at concentrations less than 1,000 mg/kg.

Basis for Determination

SWMU 7 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 7 – Building 198 Oil/Water Separator

Figure 36

37. SWMU 8--Building 231 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 8. SWMU 8, former Building 231 O/WS, was located southeast of Building 231. For a further description of the area, refer to Figure 37.

History

The time at which this site was first used is not known. The unit was abandoned in August of 1995 and filled with sand, and was removed in 1997. The O/WS accepted washwater containing oils, detergents, and fuels from a heavy equipment wash rack located adjacent to the unit located in the Vehicle Maintenance Area in Building 231. The oil capacity for the unit was 300 gallons and was approximately 6 ft long by 4 ft wide by 4 ft deep. The unit was installed below grade and constructed of concrete. The top of the unit was a few inches above the ground surface, which was covered by drain rock.

A visual inspection noted stained soil on the north side of the unit indicating a potential release.

Evaluation of Relevant Information

SWMU 8 was not investigated as part of the Table 3 RFI, but was instead investigated and characterized concurrently with the unit removal which began in 1995.

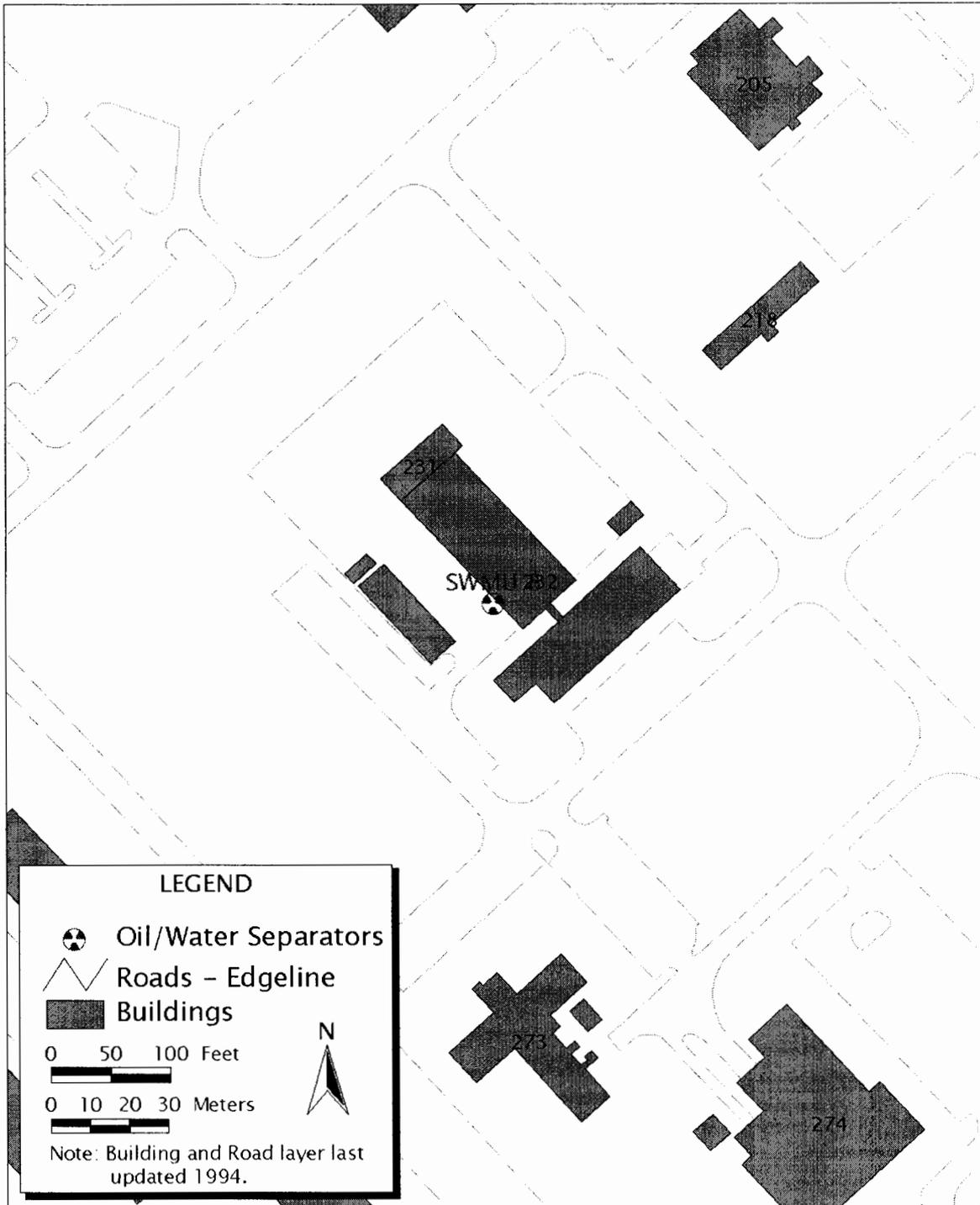
In August 1995, the initial removal of SWMU 8 began. The O/WS and 21 cubic yards of contaminated soil were excavated. During excavation activities, it was discovered that contaminated soil extended beyond what had been anticipated for the first phase of remediation. Field activities ceased in order to determine the most efficient method of closure. NMED was contacted and approved leaving TRPH-contaminated soil that extended beneath in-place structures intact, as long as it posed no risk. Pursuant to this agreement, excavation was determined to be the best closure method. Activities continued in April 1997, and the excavation was extended eastward from the location of the original excavation. An additional 31.8 cubic yards of TRPH-contaminated soil were excavated in the second phase.

Samples were collected after the first and second phases of excavation. The second-phase analytical results, which represented in-place soil conditions upon completion of excavation activities, did not exceed the Base cleanup criteria of 1,000 mg/kg for TRPH, 25 mg/kg for benzene, or Risk-Based Concentrations (RBCs) for detected metals. Although two closure samples from the original excavation exceeded TRPH cleanup criteria (23,000 mg/kg and 31,000 mg/kg), further excavation of contaminated soil was impossible at this site.

Because the TRPH-contaminated soil at SWMU 8 has been excavated to the extent possible (representing 80-90% of the total amount of contaminated soil), NFA was recommended and granted in an agreement with NMED.

Basis for Determination

SWMU 8 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 8 - Building 231 Oil/Water Separator

Figure 37

38. **SWMU 10--Building 283 Oil/Water Separator**

Location

SWMU 10 is adjacent to SWMU 9--Building 282 O/WS. SWMU 10, Building 283 O/WS, is located 5 ft from the southwest corner of Building 283. For a further description of the area, refer to Figure 38.

History

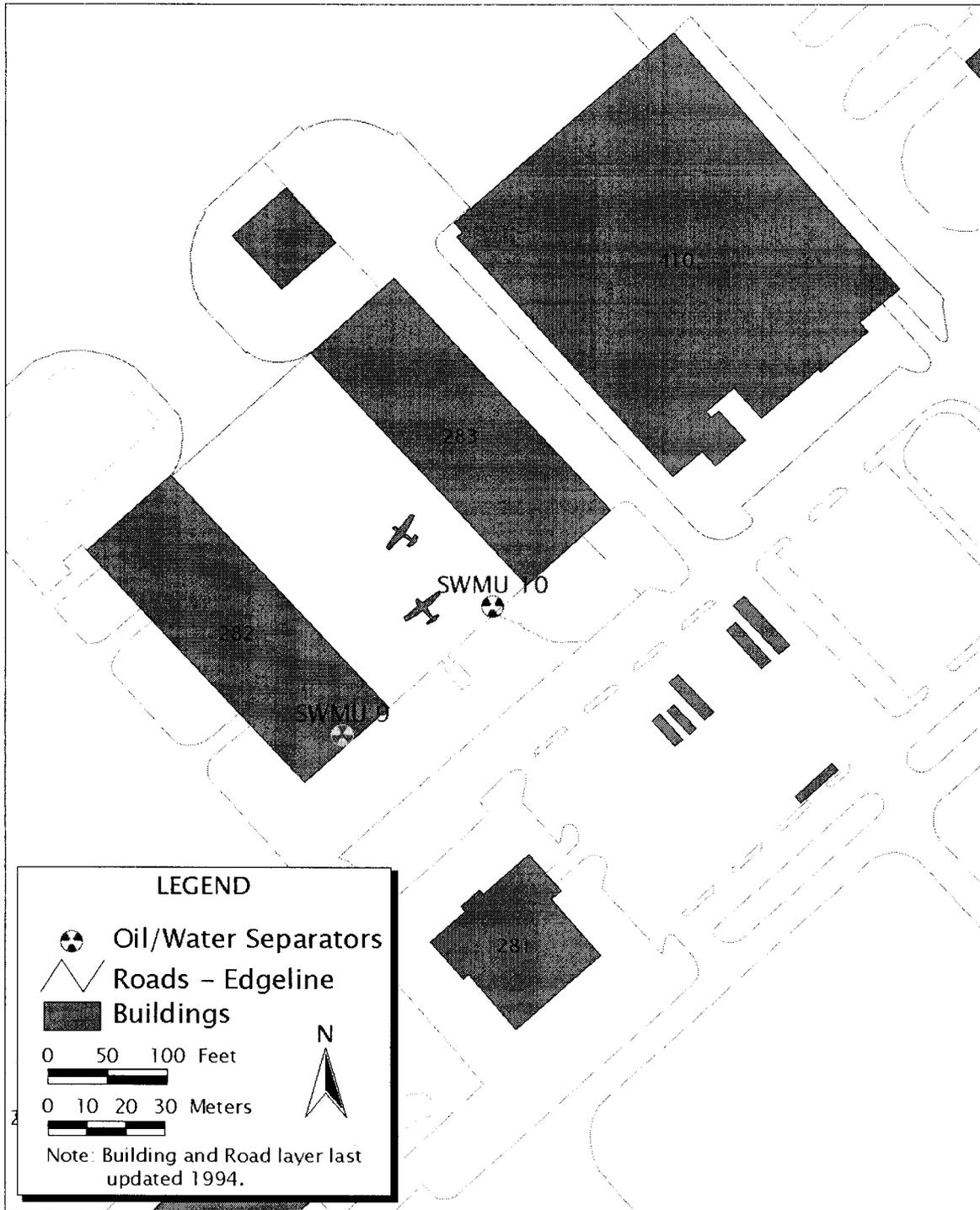
This site began operation in 1960 and is still in use today. The source of waste is from the wash rack in Building 283. The type of waste and the amount that was disposed is unknown. The total capacity of the unit is 500 gallons, with oil capacity is 180 gallons. The unit is installed below grade and is constructed of concrete. The top of the unit is approximately 4 inches above ground level, and the ground surrounding the unit is covered with asphalt. A visual inspection of the site noted no evidence of releases.

Evaluation of Relevant Information

It was determined that a site investigation was not necessary at SWMU 10.

Basis for Determination

SWMU 10 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 10 - Building 283 Oil/Water Separator

Figure 38

39. SWMU 11--Building 300 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 11. SWMU 11, Building 300 O/WS, serviced the jet engine maintenance area in Building 300 and is located 30-ft northeast of Building 292. For a further description of the area, refer to Figure 39.

History

The operation period of SWMU 11 was 1977 – 1991. The unit was removed and replaced in 1991 with a new sediment trap. The source of waste is the jet maintenance area in Building 300. Various jet and fuel oils were treated in SWMU 11. The amount of waste disposed of at this site is unknown. Interviews with personnel in Building 292 indicated that aboveground storage tanks were located in an adjacent parking lot for an unspecified period in the past. These tanks may represent a distinct source of waste.

A visual site inspection revealed no evidence of a release.

Evaluation of Relevant Information

To investigate whether a release had occurred, SWMU 11 was investigated under the Table 3 RFI. Samples were collected on four sides of the new sediment trap at three intervals ranging from the surface to 8-ft bgl. Since the original unit had been removed, the samples were collected outside or below the backfill area. Soil samples at three of the Phase I locations exceeded the 100 mg/kg TRPH release criterion. The maximum TRPH-concentration (2,200 mg/kg) was detected at borehole 11-04. During the Phase I investigation, it was determined that a surface release had occurred at SWMU 11, and a Phase II investigation was initiated.

Phase II sampling continued until the extent of SWMU-related contamination had been defined. Elevated TRPH levels were found in a parking area near the SWMU, but were determined to not be related to SWMU 11. Laboratory analysis showed cadmium and several petroleum hydrocarbons were detected in samples at levels above the screening criteria.

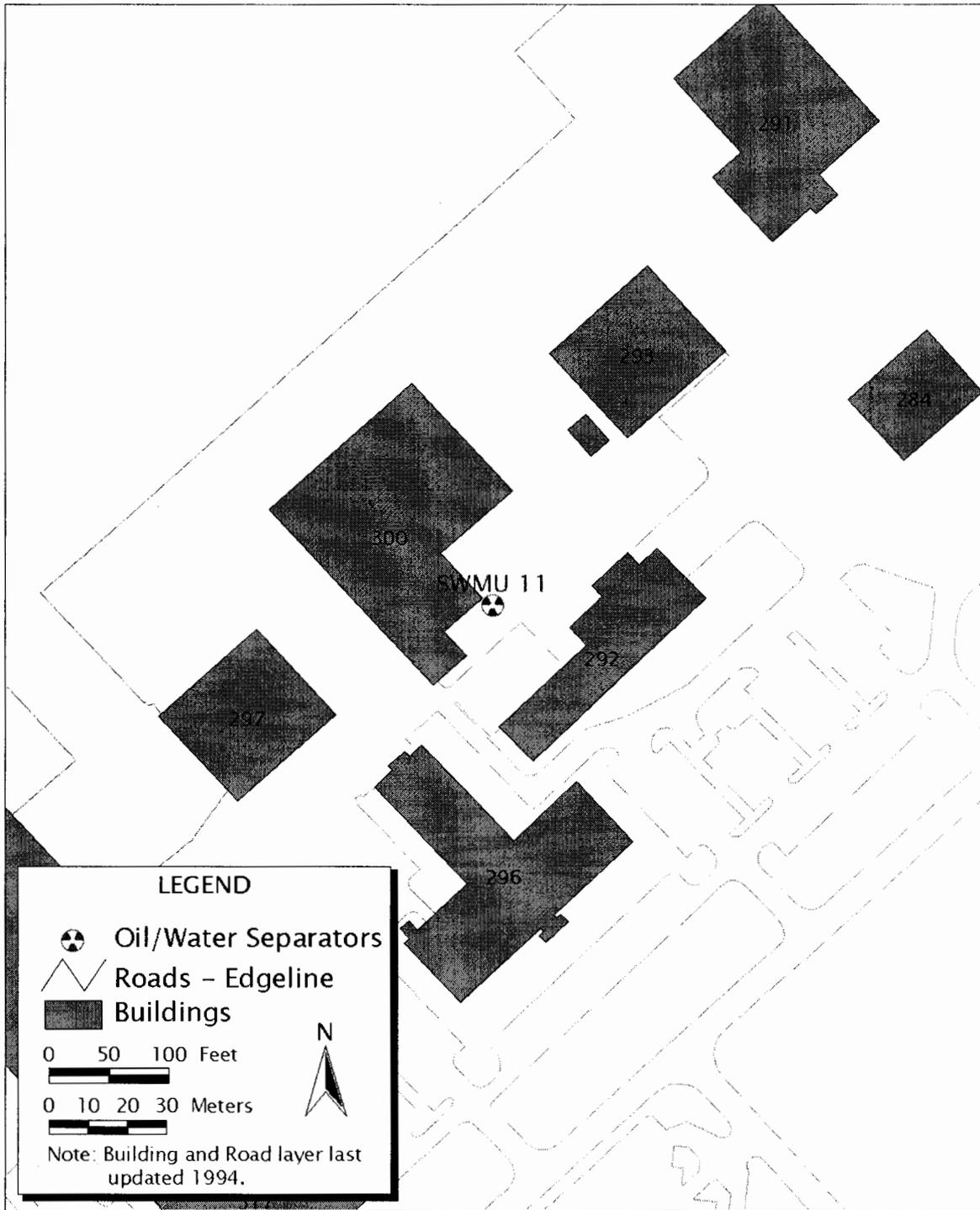
A site-specific RA was performed to evaluate further risk. It showed that concentrations of the COCs would not pose significant risk to human health. However, conditional NFA was recommended with the requirement that soil exceeding the TRPH cleanup standard be remediated.

By 1997, approximately 373 cubic yards of soil, 12 cubic yards of asphalt, and 3 cubic yards of concrete were excavated. Soil was segregated and 168 cubic yards were stockpiled until laboratory results were received. Lab results indicated contamination was less than the 1,000-mg/kg TRPH cleanup criteria; therefore, the stockpiled soil did not require off site disposal and was spread.

Five closure samples were collected from the excavation for site closure. None of the closure samples taken in the vadose zone indicated TRPH above 1,000 mg/kg; only sample number 5, collected near the water table at the base of the excavation, indicated TRPH above the cleanup criterion. Two soil stockpile samples were also collected; both sample results were less than 1,000 mg/kg for TRPH. Per the agreement established between NMED and Holloman AFB, only remediation of vadose zone contamination was required. Therefore, excavation was terminated at the water table. All four sidewall samples indicated TRPH well below 1,000 mg/kg.

Basis for Determination

SWMU 11 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 11 - Building 300 Oil/Water Separator

Figure 39

40. SWMU 12--Building 304 Oil/Water Separator

Location

SWMU 12 is adjacent to SWMU 13--Building 304A O/WS. For a further description of the area, refer to Figure 40.

History

SWMU 12, Building 304 O/WS, serviced the vehicle maintenance area in Building 304. The capacity of the unit was approximately 40 gallons, with a oil capacity of 15 gallons. The unit was installed below grade and constructed of steel. The top of the unit was at ground surface, and the soil around the unit was covered with concrete. The unit was removed and replaced with a new unit in 1993. Concrete covers the site where the old O/WS was located and the surrounding area, including the new O/WS.

The year this site first began service is unknown, but the last year it was used was in 1993. The source of waste was from the vehicle maintenance activities in Building 304. Lubricants, oil, grease, and various other wastes were likely accepted by the O/WS at SWMU 12. The amount of waste disposed of at this site is unknown. Periodic overflows occurred at the O/WS.

Visible soil contamination was observed beneath the concrete.

Evaluation of Relevant Information

To determine whether a release had occurred, SWMU 12 and SWMU 13 were jointly investigated under the Table 3 RFI. Samples were collected in four locations in the area where this unit and SWMU 13, an O/WS nearby, were located. Samples were collected from 10 depths at intervals from the surface to 12 ft bgl during the Phase I investigation. Soil samples at seven of the Phase I locations exceeded the 100 mg/kg TRPH release criterion. The maximum TRPH value occurred at borehole 12-04 near the original O/WS. Borehole 12-06, located in a drainage ditch where runoff was thought to collect, also contained elevated levels of TRPH. From the results of the Phase I investigation, it was determined that a surface release had occurred related to activities at SWMU 12. On this basis, a Phase II investigation was triggered.

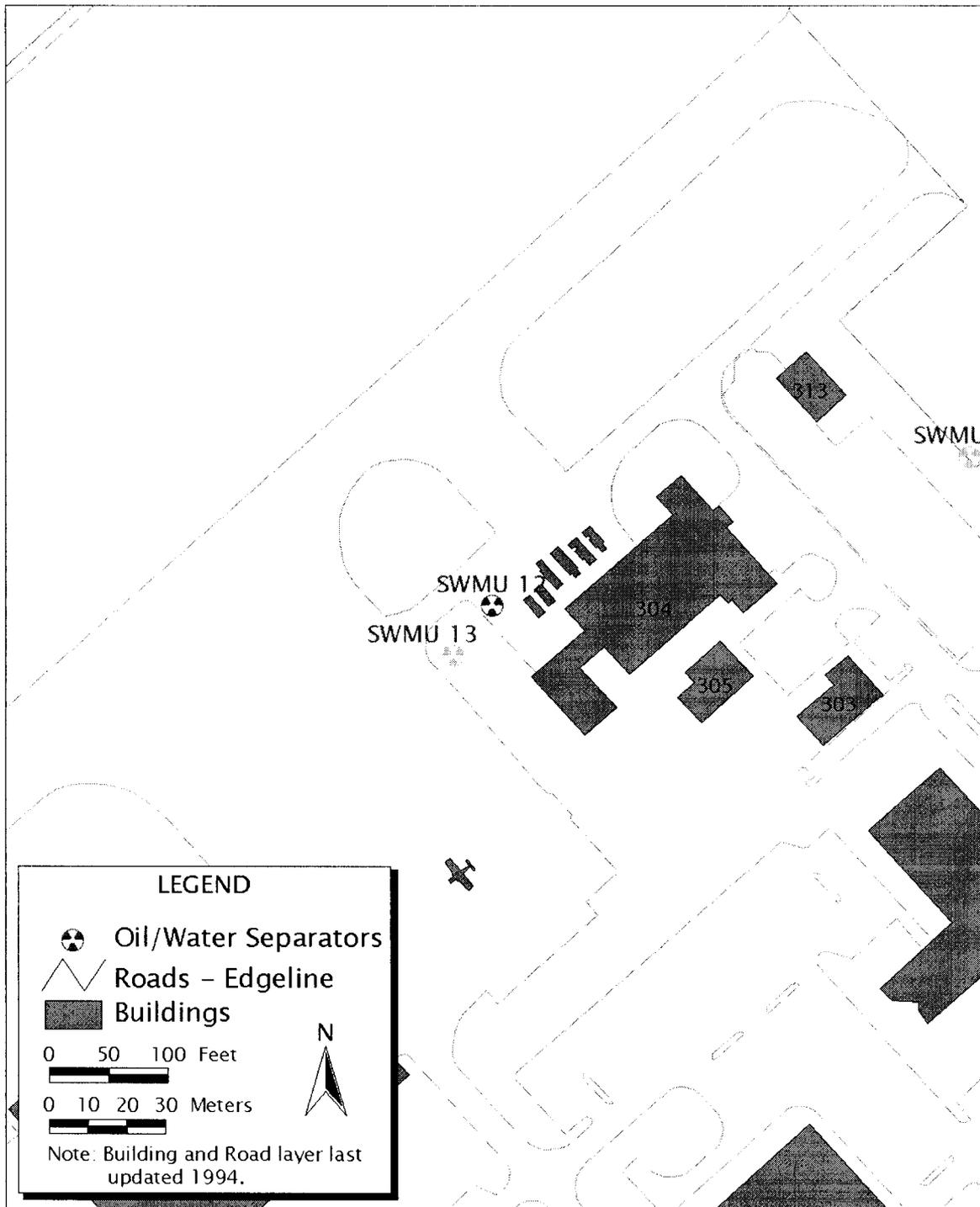
During the Phase II investigation, an iterative step-out approach was utilized to determine the extent of contamination. To characterize the nature of the release, 10 soil samples were submitted for laboratory analysis. Constituents detected above reporting limits include 2-butanone, acetone, carbon disulfide, methylene chloride, toluene, 2-methylnaphthalene, and vinyl acetate. Groundwater samples from four locations were also collected. None of the samples exceeded the 10-mg/l criteria for TRPH release. LNAPL was not detected at any groundwater sampling point or in any soil borehole.

A risk-base screen indicated that benzo(a)pyrene was detected in one sample at a level above the RBC. Conditional NFA was recommended for SWMU 12, with the requirement that TRPH-contaminated soil would be remediated.

By 1997, an area of TRPH-contaminated soil measuring approximately 28 ft by 30 ft was excavated. The total volume of soil removed was 249 cubic yards. Laboratory analysis of the excavated soil indicated TRPH levels were less than 1,000 mg/kg cleanup criteria; therefore, the soil stockpile was spread. Clean fill was imported, backfilled, and compacted. Two samples were collected from the soil stockpile and analyzed for TRPH; both samples measured below 1,000 mg/kg. Five closure samples were collected from the excavation and analyzed for TRPH only. Analytical results, which represent soil conditions upon completion of excavation, were less than 1,000 mg/kg for all closure samples.

Basis for Determination

SWMU 12 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 12 - Building 304 Oil/Water Separator

Figure 40

41. SWMU 13--Building 304A Oil/Water Separator

Location

SWMU 13 is adjacent to SWMU 12--Building 304 Oil/Water Separator. For a further description of the area, refer to Figure 41.

History

SWMU 13, Building 304A O/WS, serviced the vehicle maintenance area in Building 304A. The capacity of the unit was approximately 60 gallons, with an oil capacity of 50 gallons. The unit was installed below grade and constructed of steel. The top of the unit was at ground surface, and the soil around the unit was covered with concrete. The unit was removed and replaced with a new unit in 1993. Concrete covers the site where the old O/WS was located and the surrounding area, including the new O/WS.

The year this SWMU was first used is unknown, but it was last used in 1993. The source of waste was from vehicle maintenance activities in Building 304A. Lubricants, oil, grease, and various other wastes were likely accepted by the O/WS at SWMU 13. The amount of waste disposed of at this site is unknown. Periodic overflows occurred at the O/WS.

Visible soil contamination was observed beneath the concrete.

Evaluation of Relevant Information

To investigate whether a release had occurred, SWMU 13 and SWMU 12 were jointly investigated under the Table 3 RFI. Samples were collected in four locations in the area where this unit and SWMU 12, an adjacent O/WS, were located. Samples were collected from 10 depths at intervals from the surface to 12 ft bgl during the Phase I investigation. Soil samples at seven of the Phase I locations exceeded the 100 mg/kg TRPH release criterion. The maximum TRPH value occurred at borehole 12-04 near the original O/WS; borehole 12-06, located in a drainage ditch where runoff was thought to collect, also contained elevated levels of TRPH. From the results of the Phase I investigation, it was determined that a surface release had occurred related to activities at SWMU 13. On this basis, a Phase II investigation was triggered.

During the Phase II investigation, an iterative step-out approach was utilized to determine the extent of contamination. To characterize the nature of the release, 10 soil samples were submitted for laboratory analysis. Constituents detected above reporting limits include 2-butanone, acetone, carbon disulfide, methylene chloride, toluene, 2-methylnaphthalene, and vinyl acetate. Groundwater samples from four locations were also collected. None of the samples exceeded the 10-mg/l criteria for TRPH release. LNAPL was not detected at any groundwater sampling point or in any soil borehole.

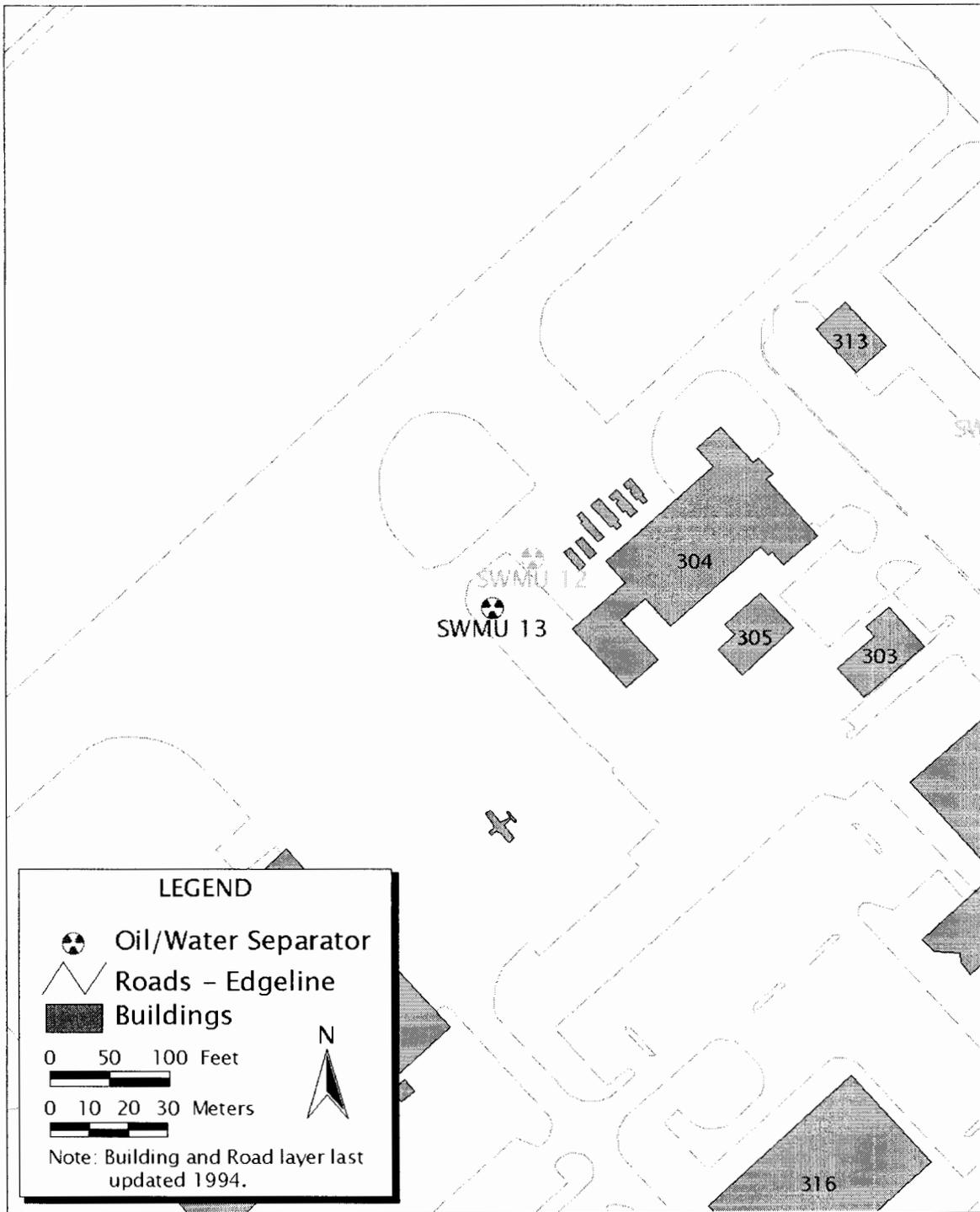
A risk-based screen indicated that benzo(a)pyrene was detected in one sample at a level above the RBC. Conditional NFA was recommended for SWMU 13, with the requirement that TRPH-contaminated soil would be remediated.

By 1997, an area of TRPH-contaminated soil measuring approximately 28 ft by 30 ft was excavated. The total volume of soil removed was 249 cubic yards. Laboratory analysis of the excavated soil indicated TRPH levels were less than 1,000 mg/kg cleanup criteria; therefore, the soil stockpile was spread. Clean fill was imported, backfilled, and compacted.

Two samples were collected from the soil stockpile and analyzed for TRPH; both samples measured below 1,000 mg/kg. Five closure samples were collected from the excavation and analyzed for TRPH only. Analytical results, which represent soil conditions upon completion of excavation, were less than 1,000 mg/kg for all closure samples.

Basis for Determination

SWMU 13 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 13 - Building 304A Oil/Water Separator

Figure 41

42. SWMU 14--Building 306 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 14. For a further description of the area, refer to Figure 42.

History

SWMU 14, a three-chamber O/WS, services the aircraft wash rack in Building 306. The total capacity of the unit is approximately 2,000 gallons, with an oil capacity of 825 gallons. The unit is installed below grade and constructed of concrete. The top of the unit is approximately two inches above the ground surface, and the soil around the unit is covered on one side with concrete. In 1993, a new lid was added to the O/WS, and the skimmer was adjusted.

This site began operation in 1969 and is still in operation today. The source of waste is from the wash rack in Building 306. This wash rack primarily services F-4 and T-38 aircraft. Runoff from these operations was disposed of at SWMU 14. The amount of waste disposed of at this site is unknown.

A visual site inspection revealed no evidence of releases at this unit.

Evaluation of Relevant Information

To investigate whether a release had occurred, SWMU 14 was investigated under the Table 3 RFI. During Phase I, five soil boreholes were installed and sampled for TRPH analysis. TRPH concentrations at each of the Phase I boreholes were detected above the 100 mg/kg release criterion, mostly between 4 ft and 8 ft bgl. Data from the Phase I RI indicated a release related to activities at SWMU 14 had occurred. Phase II investigation was initiated to determine the lateral and vertical extent of contamination.

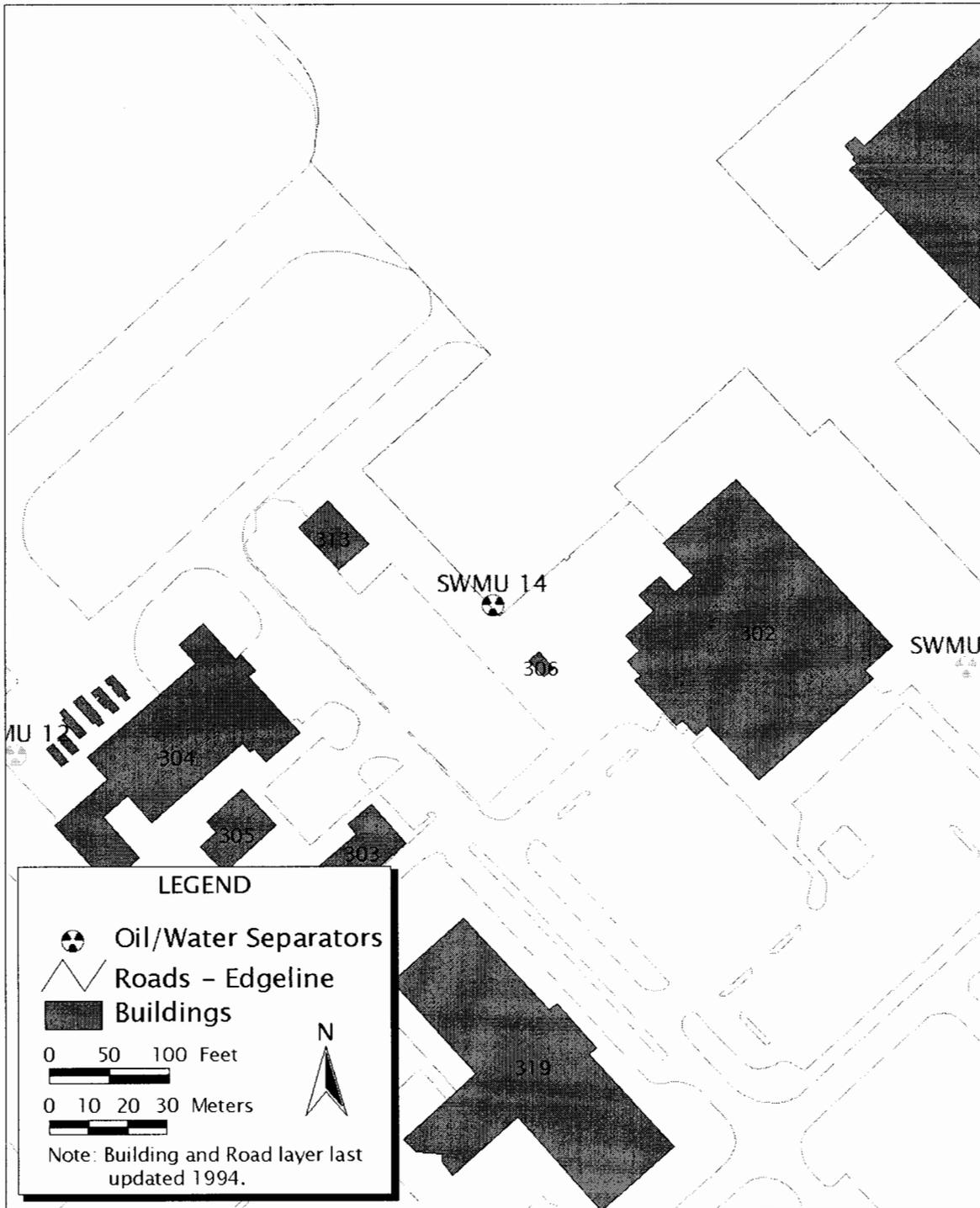
The extent of the release was investigated using an iterative step-out approach. To characterize the nature of the contamination, soil samples from eight boreholes were submitted for laboratory analysis. The data indicated that acetone, carbon disulfide, ethyl benzene, tetrachloroethene, and trichloroethene were detected at the site above reporting limits. The highest concentrations were observed near the O/WS. Groundwater samples from three locations were also collected and analyzed. Carbon disulfide, chloroethane, BTEX, tetrachloroethene, trichloroethene, and some SVOCs were detected above reporting limits in groundwater samples. LNAPL was not detected at any groundwater sampling point or in any soil borehole.

Conditional NFA was recommended, with the requirement that the TRPH-contaminated soil be remediated. Field excavation activities began in June 1997. Landscaping rock was stockpiled and the area was excavated to the western, eastern, and southern sides of the SWMU 14 O/WS down to the groundwater table.

Three closure samples were collected from the excavation at this site and analyzed for TRPH. The analytical results, which represent in-place soil conditions upon completion of excavation, revealed TRPH concentrations were below the 1,000 mg/kg cleanup criteria for all closure samples.

Basis for Determination

SWMU 14 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 14 – Building 306 Oil/Water Separator

Figure 42

43. SWMU 16--Building 315 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 16. For a further description of the area, refer to Figure 43.

History

SWMU 16, a three-chamber O/WS, services fuel cell repair operations in Building 315. The total capacity of the unit is 500 gallons, and the oil capacity is 180 gallons. The unit is installed below grade and constructed of concrete. The top of the unit is at groundwater surface, and the soil around the unit is covered with concrete.

This site began operation in 1969 and is still being used today. The source of waste is from operations in Building 315. SWMU 16 received fuels, oil, and other wastes spilled or washed into the floor drain in Building 315.

A visual site inspection revealed no evidence of releases at this unit.

Evaluation of Relevant Information

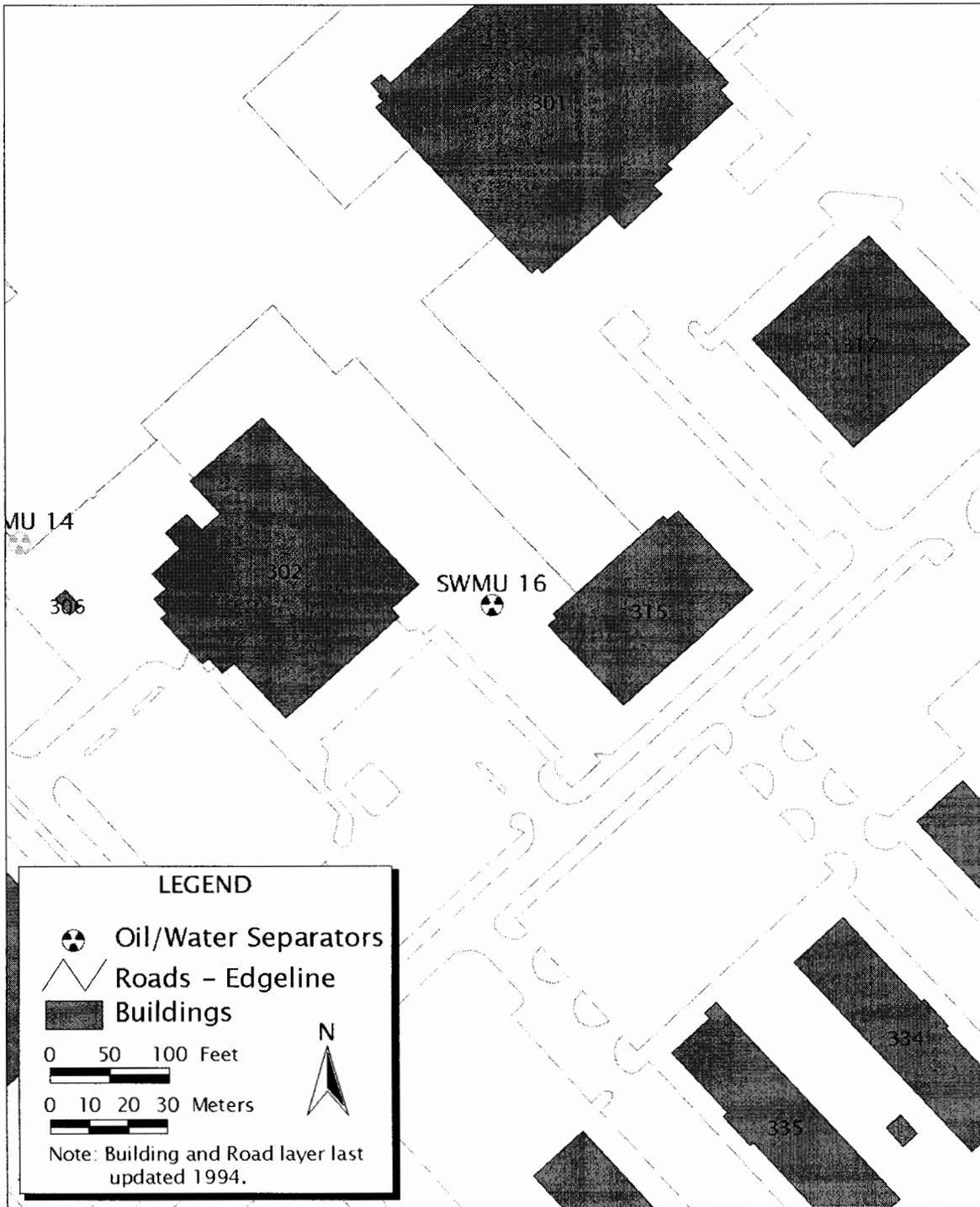
To determine whether a release had occurred, SWMU 16 was investigated under the Table 3 RFI. During Phase I, four soil boreholes were installed and sampled for TRPH analysis. Soil samples at borehole 16-04 exceeded the 100 mg/kg TRPH release criterion at the 1 to 2 ft interval. Data from the Phase I RI indicated that a release had occurred from SWMU 16. On this basis, a Phase II RI was initiated.

During the Phase II RI, an iterative step-out approach was used to determine the lateral and vertical extent of contamination. To characterize the nature of the release, soil samples from six boreholes were collected and analyzed. Low levels of acetone, methylene chloride, and some BTEX constituents, as well as di-n-butylphthalate, were detected in some of the soil boreholes.

Groundwater samples from three locations were collected and analyzed. One sample was taken directly below the area of highest TRPH contamination, one upgradient, and one downgradient of the release. None of the samples exceeded 10 mg/l TRPH release criteria. The data did not indicate that any constituents exceeded the RBCs, and the risk-based screen did not identify any COCs.

Basis for Determination

SWMU 16 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 16 - Building 315 Oil/Water Separator

Figure 43

44. SWMU 17--Building 316 Oil/Water Separator

Location

SWMU 17 is adjacent to SWMU 121--Building 316 Waste Oil Tank. For a further description of the site, refer to Figure 44.

History

SWMU 17, Building 316 O/WS, is approximately 5 ft long, 3 ft wide, and 4 ft deep with a capacity of 400 gallons. Its construction material and age are unknown.

The period of operation for this site is unknown. The source of waste is the washwater containing hydraulic fluid from the Building 316 flight simulator. The O/WS receives rinse water containing hydraulic fluid possibly contaminated with PCBs from the Building 316 flight simulator. Waste oil skimmed from the water in the O/WS is transferred by gravity flow to the adjacent waste oil tank via a subsurface pipe, and water is discharged to the sewer system. The amount of waste disposed of at this site is unknown.

Staining in the soils adjacent to SWMU 17 was observed during drilling operations conducted in November 1993, indicating a possible release at this site.

Evaluation of Relevant Information

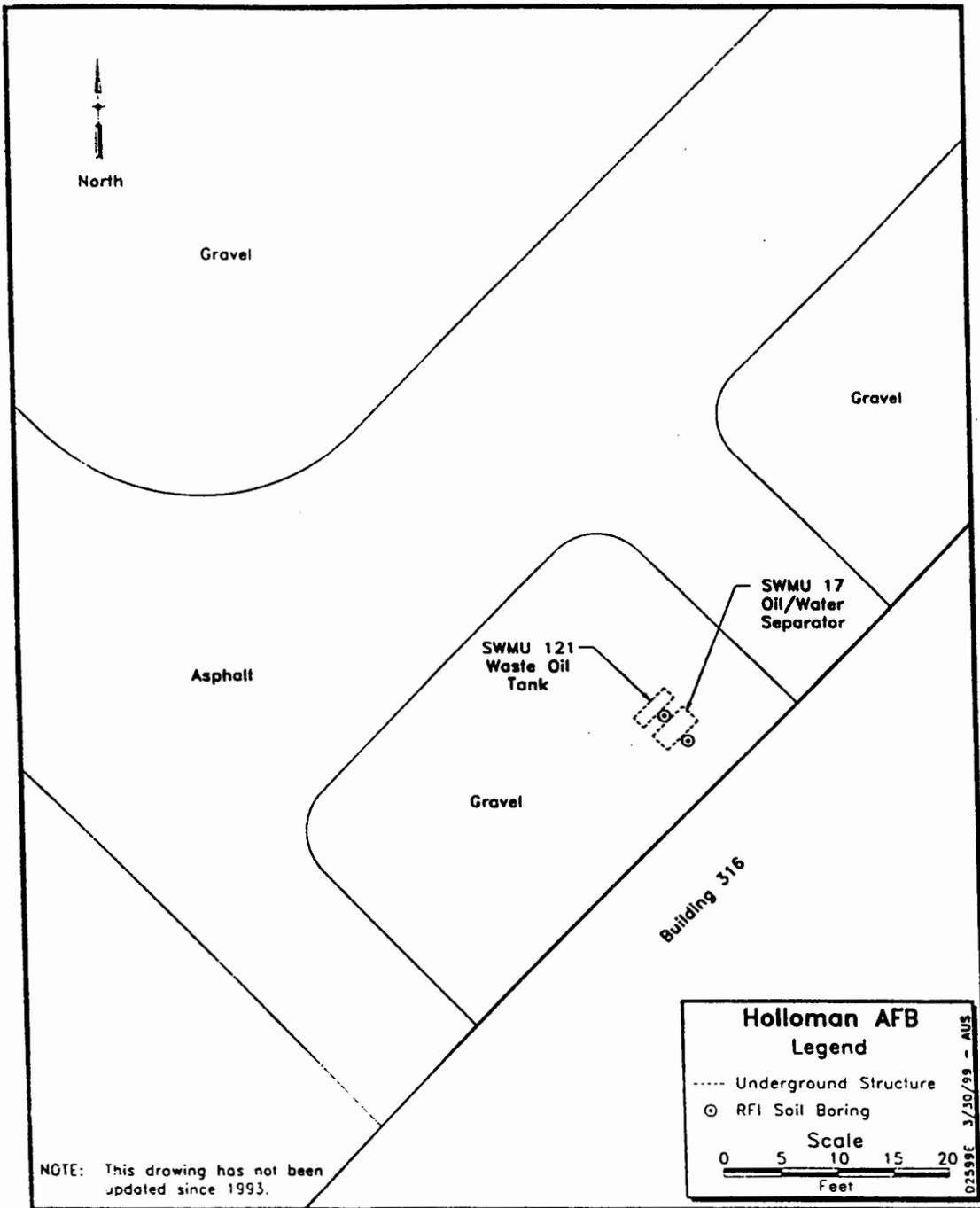
SWMUs 121 and 17 were investigated during the same remedial investigation in 1994. In Phase I, two boreholes were installed, one approximately 10 ft east of SWMU 17 and one approximately 10 ft east of SWMU 121. Samples were collected at 2-ft intervals to a depth of 10 ft. All samples were analyzed for VOCs, TRPH, PCBs, and metals. The deepest samples from the two boreholes were analyzed for SVOCs because they appeared visibly contaminated. Acetone was detected in all samples, along with several other VOCs. However, all concentrations of VOCs, SVOCs, and TRPH were below trigger criteria. PCBs were not detected in any of the samples collected at the site. No COPCs were identified by the risk screening process.

A qualitative RA was conducted for SWMUs 121 and 17 to help determine the need for further investigation based on potential risk to human health or the environment. Although visible staining in soils from 7 ft to 9.6 ft and 6.5 ft to 10 ft in boreholes 017-B01 and 017-B02, respectively, indicated the possibility of a release, the concentrations of all detected constituents were below trigger-based criteria. Although NFA was recommended for this site, both O/WS were slated for removal in April 1996. Both the O/WS and WOT were removed, in addition to 200 cubic yards of Total Petroleum Hydrocarbons (TPH) contaminated soil. The excavation was completed in two phases, and closure samples were collected after each phase.

After the first phase, ten closure samples were collected and analyzed for TRPH; seven of the ten samples exceeded the TRPH cleanup standard of 1,000 mg/kg. Following the second phase, a second round of closure samples was collected and analyzed for TRPH; all samples were well below the cleanup standard (ranging from non-detect [ND] to 80 mg/kg). No soil stockpile samples were collected at this site because contamination had not been detected by field-screening techniques.

Basis for Determination

SWMU 17 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 17 - Building 316 Oil/Water Separator

Figure 44

45. SWMU 18--Building 500 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 18. SWMU 18--Building 500 O/WS is located near Building 500. For a further description of the area, refer to Figure 45.

History

SWMU 18 consists of two chambers, each approximately 2 ft long by 2 ft wide by 1.5 ft deep. The unit is installed below grade and is constructed of concrete. The top of the unit is at the ground surface, and the soil around the unit is uncovered.

The period of operation for this site is unknown. The source of waste is from Building 500. The type and quantity of waste is unknown.

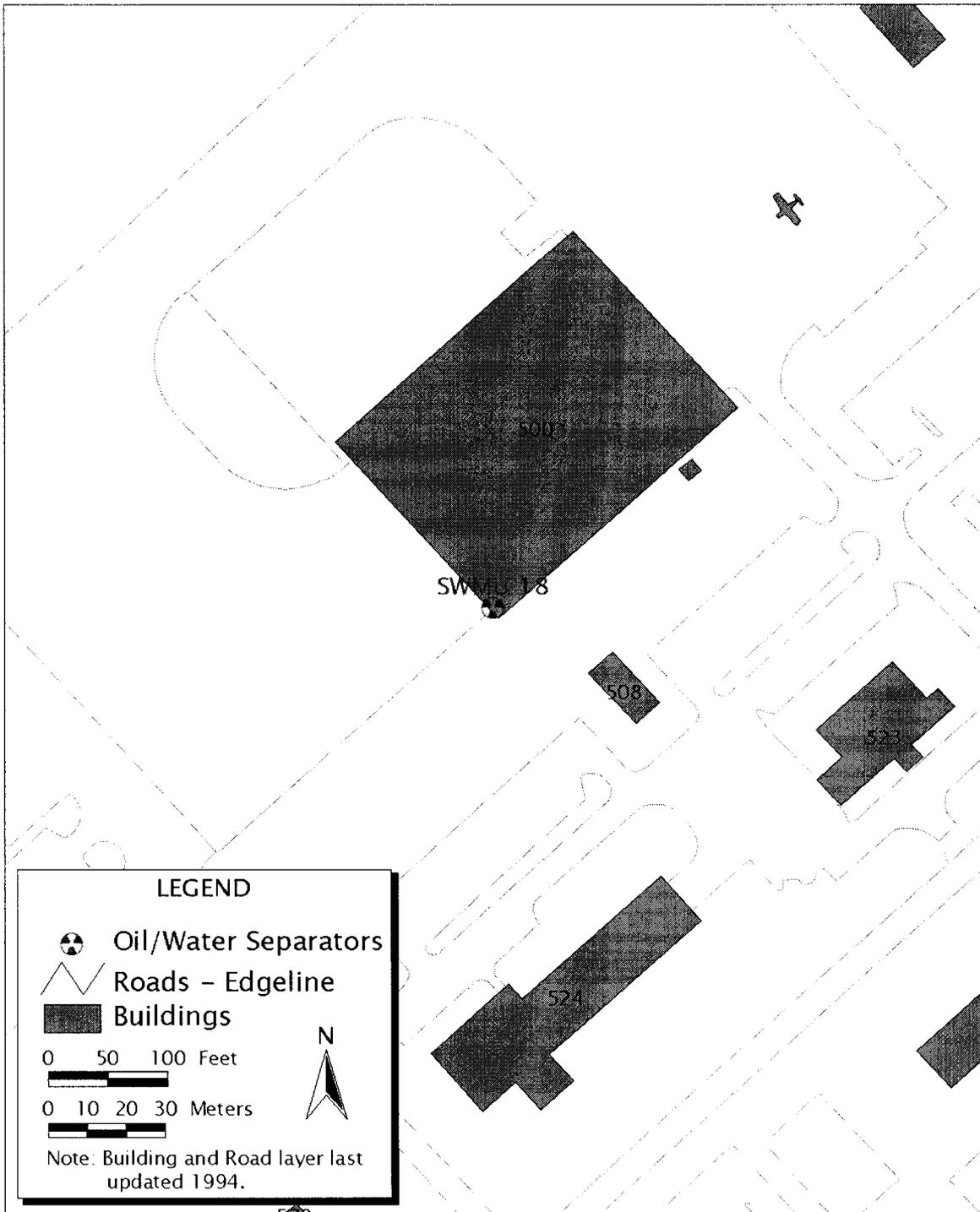
A visual site inspection revealed no evidence of releases from the unit.

Evaluation of Relevant Information

It was determined that a site investigation was not necessary for SWMU 18. NFA was recommended and granted for this site.

Basis for Determination

SWMU 18 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 18 - Building 500 Oil/Water Separator

Figure 45

46. SWMU 23--Building 800 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 23. For a further description of the area, refer to Figure 46.

History

SWMU 23, Building 800 O/WS, services the engine and vehicle maintenance area in Building 806. The capacity of the unit was 675 gallons, and it operated as an O/WS from 1977 until 1991 when it was replaced with a new O/WS and converted to a sediment trap.

The source of waste is from maintenance operations from Building 806. Fuels, oils, lubricants, and other chemicals associated with engine and vehicle maintenance were disposed of at SWMU 23. The amount of waste disposed of at this site is unknown.

A visual site inspection revealed no evidence of releases at this unit.

Evaluation of Relevant Information

To determine whether a release from SWMU 23 had occurred, the unit was investigated under the Table 3 RFI in 1997. During Phase I of the RFI, soil samples from four boreholes were collected. Concentrations of TRPH in samples collected from 6 ft to 8-ft bgl in borehole 23-02, and from 2 ft to 4 ft and 4 ft to 6-ft bgl in borehole 23-04, were above the 1,000-mg/kg cleanup level. Data from the Phase I investigation concluded that a Phase II investigation was necessary.

During Phase II, the extent of the contamination was investigated using an iterative step-out approach. To characterize the nature of the release, eight additional boreholes were installed and samples were collected. Acetone, carbon disulfide, methylene chloride, BTEX, dichlorobenzenes, and some SVOCs were present at elevated levels in boreholes 23-02 and 23-04.

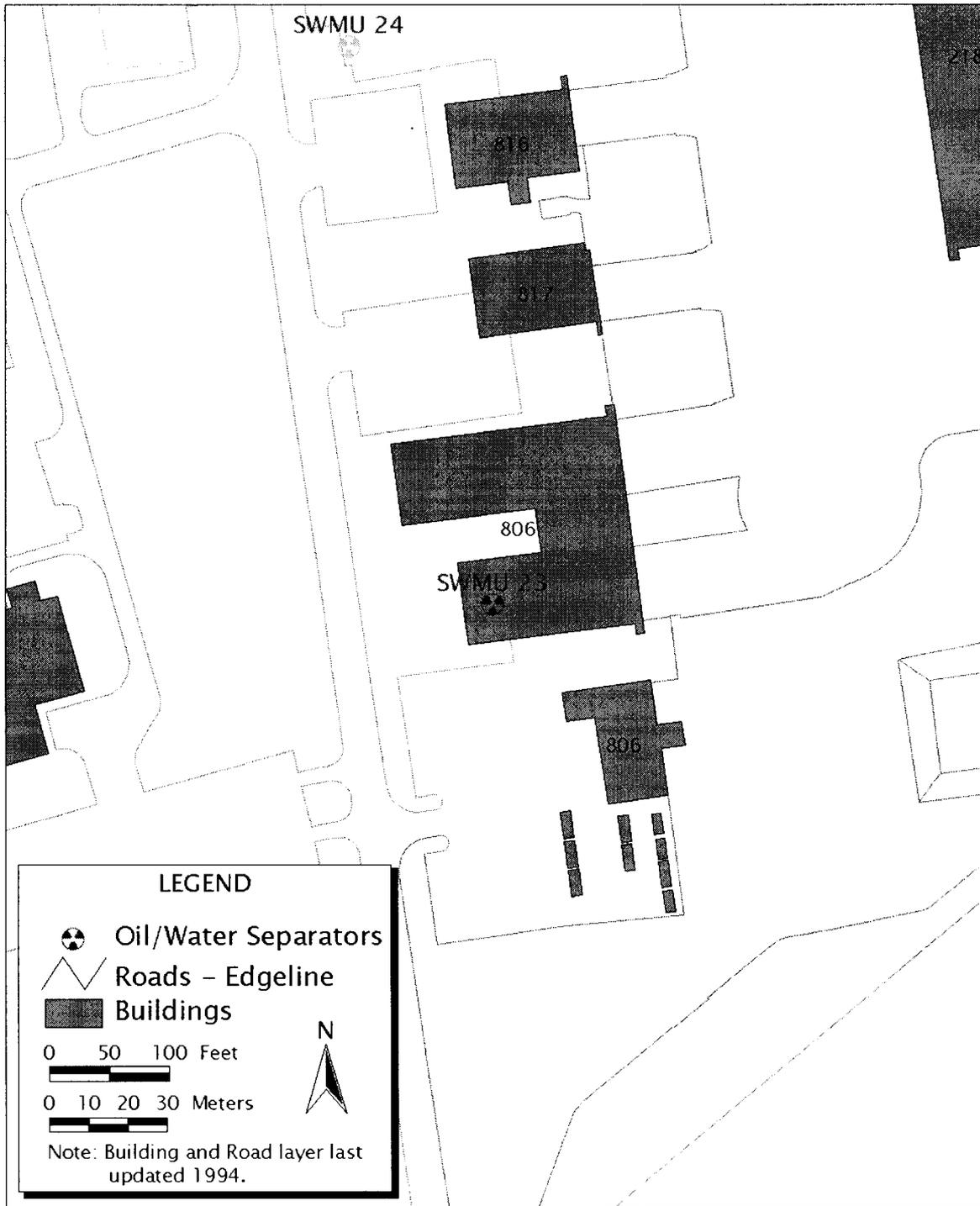
Groundwater samples were also collected from SWMU 23. Monitoring wells were installed both upgradient of the contamination (23-08) and inside the elevated area of contamination (23-02 and 23-05). TRPH was detected above the 10-mg/l-release criterion in samples from the downgradient well (23-02) only. Elevated levels of acetone, carbon disulfide, methylene chloride, and BTEX were also detected in the samples. LNAPL was not detected in any groundwater or soil sample.

SWMU 23 was recommended for conditional NFA, with the requirement that TRPH-contaminated soil be remediated. By December 1997, approximately 20 cubic yards of contaminated soil and the O/WS at SWMU 23 had been removed.

Three closure samples were collected and analyzed for TRPH. All samples contained less than 1,000 mg/kg TRPH and the site was recommended and approved for NFA.

Basis for Determination

SWMU 23 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 23 - Building 800 Oil/Water Separator

Figure 46

47. SWMU 27--Building 810 Oil/Water Separator

Location

There are no SWMUs adjacent to SWMU 27. For a further description of the area, refer to Figure 47.

History

SWMU 27 operated as an O/WS servicing the F-15 engine test cell near Buildings 807 and 810. The capacity of the unit was 520 gallons, with dimensions of approximately 6 ft long by 4 ft wide by 4 ft deep. The unit was installed below grade and is constructed of concrete. The top of the unit was at ground surface, and the soil around the unit was covered with asphalt. In 1990, it was abandoned in conjunction with the closure of Buildings 807 and 810. Between 1990 and 1994, the SWMU did not receive waste from these sources, but was open and subject to potential overflow or leaks. To prevent such an occurrence, the units were filled with sand in 1994. The test cells in Building 807 and 810 were the source of waste. The type and quantity of waste that was disposed of is unknown.

As a result of overflow of the O/WS in August 1985 and January 1998, and a washed discharge pipe in February 1998, documented releases have occurred in the past at this unit.

Evaluation of Relevant Information

To confirm the reported releases, SWMU 27 was investigated under the Table 3 RFI conducted in 1997. During the Phase I RI, samples from 17 soil boreholes were collected. From the area immediately adjacent to the SWMU, TRPH concentrations were measured above the release criterion of 100 mg/kg, and many samples exceeded the 1,000 mg/kg cleanup criterion.

Based on the results of the Phase I Investigations, a Phase II investigation was conducted to define the nature and extent of the release in the soil and groundwater at SWMU 27. Using an iterative step-out approach, eight soil boreholes were installed and samples were submitted for laboratory analysis. The data indicated that some VOCs and SVOCs were present at elevated levels within the TRPH-contaminated soils.

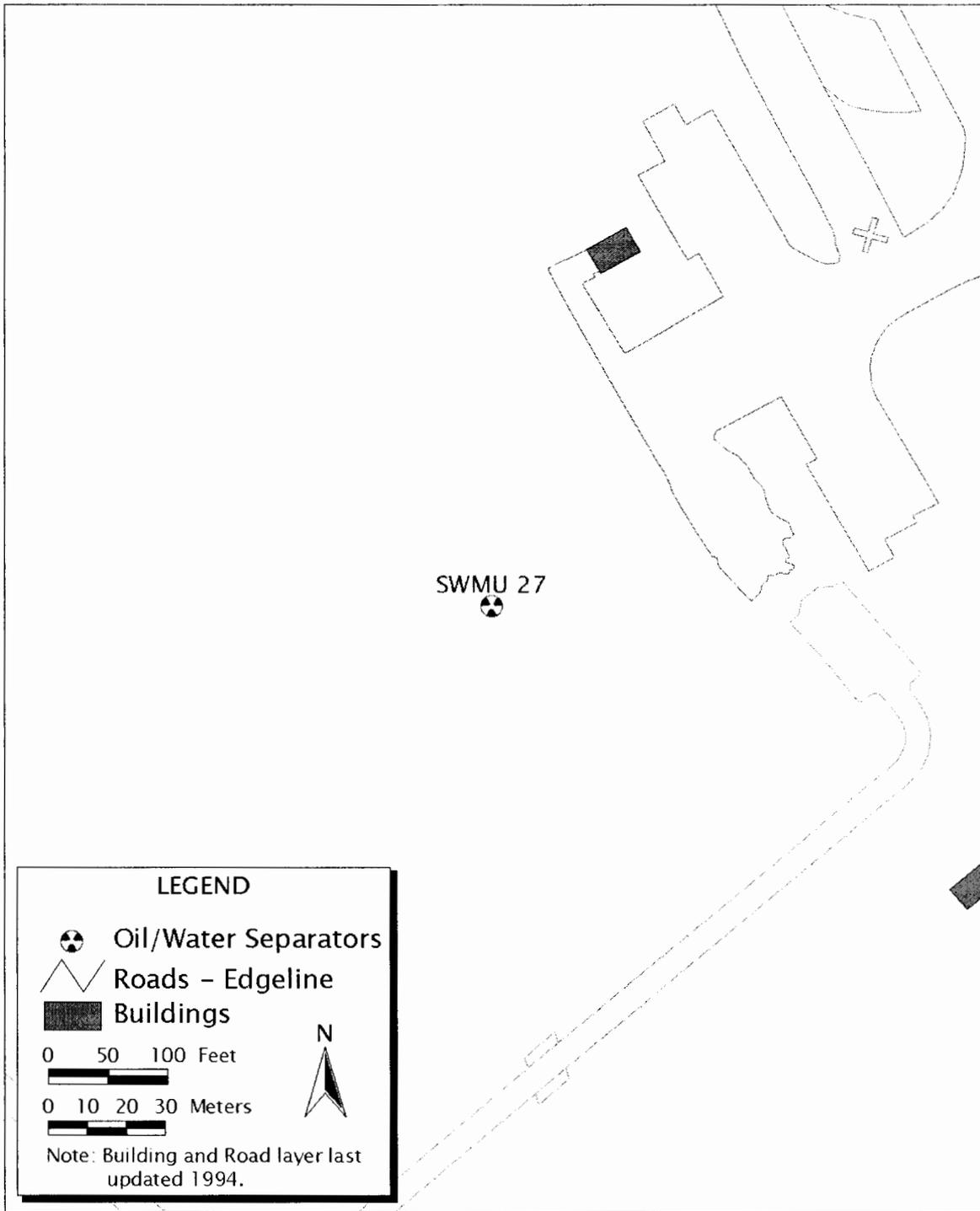
Groundwater samples were also collected from eight locations and submitted for laboratory analysis. Samples were collected upgradient of the SWMU (27-23 and 27-12), inside the area of investigation (27-01, 27-03, 27-08, and 27-28), and downgradient of the release (27-27 and 27-14). Each of the samples from locations 27-01, 27-03, 27-08, and 27-28 contained TRPH concentrations above the 10-mg/l-release criterion. In addition, LNAPL was detected at locations 27-01, 27-04, and 27-28.

Conditional NFA was recommended for SWMU 27, with the requirement that vadose soil containing TRPH concentrations higher than 1,000 mg/kg be remediated. By July 1997, the O/WS at SWMU 27 had been removed, along with 3,726 cubic yards of contaminated soil.

Ten samples were collected from the excavation for site closure and analyzed for BTEX, TRPH, SVOCs, and lead. Analytical results were less than Base cleanup criterion for all closure samples.

Basis for Determination

SWMU 27 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 27 - Building 810 Oil/Water Separator

Figure 47

48. SWMU 28--BUILDING 822 OIL/WATER SEPARATOR

Location

There are no SWMUs adjacent to SWMU 28. SWMU 28, Building 822 O/WS, was located 20 ft north of Building 822. For a further description of the area, refer to Figure 48.

History

SWMU 28 was in service from 1977 to 1991. The wash rack in Building 822 (SWMU 92) was the source of waste. Detergents, oils, and other chemicals associated with wash rack activities were disposed of at this site. The amount of waste disposed of at this site is unknown. The oil capacity of the unit was 900 gallons; it was installed below grade and was constructed of concrete. The top of the unit was raised a few inches above the ground surface and the surrounding soil was covered with asphalt. The separator was removed and replaced with a new unit in 1991.

A visual site inspection revealed no evidence of releases from this unit.

Evaluation of Relevant Information

To identify whether or not a release had occurred at this unit, SWMU 28 was investigated under the Table 3 RFI in 1997. During Phase I, four boreholes were installed and samples were collected for analysis. Soil samples collected from the area immediately adjacent to the SWMU were shown to have TRPH concentrations above the release criterion of 100 mg/kg, with many samples exceeding the 1,000 mg/kg cleanup criterion.

As a result of the Phase I Investigation, a Phase II investigation was conducted to define the nature and extent of the release in the soil and groundwater at SWMU 28. Using an iterative step-out approach, eight boreholes were drilled and samples were submitted for laboratory analysis. The data indicated that some VOCs and SVOCs were present at elevated levels within the TRPH-contaminated soils.

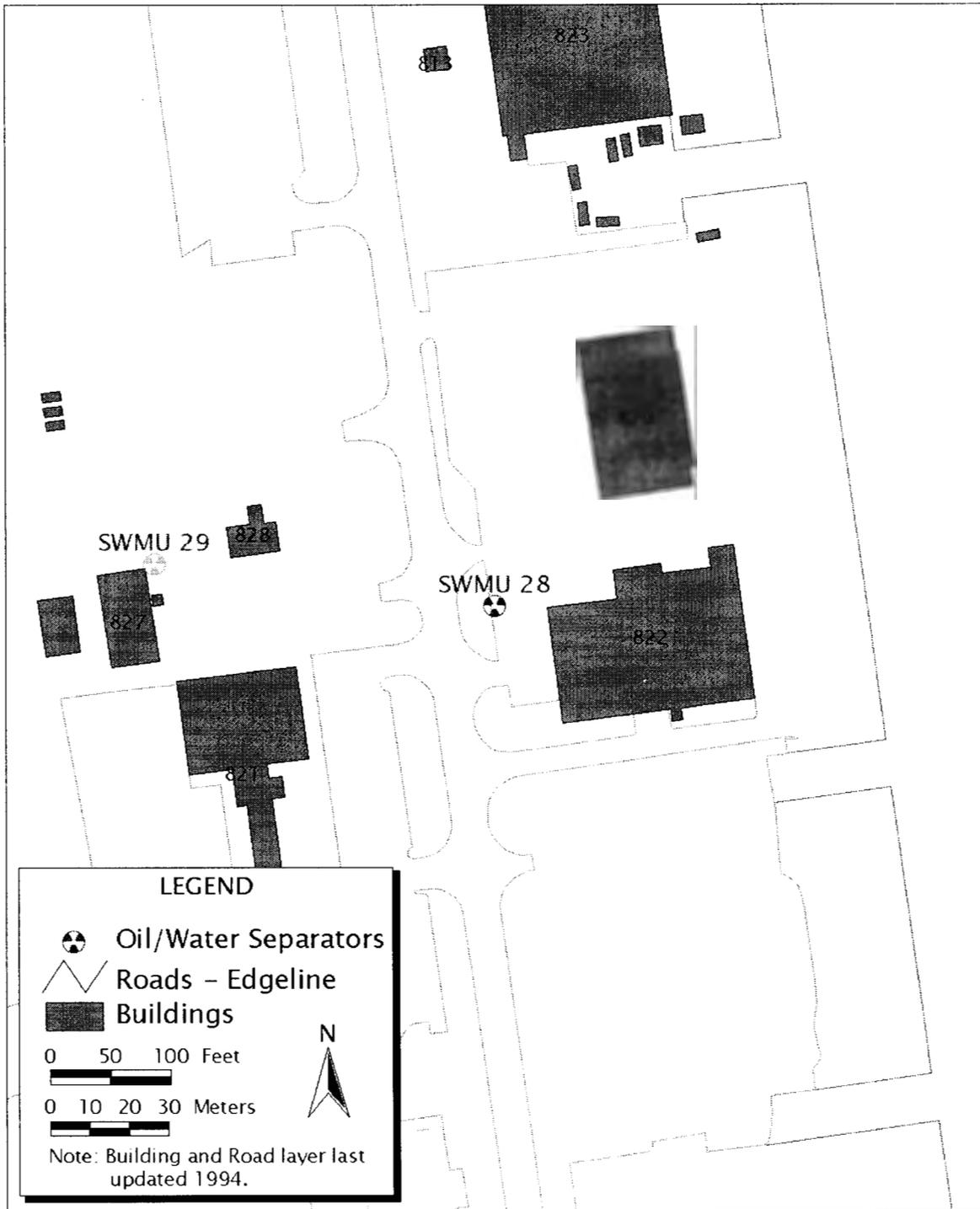
Three groundwater monitoring wells were installed and samples were collected for analysis in one upgradient well (28-10), one downgradient well (28-12), and one well located inside (28-06) of the contaminated area. TRPH concentrations were not detected above the release criterion of 10 mg/l in any of the samples. However, low levels of acetone, carbon disulfide, vinyl acetate, 2-methylnaphthalene, and naphthalene were detected.

From the results of the investigation, it was concluded that overflows and subsurface releases have likely occurred from this unit, resulting in the elevated levels of TRPH in the soils at SWMU 28. Conditional NFA was recommended, with the requirement that vadose zone soil exceeding 1,000 mg/kg TRPH be remediated. By December 1997, 388 tons of contaminated soil was excavated and removed from the site.

Closure samples were collected from the excavation and analyzed for TRPH. Analytical results showed concentrations of TRPH were less than Base cleanup criterion for all closure samples.

Basis for Determination

SWMU 28 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 28 - Building 822 Oil/Water Separator

Figure 48

49. SWMU 31--Building 855 Oil/Water Separator

Location

SWMU 31 is adjacent to SWMU 25--Building 805 Oil/Water Separator. For a further description of the area, refer to Figure 49.

History

This site began operation in 1982 and is still in operation today. SWMU 31, Building 855 O/WS, services the vehicle and maintenance area in Building 855. The total capacity of the two-chamber unit was 100 gallons, and it measured 3 ft long by 3 ft wide by 2 ft deep. Detergents, oils, and other chemicals associated with wash rack activities were disposed of at this site. The amount of waste disposed of at this site is unknown.

A visual site inspection did not reveal evidence of releases from this unit.

Evaluation of Relevant Information

To determine whether or not a release had occurred from this unit, SWMU 31 was investigated under the Table 3 RFI in 1997. During Phase I, four soil boreholes were installed and samples were collected for TRPH analysis. Samples were collected at the surface, below the separator (31-01), and at an intermediate interval in boreholes 31-02, 31-03, and 31-04. Soil samples at three locations had concentrations of TRPH that exceeded the 100 mg/kg release criterion. Based on the results of the Phase I investigation, it was concluded that a release had occurred from SWMU 31.

A Phase II investigation was conducted to define the nature and extent of the release in soil and groundwater. Four additional soil boreholes were installed and samples were collected for analysis. None of the soil samples analyzed during Phase II exceeded 100 mg/kg TRPH release criterion, indicating that the release was localized to an area immediately surrounding the separator. Acetone, toluene, xylene, and some SVOCs were also found at the site above reporting limits.

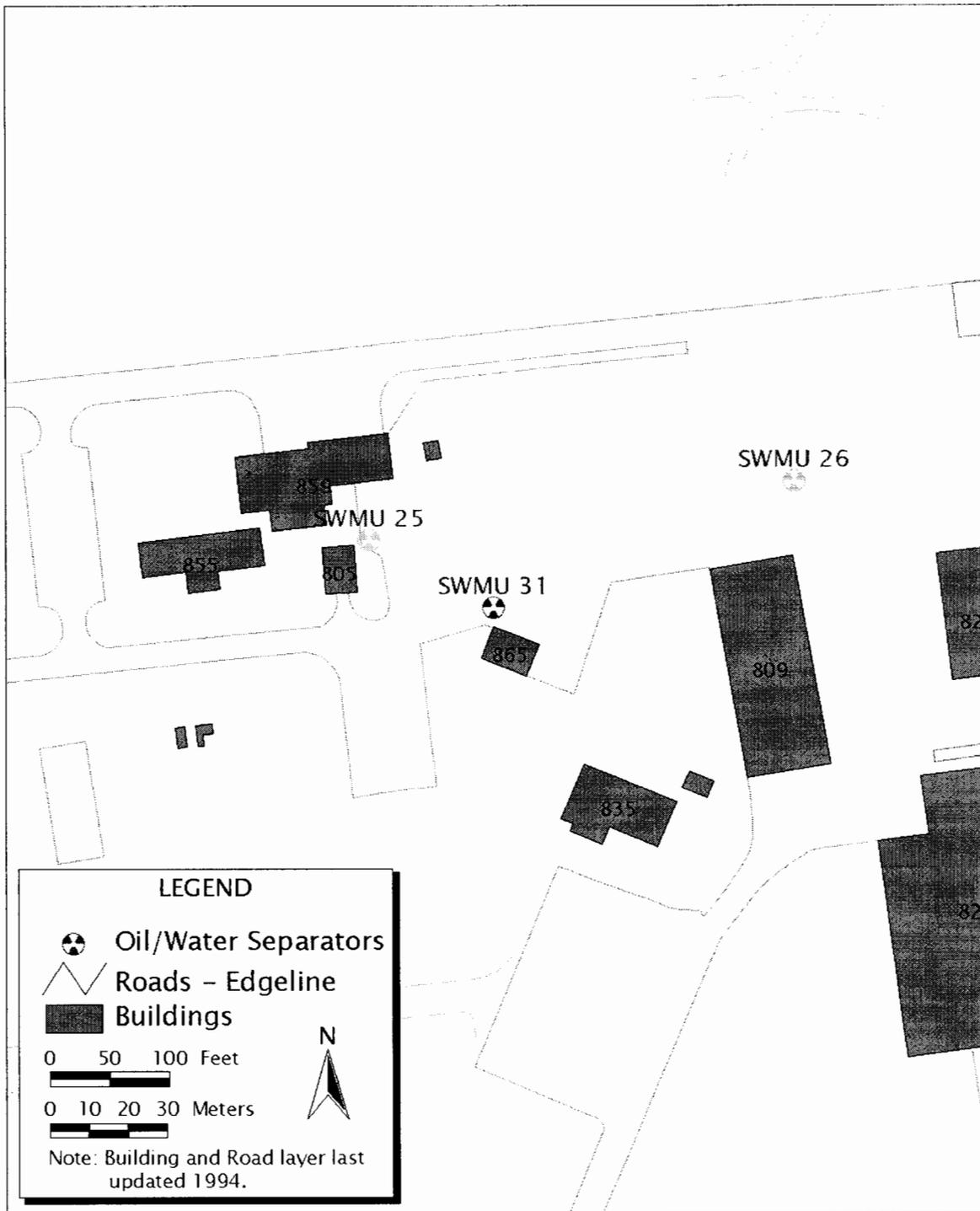
Groundwater samples collected from two existing and one new well during Phase II were found to have TRPH concentrations below the 10 mg/l release criterion. Low levels of acetone, methylene chloride, and trichloroethene were detected in the groundwater. LNAPL was not detected in any groundwater or soil sample.

SWMU 31 was recommended for conditional NFA, with the condition that soils exceeding TRPH concentrations of 1,000 mg/kg be remediated. By July 1997, the O/WS at SWMU 31 had been removed, and 76 cubic yards of TRPH-contaminated soil had been removed.

Five closure samples were collected from the excavation site and submitted for analysis. All samples displayed TRPH concentrations less than 1,000 mg/kg.

Basis for Determination

SWMU 31 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 31 - Building 855 Oil/Water Separator

Figure 49

50. SWMU 32--Building 868 Oil/Water Separator

Location

SWMU 32 is adjacent to SWMU 125--Building 868 fire water tank. For further description of the site, refer to Figure 50.

History

SWMU 32, Building 868 O/WS, began operation in 1986 and is still in service today. The source of waste is the floor wash water from Building 868. The O/WS receives wash water from Building 868 hangar floors containing waste oil, fuel, and fire suppressants. Waste oil skimmed from the O/WS is transferred to a second chamber of the separator. The separated water is discharged to the sewer system. SWMU 32 consists of a two-chamber unit located in a 3 ft by 4 ft by 5-ft concrete vault. The total capacity of the unit is approximately 22 gallons. The quantity of waste disposed of at this site is unknown.

There is no record of a release at this site. Furthermore, no evidence of leakage from the fire water tank was observed during drilling activities.

Evaluation of Relevant Information

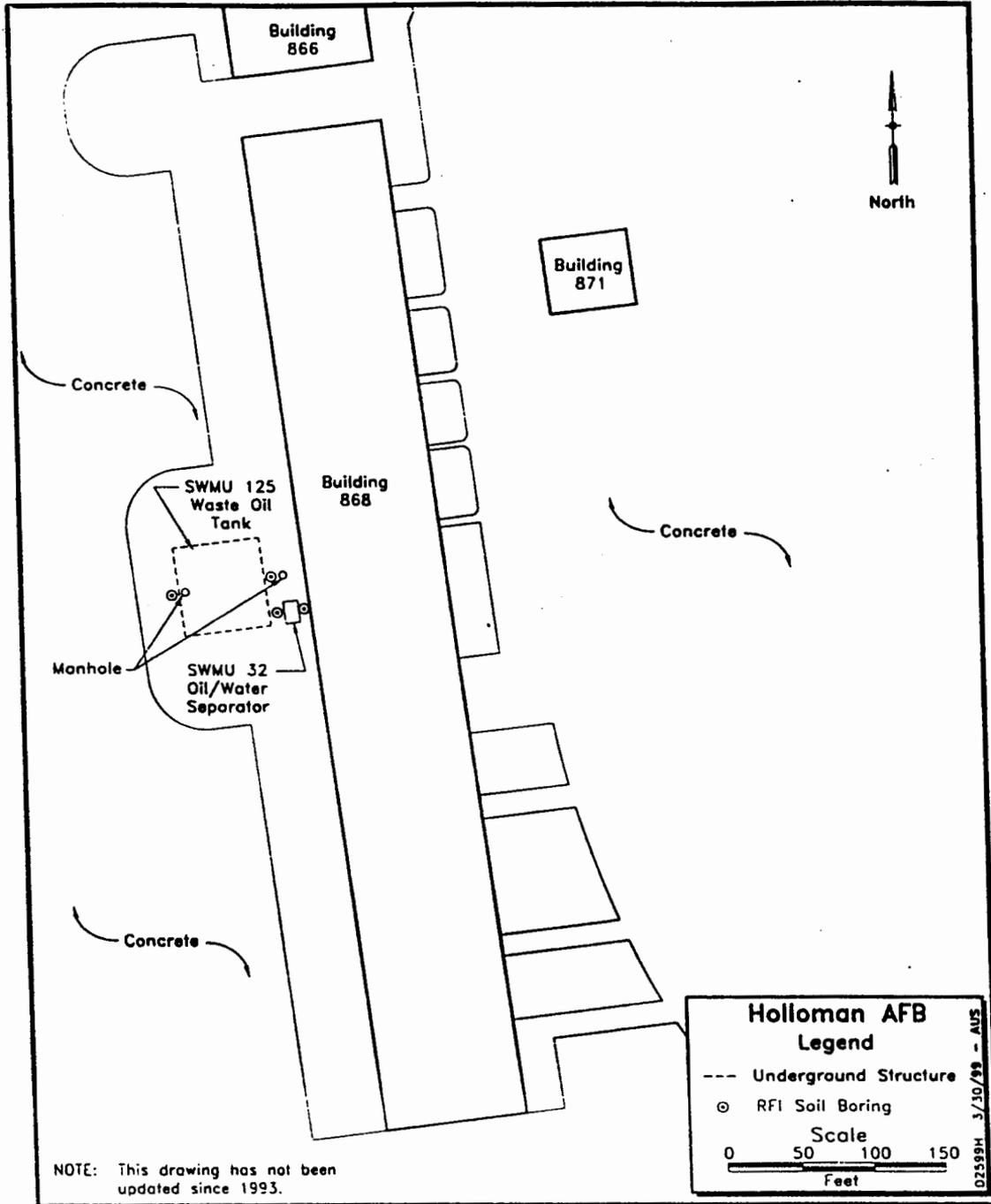
During a Phase I Investigation conducted in 1994, two soil boreholes were installed at SWMU 32. Samples were collected at 2-ft intervals to a depth of 4 ft below the base of the unit. All samples were analyzed for VOCs, TRPH, and metals; several samples were tested for SVOCs because they showed visible evidence of contamination. In addition, a sludge sample from SWMU 32 was collected and analyzed for VOCs, SVOC, metals, and for ignitability.

TRPH was detected in several samples, but all concentrations were below trigger criteria. VOCs and SVOCs were also detected at concentrations below trigger criteria. Arsenic, lead, and chromium were detected above background UTLs in several samples. However, none of these constituents were detected in concentrations exceeding trigger levels.

A qualitative RA was conducted for SWMU 32 to help determine the need for further investigation based on the potential risk to human health and the environment. Although the presence of visibly contaminated soil provided some evidence of a release from the SWMU, no constituents were detected at levels exceeding trigger criteria in any sample from this site. Furthermore, the area surrounding SWMU 32 is completely paved with asphalt and concrete, so the soil is virtually inaccessible.

Basis for Determination

SWMU 32 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 32 - Building 868 Oil/Water Separator

Figure 50

51. SWMU 34--Building 902 Oil/Water Separator

Location

SWMU 34 is adjacent to SWMU 35--Building 903 O/WS. For a further description of the site, refer to Figure 51.

History

SWMU 34, Building 902 O/WS, services the wash rack in Bare Base Mobility. The capacity of the unit was 500 gallons, and it measured 3 ft long by 12 ft wide by 6 ft deep. Detergents, oils, and other chemicals associated with wash rack activities were disposed of at this site. The amount of waste disposed of at this site is unknown.

The unit was installed below grade and was constructed of steel. The top of the unit was at the ground surface and was surrounded by a cinder block dike. The soil around the dike was covered with drain rock. The unit operated as an O/WS until 1991 when it was replaced with a new O/WS and converted into a sediment trap.

In 1991, collapsed piping between the drain and O/WS resulted in an overflow of the O/WS. The volume of the material released is unknown.

Evaluation of Relevant Information

SWMU 34 was investigated as part of the Table 3 RFI in 1997. During Phase I, six boreholes were installed and soil samples were collected and analyzed for TRPH. TRPH concentrations at two of the Phase I sampling locations (34-03 and 34-06) were detected above the 100 mg/kg release criterion. From these results, it was determined that a release from the SWMU had occurred.

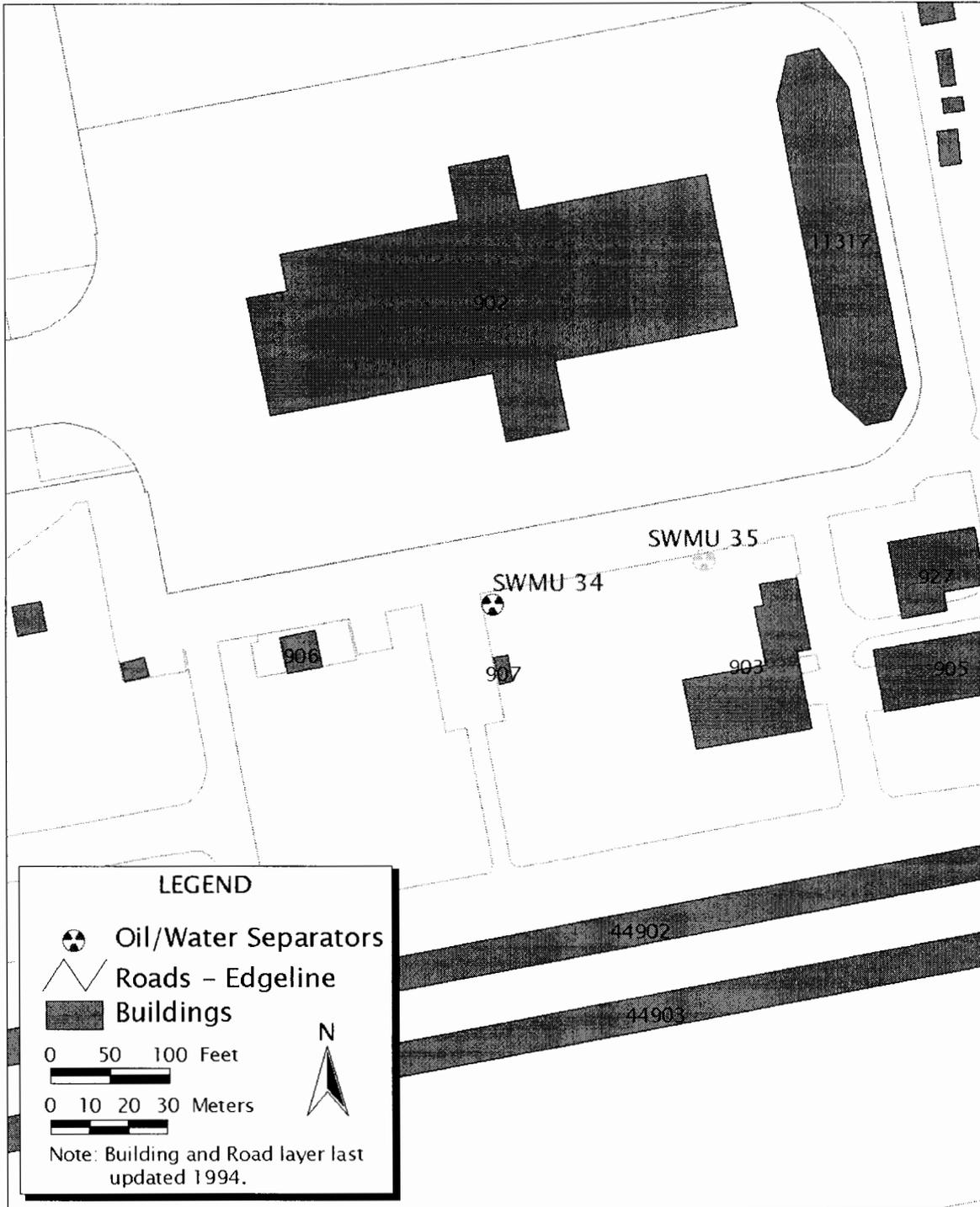
A Phase II investigation was necessary to determine the nature and extent of the release at SWMU 34. Four boreholes were installed and soil samples were collected and analyzed. Although all organic constituents were measured in concentrations below trigger levels, acetone, methylene chloride, carbon disulfide, and bis(2-ethylhexyl)phthalate were found above reporting limits. ✓
OK

Groundwater samples were collected from two existing wells and analyzed for TRPH contamination. The results indicated that TRPH concentrations were below the 10-mg/l-release criterion at both locations. LNAPL was not detected in any soil or groundwater sample.

It was concluded that although a release had occurred at SWMU 34, the TRPH contaminated soil was confined to the 0 ft to 2-ft surface interval, and did not pose any threat to the underlying groundwater. ✓
what about the acetone methylene cl etc?

Basis for Determination

SWMU 34 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 34 - Building 902 Oil/Water Separator

Figure 51

52. SWMU 36--Building 1001 Oil/Water Separator

Location

SWMU 36 is adjacent to SWMU 126--Building 1001 Waste Oil Tank. SWMU 36, Building 1001 O/WS, was located approximately 5 ft north of Building 1001. For further description of the area, refer to Figure 52.

History

The period of operation for this site was from 1982-1997. Building 1001 floor cleaning washwater was the source of waste for this site. SWMU 36, Building 1001 O/WS, receives rinse water and waste oil from Building 1001. Waste oil skimmed from the O/WS is transferred by gravity flow to SWMU 126 waste oil tank, via a subsurface pipe, and the water is discharged to a sewer system. The quantity of waste disposed of at this site is unknown.

A literature search and visual inspection did not indicate that a release had occurred from SWMU 36. Stained soil observed from 5 ft to 7-ft bgl in soil borehole 36-B02, may indicate that an isolated release occurred. Soil in three other boreholes did not appear visually contaminated.

Evaluation of Relevant Information

During a Phase I RI conducted in 1994, SWMUs 36 and 126 were jointly investigated. Four soil boreholes were installed at the site, two at each SWMU. Soil samples were collected at 2-ft intervals to a depth of 12-ft bgl. All samples were analyzed for VOCs, TRPH, and metals.

Acetone was detected in several samples at concentrations up to 965 µg/kg. Methylene chloride was also detected at concentrations near detection limits. However, both constituents were detected at concentrations below trigger criteria. Chromium, lead, and mercury were detected at concentrations above background UTLs in several samples; however, none were detected above trigger criteria. TRPH was detected in three samples at concentrations below trigger criteria, with the exception of the 9-ft to 11-ft interval in borehole 036-B01, which had a TRPH concentration of 5,030 mg/kg. Stained soil was observed in samples collected from 2 ft to 4 ft in borehole 126-B01; however, concentrations of TRPH in this sample did not exceed the New Mexico cleanup standard of 1,000 mg/kg.

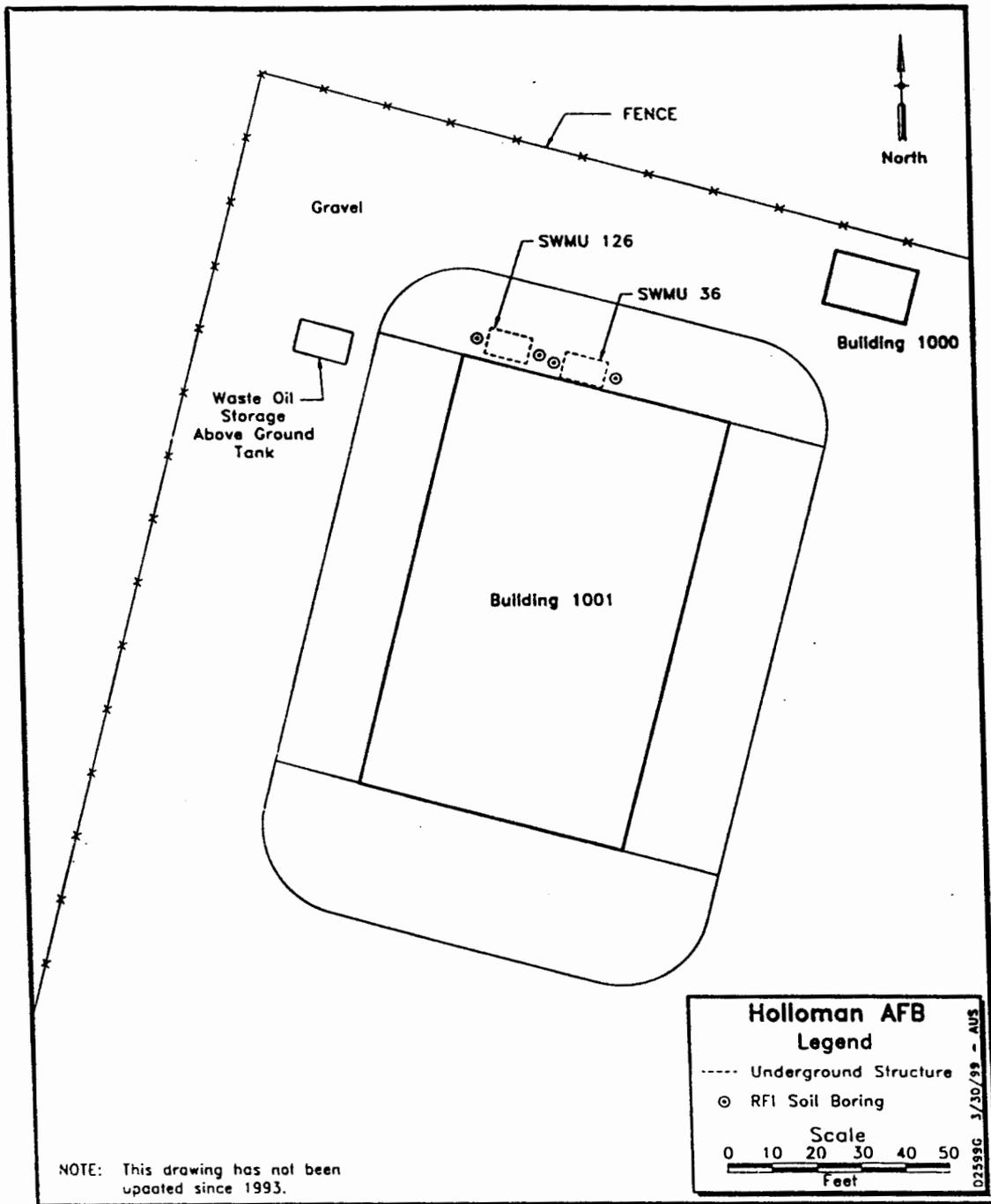
Results of the remedial investigation concluded that a release had occurred at SWMU 36. The primary area of concern was borehole 036-B01, in which TRPH concentrations measured over 5,000 mg/kg. Conditional NFA was recommended for SWMU 36, and in 1997, remediation activities began. During the excavation, it was determined that O/WS associated with SWMU 36 had been previously removed. One hundred cubic yards of soil suspected to contain TRPH concentrations greater than 1,000 mg/kg were excavated.

Five closure soil samples were collected from the excavation site. All samples, which represent soil conditions upon completion of excavation, were beneath the 1,000-mg/kg TRPH cleanup criteria. One soil stockpile sample was collected and analyzed for TRPH, BTEX, and lead. The analytical results indicated TRPH concentrations greater than 1,000 mg/kg.

All closure samples indicated TRPH concentrations less than 1,000 mg/kg.

Basis for Determination

SWMU 36 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 36 - Building 1001 Oil/Water Separator

Figure 52

53. SWMU 37--Building 1080 Oil/Water Separator

Location

SWMU 37 is adjacent to SWMU 38--Building 1080A O/WS. SWMU 37, Building 1080 O/WS, services the aircraft wash rack, and is located 500 ft west of Hangar 1080 and 40 ft south of Building 1076. For further description of the site, refer to Figure 53.

History

This SWMU began service in 1974 and is still being used today. Building 1080 wash rack (SWMU 96) is the source of waste. The capacity of the unit is 10,000 gallons, and measures 20 ft long, 10 ft wide, and 8 ft deep. The unit is installed below grade and is constructed of concrete. The top of the unit is approximately 6 in. above the ground surface, and the soil around the unit is covered with concrete. The separator is still in place for managing rinsate wastes from the wash rack. The type and quantity of waste disposed is unknown.

A visual site inspection revealed no evidence of releases from this unit.

Evaluation of Relevant Information

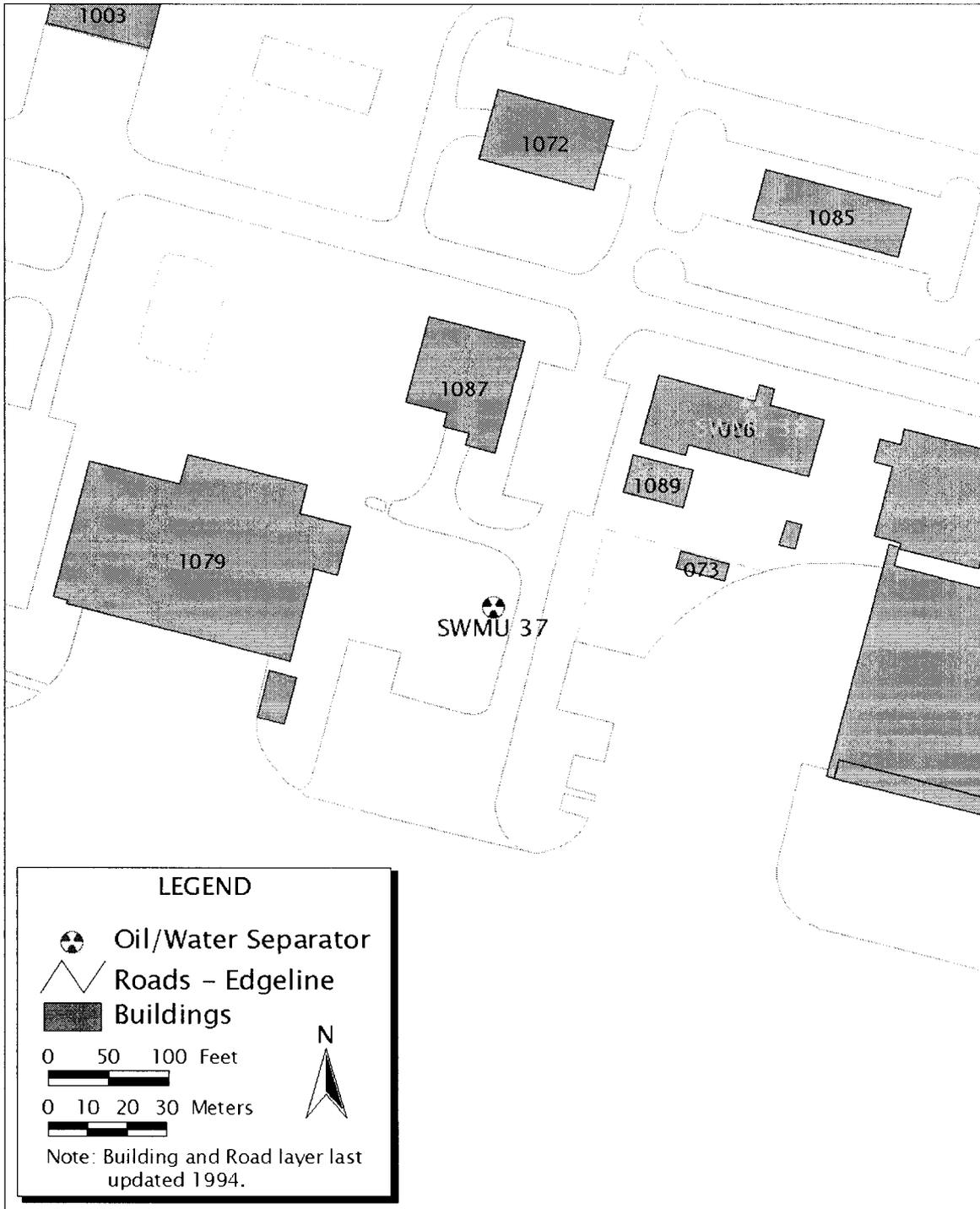
SWMU 37 was investigated under the Table 3 RFI in 1997. During Phase I, soil samples from five boreholes were collected and analyzed for TRPH. Concentrations of TRPH were detected above the 100-mg/kg-release criterion at two of the locations (37-04 and 37-05). It was determined from the results of the Phase I RI that a release had occurred from SWMU 37 and a Phase II RI was initiated.

To characterize the nature and extent of the release during the Phase II Investigation, soil samples from four existing and four new boreholes were collected and submitted for analysis. No organic components were detected above reporting limits in any of the samples. Groundwater samples were not collected at this site because the water table occurs at a depth significantly below the contaminated soil.

The results from Phase I of the RI indicated that a release had likely occurred at SWMU 37. However, since the area of contaminated soil appeared confined to the upper 2 ft of soil, it was determined that the underlying soil and groundwater were not affected by the release. Consequently, SWMU 37 was found to contain no constituents that could pose a long-term risk to human health.

Basis for Determination

SWMU 37 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 37 – Building 1080 Oil/Water Separator

Figure 53

54. SWMU 38--Building 1080A Oil/Water Separator**Location**

SWMU 38 is adjacent to SWMU 37--Building 1080 O/WS. SWMU 38, Building 1080A O/WS, services AGE maintenance operations and is located 25-ft northwest of the building. For further details, refer to Figure 54.

History

The period of operation for this site was from 1981-1991. Building 1080A equipment shop operations were the source of waste. The total capacity of the unit is 1,400 gallons, with an oil capacity of 350 gallons. The unit is installed below grade and is constructed of concrete. The top of the unit is raised a few inches above the ground surface, and the soil around the unit is covered with drain rock. A dry well was installed near the O/WS after 1981 for drainage from the concrete pad near Building 1080, which is used for AGE maintenance. The unit was abandoned in place and is now inactive. The type and quantity of waste disposed of is unknown.

A visual site inspection revealed no evidence of a release from this unit.

Evaluation of Relevant Information

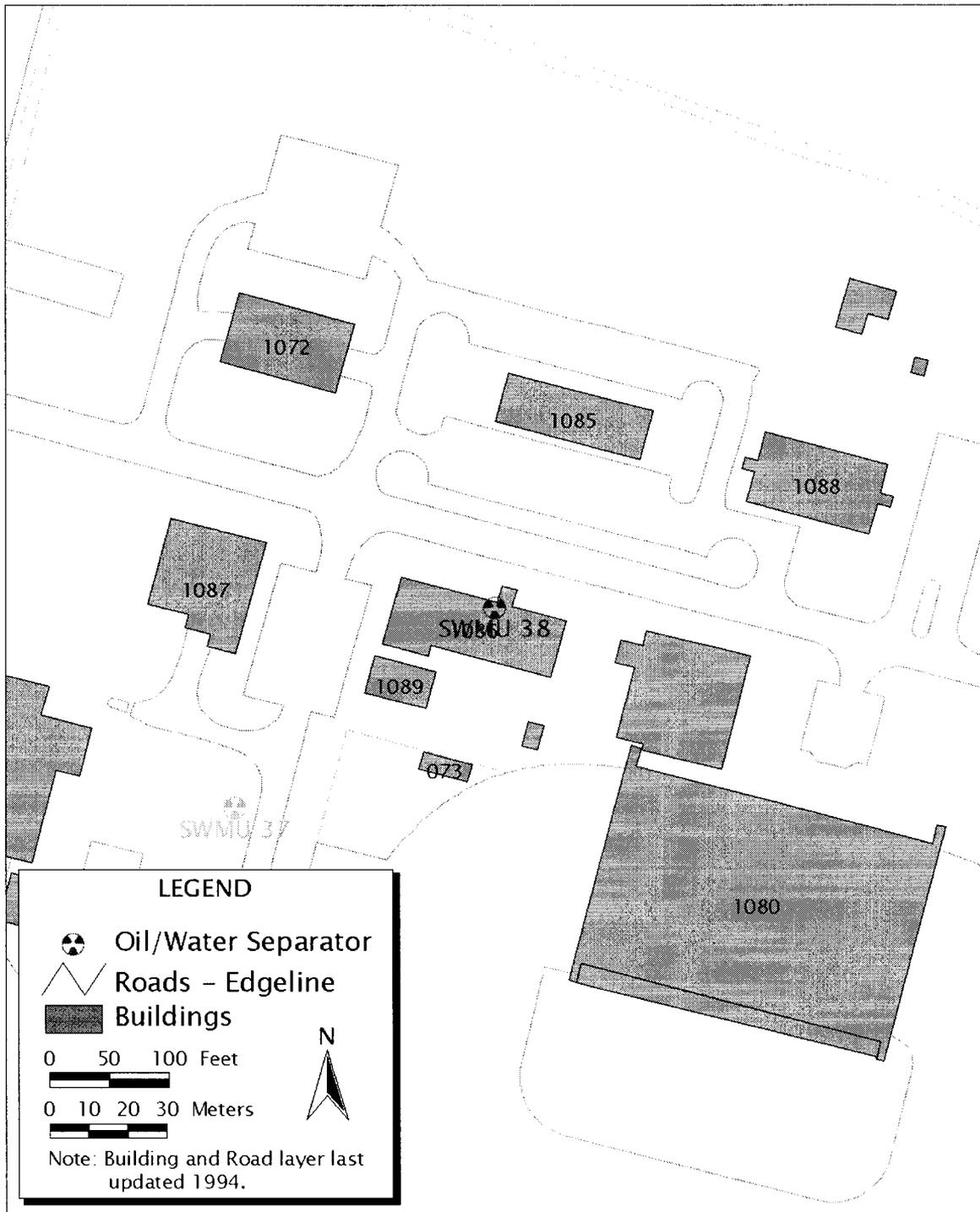
SWMU 38 was investigated under the Table 3 RFI in 1997. During Phase I, four boreholes were drilled on all four sides of the O/Ws and soil samples were collected. Two additional samples were taken from the dry well at depths of 20 ft to 22 ft. TRPH concentrations greater than 100 mg/kg were detected in the 6 ft to 8 ft interval at borehole 38-03. However, none of the other Phase I samples exceeded this criterion. Based on the results of the Phase I investigation, it was determined that a release had occurred at SWMU 38 and a Phase II RI was necessary.

During Phase II, four additional boreholes were installed. Samples were collected from these locations, as well as from two existing boreholes. Several SVOCs and VOCs were detected at concentrations above reporting limits, but only benzo(a)pyrene, benzo(a)-anthracene, and benzo(b)fluoranthene were present at levels above the RBCs. Groundwater samples were not collected at this site.

Based on the results of the investigations, it was concluded that a surface release had occurred at SWMU 38. While TRPH concentrations were found in soil that exceeded the 100-mg/kg-release criterion, no sample was found to exceed 1,000-mg/kg cleanup criterion. Although a few SVOCs exceeded the risk-based screen, the risk assessment showed low risk at the site.

Basis for Determination

SWMU 38 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 38 - Building 1080A Oil/Water Separator

Figure 54

55. SWMU 40--Building 1166 Oil/Water Separator**Location**

SWMU 40 is adjacent to SWMU 128--Building 1166 Waste Oil Tank and to SWMU 138--Building 1166 O/WS Drainage Pit. SWMU 40, Building 1166 O/WS, is located approximately 200 ft southeast of Building 1604. For more detail of the area, refer to Figure 55.

History

When SWMU 40 began operation is unknown, but the last year of service was in 1992. The source of waste was rinsate from the wash rack in Building 1166. The separator receives rinsate from the wash rack containing water, oils, detergents, and fuels. Oils and fuels skimmed from the water in the O/WS are transferred by gravity to the waste oil tank via a subsurface pipe. The water remaining in the separator is then discharged to the unlined drainage pit through a subsurface pipe. The O/WS is constructed of steel, and has an approximate capacity of 22 gallons.

During its period of operation, there were no reported spills or remedial actions performed at the site. A records search conducted in 1992 and visual inspection of the site during the RFI did not indicate any other releases.

Evaluation of Relevant Information

During a Phase I RI conducted in 1994, SWMUs 40, 128, and 138 were jointly investigated. During the investigation, three soil boreholes were installed at SWMU 40 and samples were collected at 2-ft intervals to a depth of 4 ft below the unit. All samples were analyzed for VOCs, TRPH, and metals.

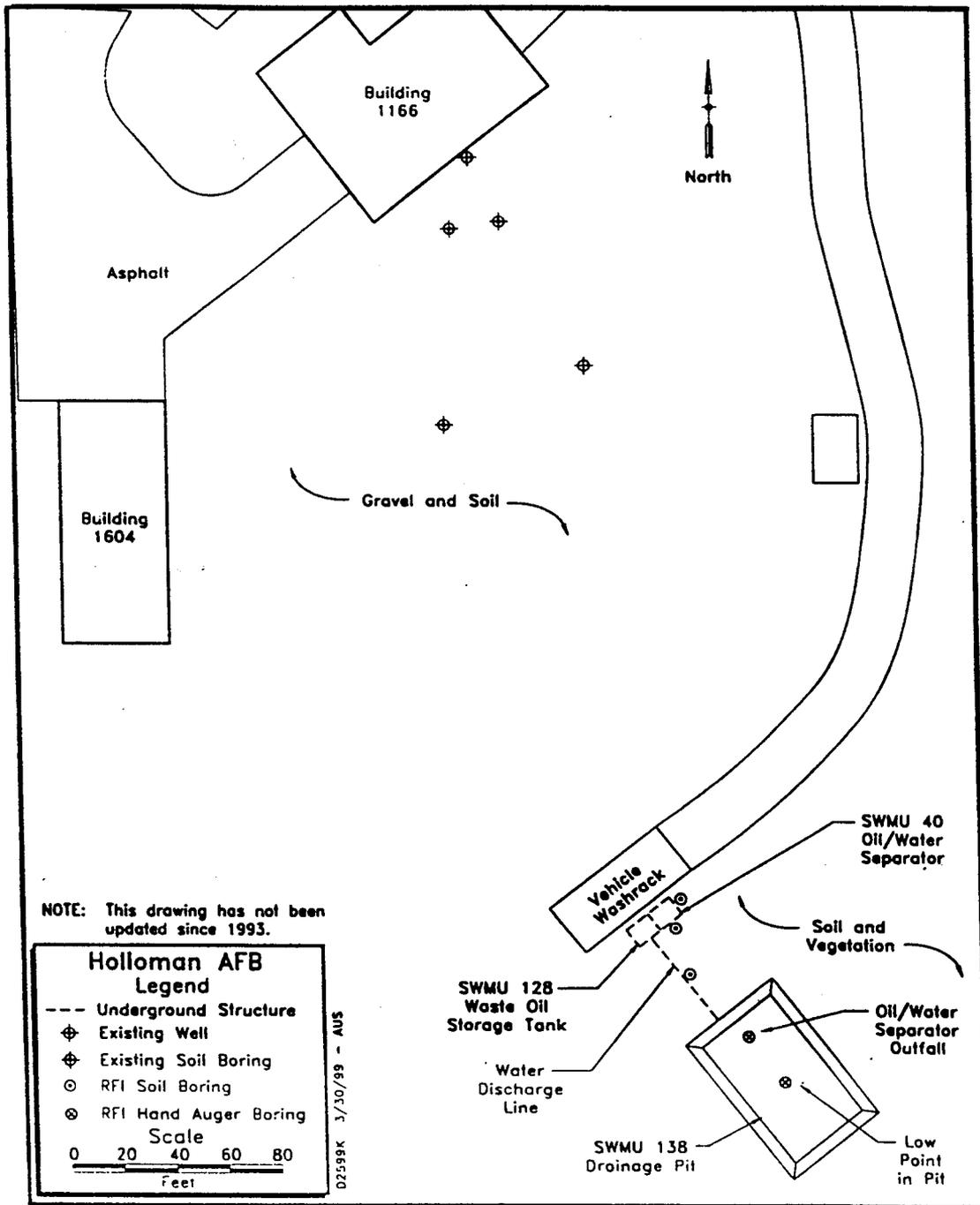
Acetone and methyl ethyl ketone were detected at concentrations higher than in the method blanks in one or more samples. Barium, cadmium, chromium, lead, and mercury were detected above UTLs in several samples. However, none of the metals or VOCs exceeded trigger criteria. TRPH was not detected in the samples collected at SWMU 40.

Although NFA was recommended for SWMU 40, elevated TRPH levels at SWMU 138 initiated site restoration activities. In 1995, adjacent SWMU 128 (WOT) was removed and an attempt to locate the O/WS at SWMU 40 was unsuccessful.

Five closure samples were collected from the excavation at this site to represent both SWMUs 128 and 40. Analytical results, which represent in-place soil conditions upon completion of excavation, were less than 1,000 mg/kg for all closure samples. No contamination was detected using field-screening methods; therefore stockpile samples were not collected.

Basis for Determination

SWMU 40 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 40 - Building 1166 Oil/Water Separator

Figure 55

56. SWMU 41--Building 1266 Oil/Water Separator

Location

SWMU 41 is adjacent to SWMU 38--Building 1080 O/WS. It was located 50 ft west of Building 1266. For further details, refer to Figure 56.

History

The period of operation for SWMU 41 was from 1987-1997. SWMU 41, Building 1266 O/WS, serviced vehicle maintenance operations and the wash rack. The total capacity of the unit was 200 gallons, and the unit measured 4 ft long, 3 ft wide by 6 ft deep. The unit was installed below grade and was constructed of steel. The top of the unit was at the ground surface, and the soil around the unit was uncovered. The unit operated as an O/WS until 1994 when it was replaced with a new O/WS and converted into a sediment trap. Building 1266 wash rack (SWMU 99) was the source of waste. Detergents, oils, and other chemicals associated with wash rack operations were disposed of at this site. The amount of waste disposed of at this site is unknown.

Repeated overflows have been reported by personnel at the site.

Evaluation of Relevant Information

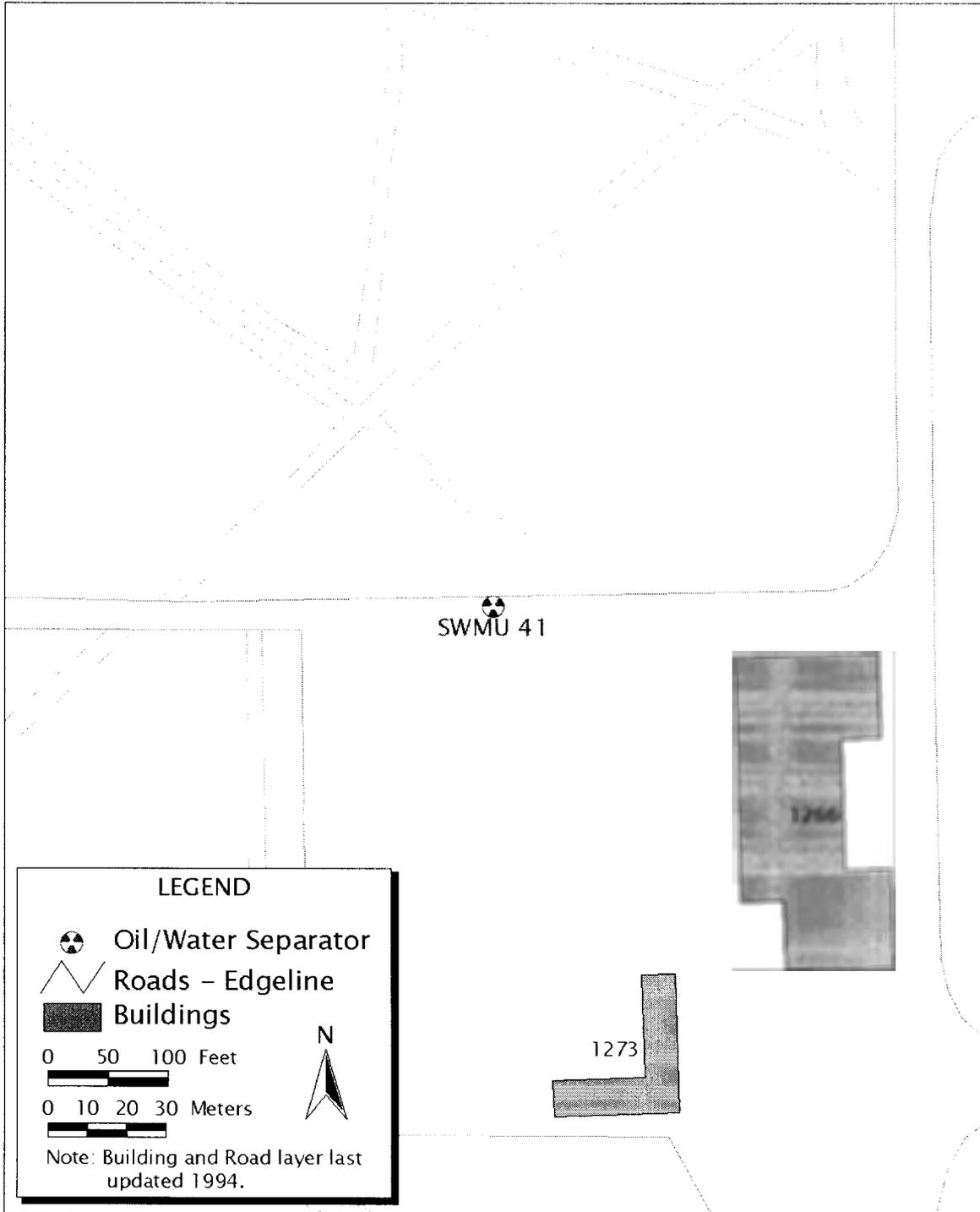
SWMU 41 was investigated under the Table 3 RFI in 1997. During Phase I, four soil boreholes were installed and samples were collected for analysis. TRPH concentration at all four locations were detected above the 100-mg/kg-release criterion, and TRPH concentrations from two locations (41-94 and 41-04) were detected above the 1,000-mg/kg cleanup level. Based on these results, a Phase II investigation was initiated to determine the nature and extent of the release.

Eight soil samples were collected from three new and four existing boreholes and submitted for analysis during Phase II. The data indicate that acetone, ethyl benzene, toluene, xylenes, and di-n-butylphthalate are present in low concentrations at location 41-04. Groundwater samples were not collected at this site.

Based on the results of the investigations, it was concluded that a surface release had occurred at SWMU 41. Conditional NFA was recommended, with the requirement that vadose zone soil in excess of 1,000 mg/kg TRPH be remediated. By July 1997, 10 cubic yards of contaminated soil had been excavated. Five closure samples were collected and analyzed. All samples contained TRPH concentrations less than 1,000 mg/kg.

Basis for Determination

SWMU 41 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 41 – Building 1266 Oil/Water Separator

Figure 56

57. SWMU 54--BUILDING 702 WASTE ACCUMULATION AREA

Location

SWMU 54 is adjacent to SWMU 123--Building 704 Waste Oil Tank and to SWMU 22--Building 704 O/WS. SWMU 54 is located approximately 3-ft northeast and 20-ft southeast of Building 702. For a further description of the site, refer to Figure 57.

History

SWMU 54, Building 702 Waste Accumulation Area, consists of a 10-ft square area of soil topped with gravel and covered by a storage shed where drums were temporarily stored. The shed was removed during a field investigation conducted in 1994, and the soil beneath it was found to be stained.

This site was in operation from 1955-1987. Waste oil from Building 702 Vehicle and Equipment Maintenance, and flammable liquids stored at Building 702A were the sources of waste. Waste oils were stored in drums in the temporary buildings. The amount of waste disposed of at this site is unknown.

An oily film was seen on standing water in the vicinity of SWMU 54, and some unspecified releases have occurred in the past. During site visits, stains were observed on pallets and drip pans, suggesting releases may have occurred outside the building.

Evaluation of Relevant Information

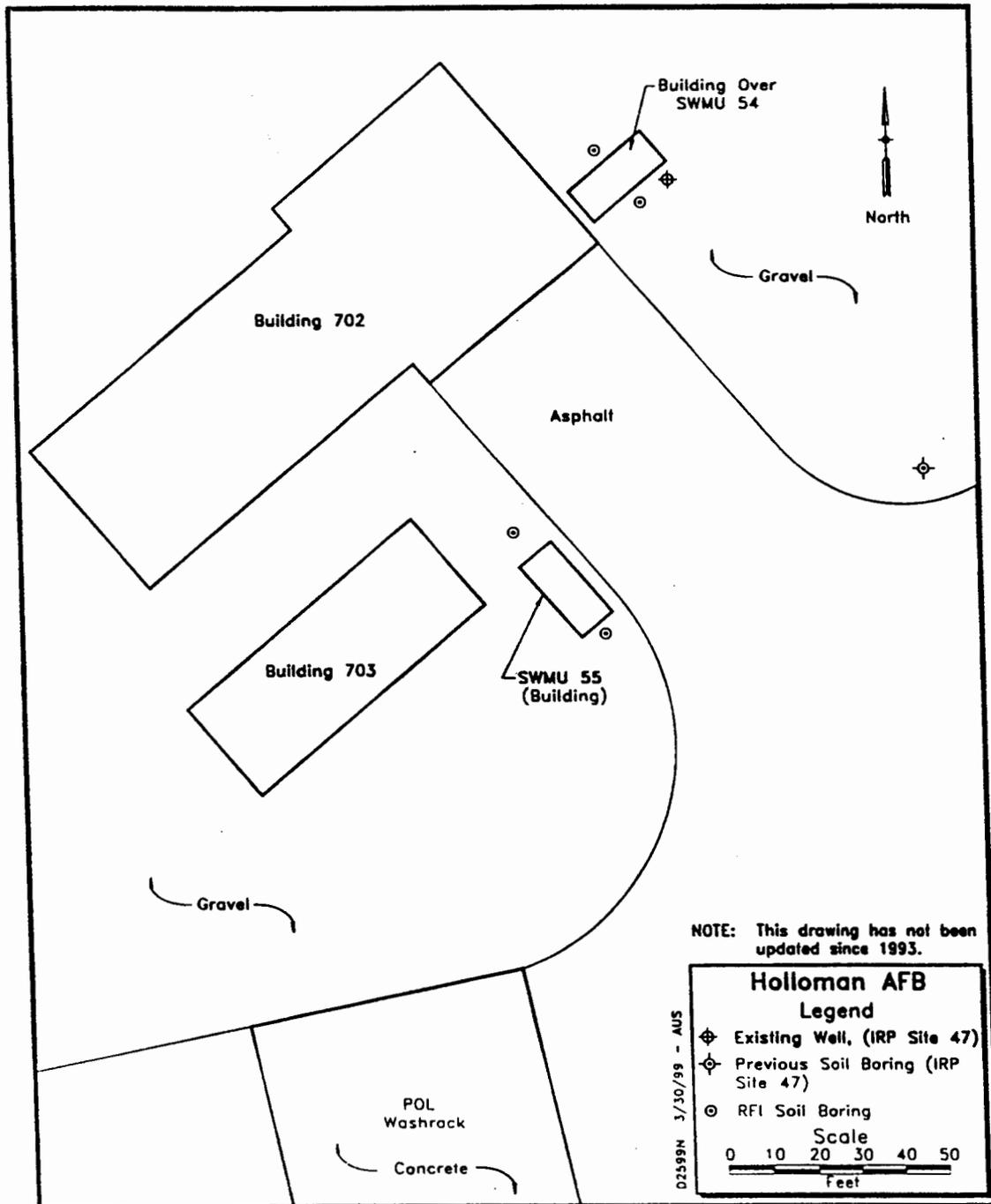
During a Phase I site investigation, three soil boreholes were installed at SWMU 54. Soil samples were collected at 2-ft intervals to the groundwater. All samples were analyzed for TRPH, VOCs, and metals. Three samples were also analyzed for SVOCs because they appeared visibly contaminated.

2-Hexanone, 4-methyl-2 pentanone, acetone, and methyl ethyl ketone were detected in one sample, although similar concentrations were found in the method blank associated with the sample. Acetone was detected in several samples at concentrations higher than the method blank. All VOCs were detected at concentrations below trigger criteria. Barium, cadmium, chromium, lead, and mercury were detected at concentrations above background UTLs in several samples. TRPH was also detected in five samples. However, none of the concentrations of metals or TRPH exceeded trigger criteria, with the exception of the samples from borehole 54-B02 (0-1 ft) and borehole 54-B03 (0-2 ft). Stained soils were noted at these locations during drilling.

It was determined from analytical results of the site investigation that a release to the soil had occurred at SWMU 54. Although concentrations of TRPH occasionally exceeded the New Mexico cleanup standard of 1,000 mg/kg (1,810 mg/kg in 054-B02 and 10,300 mg/kg in 054-B03), TRPH concentrations in the underlying soil and adjacent boreholes at SWMU 54 were below the cleanup standard. Visibly contaminated soil was excavated and disposed of by the Base.

Basis for Determination

SWMU 54 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 54 - Building 702 Waste Accumulation Area

Figure 57

58. SWMU 102--Acid Trailer Burial Site

Location

SWMU 102 is adjacent to SWMU 38--Building 1080 O/WS. SWMU 102 (IRP Site OT-04), the Acid Trailer Burial Site, is located in the northern portion of Holloman AFB, 1/2-mile north of the Unconventional Fuels Storage Area (IRP Site SS-36). The site is bordered to the north by Rita's Draw, an arroyo running east to west through the northern portion of the base. The soils are low to moderately permeable and mildly alkaline. Groundwater occurs at a depth of approximately 3-ft bgl in the arroyo. For further details, refer to Figure 58.

History

The period of operation for this site is unknown. It is believed that this SWMU was used in the 1950's. The Unconventional Fuels Storage Area, formerly used to storage propellants, oxidizers, and other fuel components was the source of waste. An acid trailer, suspected to contain explosives (putric acid) and other debris, was disposed of in an arroyo. Other wastes include an empty and unlabeled 55-gallon drum, rocket engines, a fuselage, and twenty 1-quart amber bottles filled with a solid substance.

As part of a 1991 Phase I RI study, elevated levels of selenium were detected in the groundwater beneath the site.

Evaluation of Relevant Information

IRP search records in 1983 indicated that various debris was disposed of the site. The site was investigated under Phase I of the IRP in 1991. During the investigation, an electromagnetic (EM) survey determined two locations of the buried waste. On the bases of these results, 19 exploratory pits were excavated in which the various wastes were discovered. Four groundwater-monitoring wells were installed and sampled during Phase I. Elevated levels of antimony, selenium, and cadmium were detected. The highest selenium concentration (0.071 mg/l) was detected in a sample from downgradient well MW-04-04.

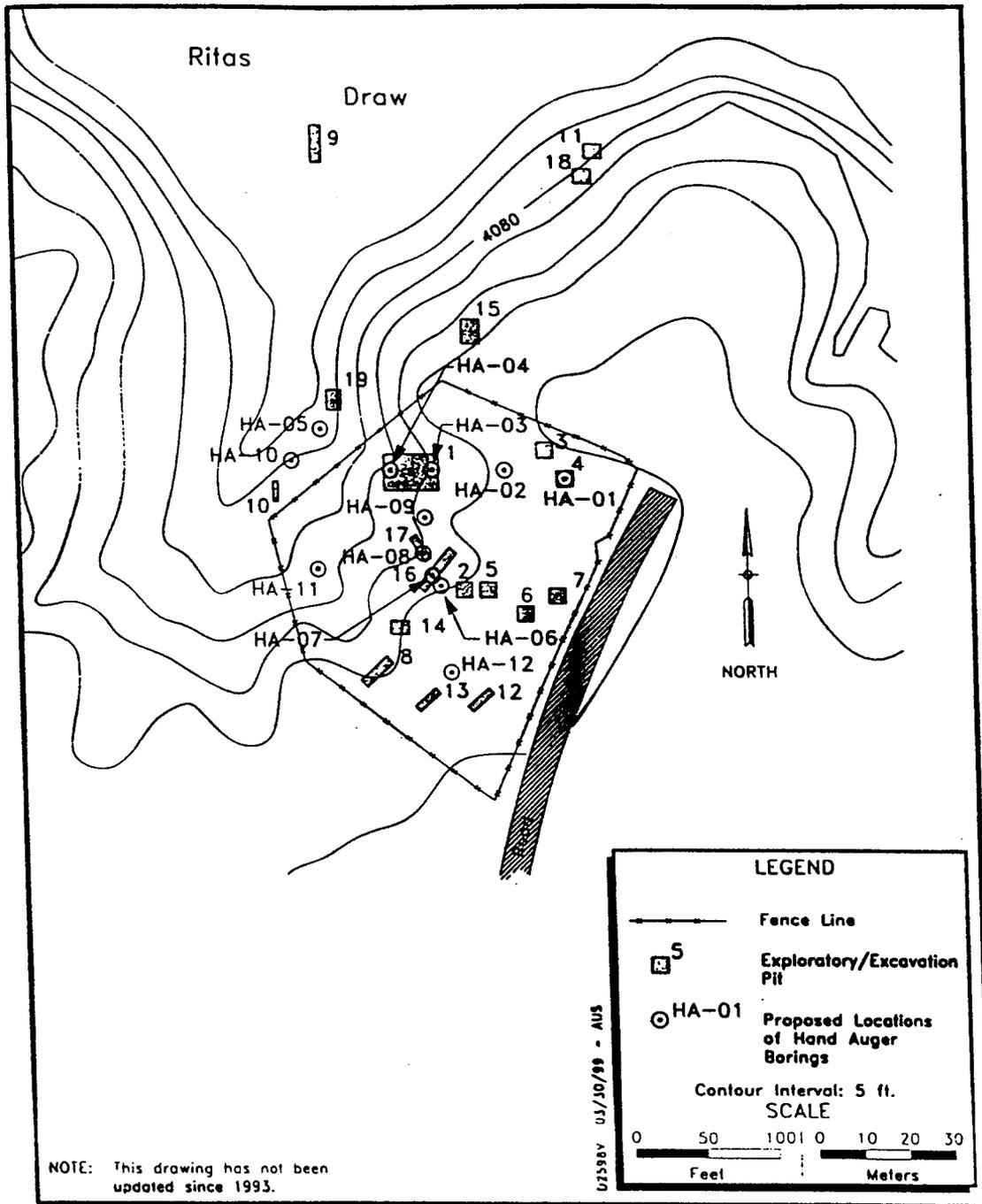
Although elevated levels of selenium were found in the Phase I Remedial Investigation (RI), significant uncertainty about its source initiated a Base-wide background study in 1993. After a voluntary remediation effort in 1994 that involved the removal of debris and site access restriction, a Phase II RI was conducted to further assess the extent of contamination at OT-04.

During Phase II, groundwater samples were collected from three of the four existing monitoring wells (MW-04-01, MW-04-02, and MW-04-04) and one background well (MW-BG04). All groundwater samples were analyzed for total (unfiltered) selenium. None of the groundwater samples contained total selenium concentrations in excess of the background UTLs (0.079 mg/l).

The Phase I RI, risk assessment, and Phase II RFI indicate that the voluntary remedial action taken by Holloman are sufficient to preclude further action.

Basis for Determination

SWMU 102 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 102 - Acid Trailer Burial Site

Figure 58

59. SWMU 107--Main Base Substation PCB Disposal Area

Location

SWMU 107 is adjacent to SWMU 38--Building 1080 O/WS. SWMU 107 (IRP Site 11) is the Main Base Electrical Substation site located just north of the main base near the eastern boundary of Holloman AFB. The site is located on relatively flat ground and is enclosed by a chain link fence. The water table varies from 5 to 40 ft bgl, which is covered by approximately six inches of gravel. For a further description of the site, refer to Figure 59.

History

The date that this site was first used is unknown. It is known that the last year it was used was in 1979. Electrical substation transformers were the source of waste. Records indicate that as late as 1979, it was common practice for electric shop personnel to dispose of transformer insulating oil on the ground in the vicinity of the substation. The specific amount of disposed waste is unknown.

Soil sample collection and analysis indicate that a release of PCBs and TPH to near-surface soils in the substation vicinity occurred.

Evaluation of Relevant Information

A record search in 1983 was followed by a remedial investigation in 1991 and 1992. Soil samples were collected with hand augers from 49 locations across the entire site based on a grid to determine where a PCB release may have occurred. Five additional samples were collected adjacent to transformer and oil circuit breaker pads and along the fence. All samples were screened in the field for the presence of PCBs. Based on the screening results, fifteen of these samples were submitted for laboratory analyses of PCBs and TPH. PCBs were found to be present in near-surface soil samples both inside and outside the fenced substation. The highest concentration of PCBs was detected in soils located in the eastern portion of the site, directly adjacent to the northernmost transformer pad. Soils to the south and east of the fenced area, in the drainage to Dillard Draw, contained detectable concentrations of petroleum hydrocarbons. In general, the occurrence of PCBs in the soils coincides with the presence of measurable TPH.

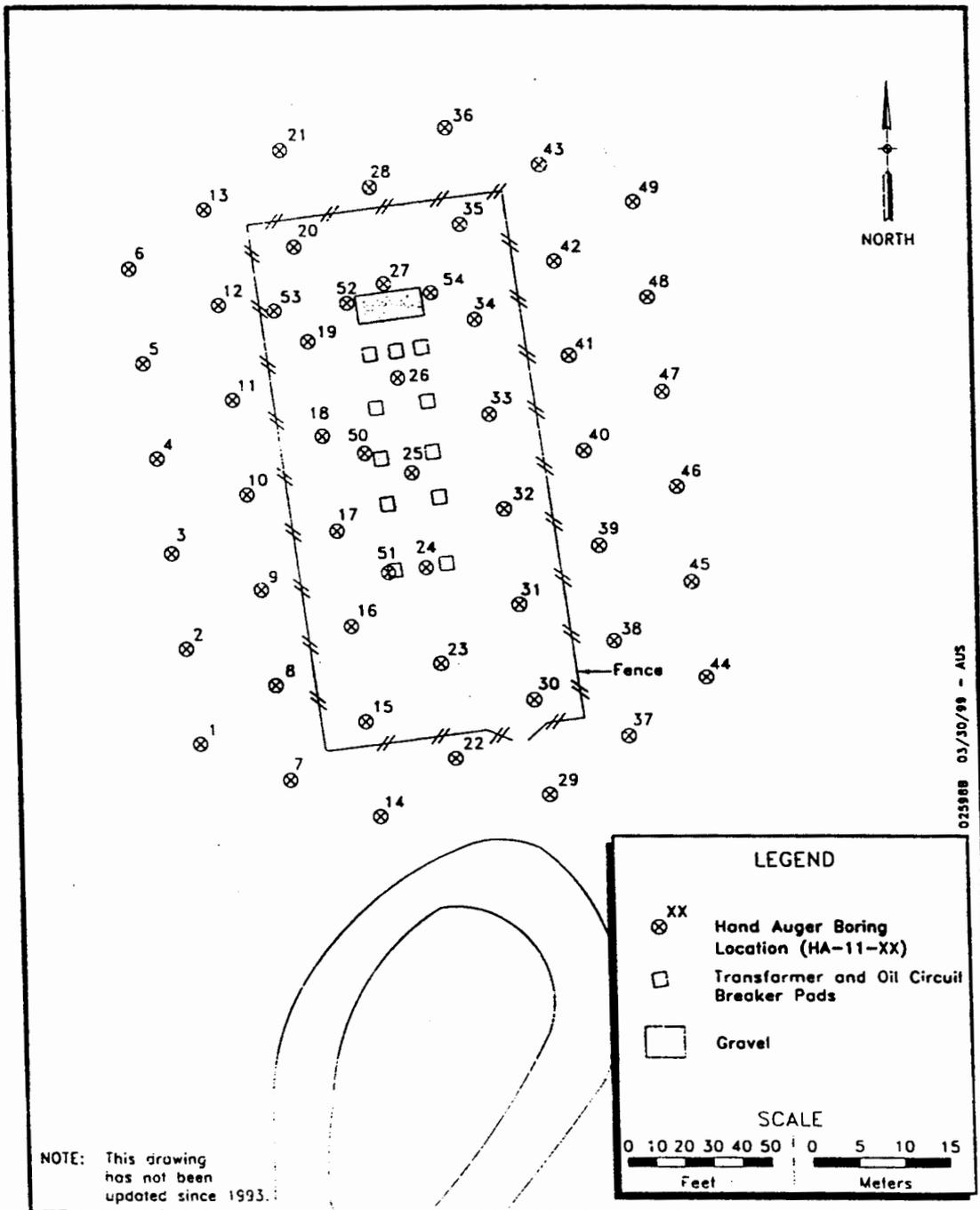
No hydrogeologic investigation was conducted at the site. Due to the physical and chemical properties of the contaminants, they are not anticipated to migrate to the groundwater. The main species detected, PCB-1260, has a tendency to adhere to soils; therefore, its ability to leach through the soils into the groundwater is considered minimal.

In 1992, a risk assessment was conducted at OT-11 to estimate the potential impact to human health and the environment. Based on the human health risk results, the environmental evaluation, and the requirements of the Toxic Substances Control Act (TSCA), it was determined that conditional NFA was warranted, with the requirement that soils exceeding TPH concentrations of 1,000 mg/kg be remediated.

In August 1995, soil excavation activities began at OT-11. Approximately 180 cubic yards of TPH and PCB-contaminated soil was excavated and removed. Five closure samples were collected and analyzed for PCB and TPH. TPH concentrations ranged from 85 mg/kg to 350 mg/kg, and no PCBs were detected. One soil stockpile sample was collected and analyzed for TPH, TCLP, PCBs, VOCs, metals, and RCRA characteristics. The analytical results indicated that TPH and PCB concentrations were below Base cleanup criteria (330 mg/kg and non-detect [ND], respectively), and lead concentrations were below EPA Region VI Risk-Based Concentration (RBC) (5.2 mg/kg).

Basis for Determination

SWMU 107 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 107- Main Base Substation PCB Disposal Area

Figure 59

60. SWMU 121--Building 316 Waste Oil Tank

Location

SWMU 121 is adjacent to SWMU 17--Building 316 O/WS. SWMU 121, former Building 316 Waste Oil Tank, was located approximately 5 ft northwest of Building 316. For a further description of the site, refer to Figure 60.

History

The period of operation for this site is unknown. The tank that was located below grade and was covered by gravel was removed in April 1996 as part of the Base-wide POL-remediation program. Washwater containing hydraulic fluid from Building 316-flight simulator was the source of waste for SWMU 121. Waste oil skimmed from water in Building 316-O/WS was transferred by gravity flow to the adjacent waste oil tank via a subsurface pipe, and water is discharged to the sewer system. The washwater contained hydraulic fluid from Building 316-flight simulator. Some of the hydraulic fluids may have contained PCBs. The amount of waste disposed of at this site is unknown.

Results from a vapor monitoring system in operation at SWMU 121 between October 1991 and 1992 indicated that a release had not occurred during that time. However, staining in the soils adjacent to SWMU 17 was observed during drilling operations conducted in November 1993, indicating a possible release at this site.

Evaluation of Relevant Information

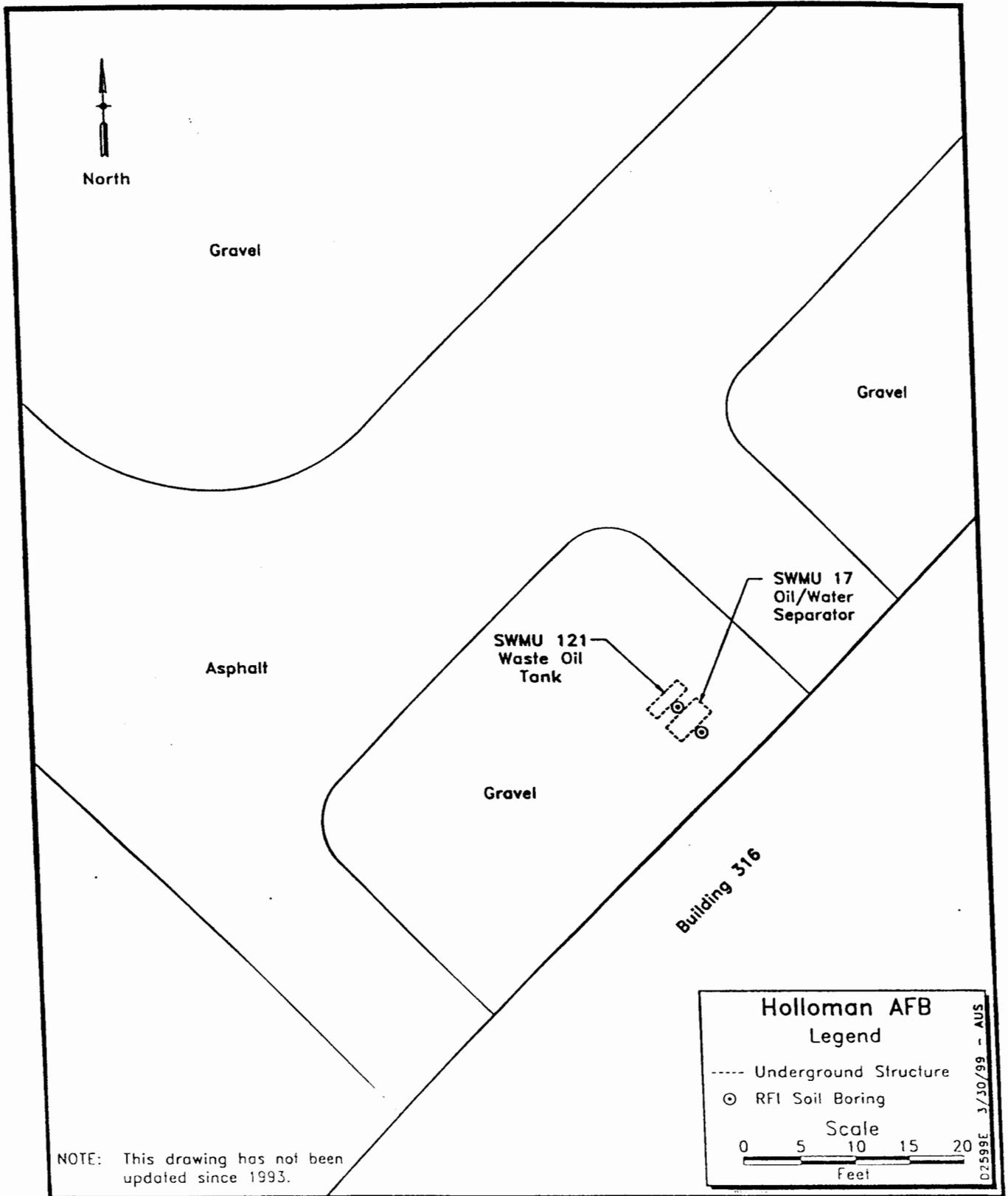
SWMUs 121 and 17 were investigated during the same remedial investigation in 1994. In Phase I, two soil boreholes were installed, one approximately 10 ft east of SWMU 17 and one approximately 10 ft east of SWMU 121. Samples were collected at 2-ft intervals to a depth of 10 ft. All samples were analyzed for VOCs, TRPH, PCBs, and metals. The deepest samples from the two boreholes were analyzed for SVOCs because they appeared visibly contaminated. Acetone was detected in all samples, and several other VOCs were also detected. However, concentrations of VOCs, SVOCs, and TRPH were below trigger criteria. PCBs were not detected in any of the samples collected at the site. No COPCs were identified by the risk screening process.

A qualitative RA was conducted for SWMUs 121 and 17 to help determine the need for further investigation based on potential risk to human health or the environment. Although visible staining in soils from 7 ft to 9.6 ft and 6.5 ft to 10 ft in boreholes 017-B01 and 017-B02 respectively indicated the possibility of a release, the concentrations of all detected constituents were below trigger-based criteria. Although NFA was recommended for this site, both SWMUs 17 and 121 were slated for removal in April 1996. Both the O/WS and WOT were removed, in addition to 200 cubic yards of TPH-contaminated soil. The excavation was completed in two phases, and closure samples were collected after each phase.

After the first phase, ten closure samples were collected and analyzed for TRPH; seven of the ten samples exceeded the TRPH cleanup standard of 1,000 mg/kg. Following the second phase, a second round of closure samples was collected and analyzed for TRPH; all samples were well below the cleanup standard (ranging from non-detect (ND) to 80 mg/kg). Stockpile samples were not collected at this site because contamination had not been detected by field-screening techniques.

Basis for Determination

SWMU 121 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 121 - Building 316 Waste Oil Tank

Figure 60

61. SWMU 123--Building 704 Waste Oil Tank**Location**

SWMU 123 is adjacent to SWMU 54--Building 702 Waste Accumulation Area, SWMU 55--Building 702a Waste Accumulation Area, SWMU 21--Building 702 O/WS, and to SWMU 22--Building 704 O/WS. SWMU 123, former Building 704 Waste Oil Tank, was located beyond the northeastern corner of the POL wash rack south of Building 703. For further description of the site, refer to Figure 61.

History

SWMU 123 was in service from approximately 1980-1991. The source of waste was runoff from the adjacent wash rack. Washwater, waste oils, and fuels from the wash rack were routed to the O/WS for processing. The waste oil skimmed from the water in the O/WS was transferred by gravity to the waste oil tank via a subsurface pipe. The quantity of waste disposed of at this site unknown. The tank was approximately 5-ft long and 5 ft in diameter, and was located below grade. It was removed sometime prior to August 1995.

A literature search and visual inspection did not indicate that a release had occurred from SWMU 123. However, stained soils were observed at 1.5 ft and 5.5 ft bgl in soil boreholes 123-B01 and 123-B02, respectively, indicating a possible release.

Evaluation of Relevant Information

SWMUs 21, 22, and 123 were investigated during the same RI in 1994. Six soil boreholes were installed and samples were collected at 2-ft intervals to a depth of 12-ft bgl. All samples were analyzed for VOCs, TRPH, and metals. In addition, six samples were analyzed for SVOCs because they appeared visibly contaminated.

Benzene, ethyl benzene, and toluene were detected in samples collected from SWMU 123 at concentrations below trigger levels, with the exception of benzene, which was detected above trigger criteria in one sample from 123-B01 (8-10 ft interval). Chromium, lead, and mercury were detected at concentrations above background UTLs in several samples. However, none of the constituents exceeded trigger criteria. Although most TRPH samples from SWMU 123 were at concentrations below the New Mexico cleanup standard for Holloman AFB of 1,000 mg/kg, three samples were detected above this value: 123-B01 from 4-6 ft (1,500 mg/kg), 123-B01 from 8-10 ft (4,510 mg/kg), and 123-B02 from 8-10 ft (1,930 mg/kg).

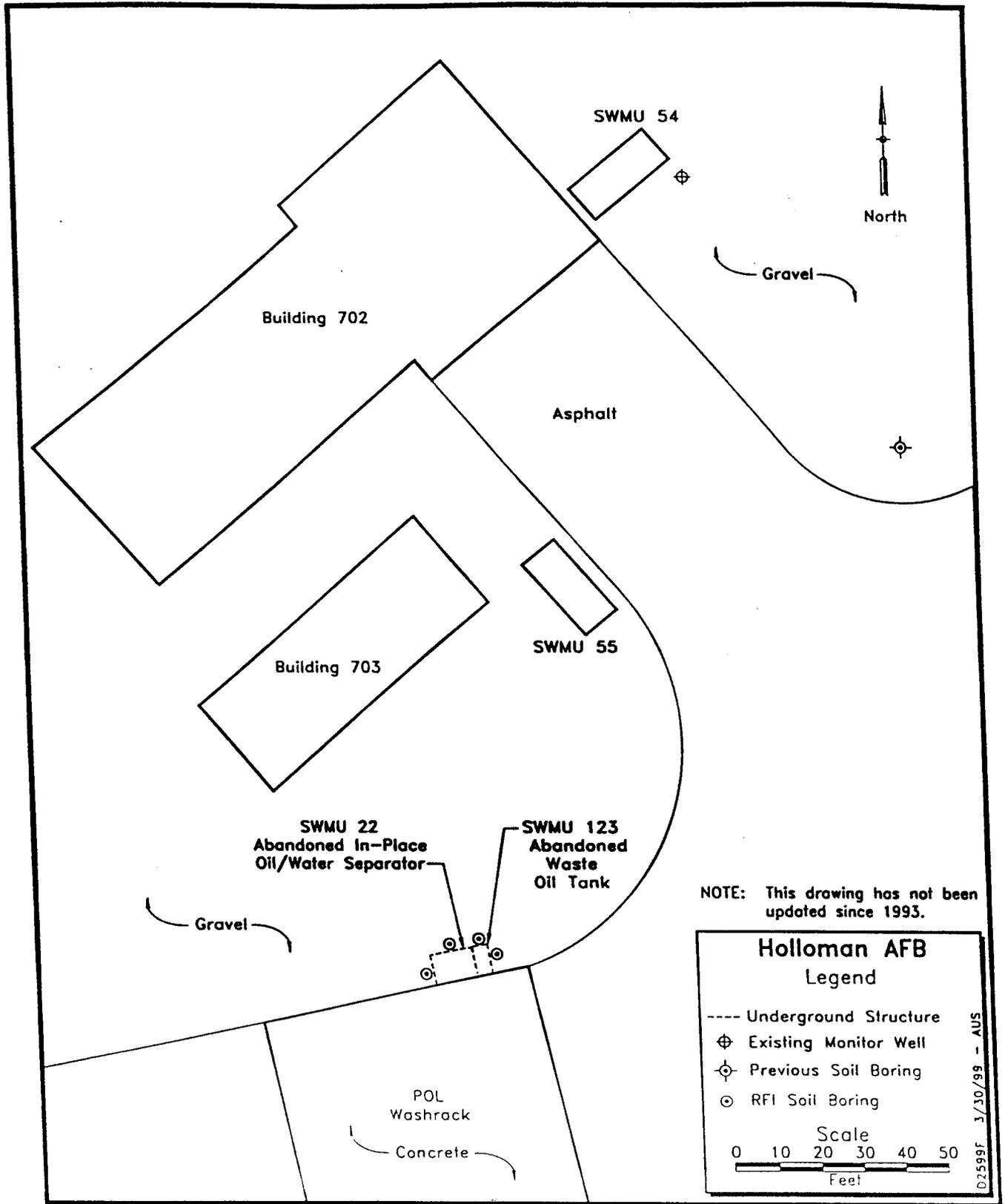
Results from the remedial investigation indicated that a release to the soil has occurred at SWMU 123. Conditional NFA was recommended, with the requirement that TRPH-contaminated soil exceeding 1,000 mg/kg be remediated. In August 1995, site reclamation began at SWMU 123, and an attempt to locate the WOT was unsuccessful. It was determined that SWMU 123 had been previously removed. From August 1995 until March 1997, excavation of TRPH-contaminated soil continued, resulting in the removal of 132.5 cubic yards of contaminated soil.

Two soil stockpile samples were collected and analyzed for TRPH, VOCs, SVOCs, BTEX, metals, and RCRA characteristics. Analysis indicated that TRPH levels exceeded 1,000 mg/kg, although all other constituents measured below Base background criteria. Five closure samples were collected from the excavation site and analyzed for TRPH and BTEX. Four of five samples were below the cleanup standard. The fifth, measuring 4,100 mg/kg TRPH, was taken immediately adjacent to the wash rack.

SWMU 123 was recommended for no further action, with the condition that vadose zone soil extending under the POL wash rack is remediated below 1,000 TRPH and 25-mg/kg benzene.

Basis for Determination

SWMU 123 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 123 - Building 704 Waste Oil Tank

Figure 61

62. SWMU 126--Building 1001 Waste Oil Tank

Location

SWMU 126 is adjacent to SWMU 36--Building 1001 O/WS. SWMU 126, Building 1001 waste oil tank, is located approximately 5 ft north of Building 1001. For further detail of the site, refer to Figure 62.

History

The period that this site was used was from 1982 – 1997. The tank lies 6 ft below grade and is covered with gravel. Its size, construction material, and age are unknown. The source of waste was floor cleaning washwater from Building 1001. The adjacent O/WS, SWMU 36, receives rinse water and waste oil from Building 1001. Waste oil skimmed from the O/WS is transferred by gravity flow to SWMU 126, the waste oil tank, via a subsurface pipe, and the water is discharged to a sewer system. The quantity of waste disposed of at this site is unknown.

A literature search and visual inspection did not indicate that a release had occurred from SWMU 126. Stained soil observed from 5 ft to 7-ft bgl in soil borehole 36-B02 may indicate that an isolated release has occurred. Soil in the other three boreholes did not appear visually contaminated.

Evaluation of Relevant Information

During a Phase I RI conducted in 1994, four soil boreholes were drilled in the vicinity of SWMU 126. Soil samples were collected at 2 ft to 12-ft intervals. Sludge samples were also collected from the tank to characterize its contents. All samples were analyzed for VOCs, TRPH, and metals. In addition, a sample was collected and tested for ignitability, SVOCs, and metals.

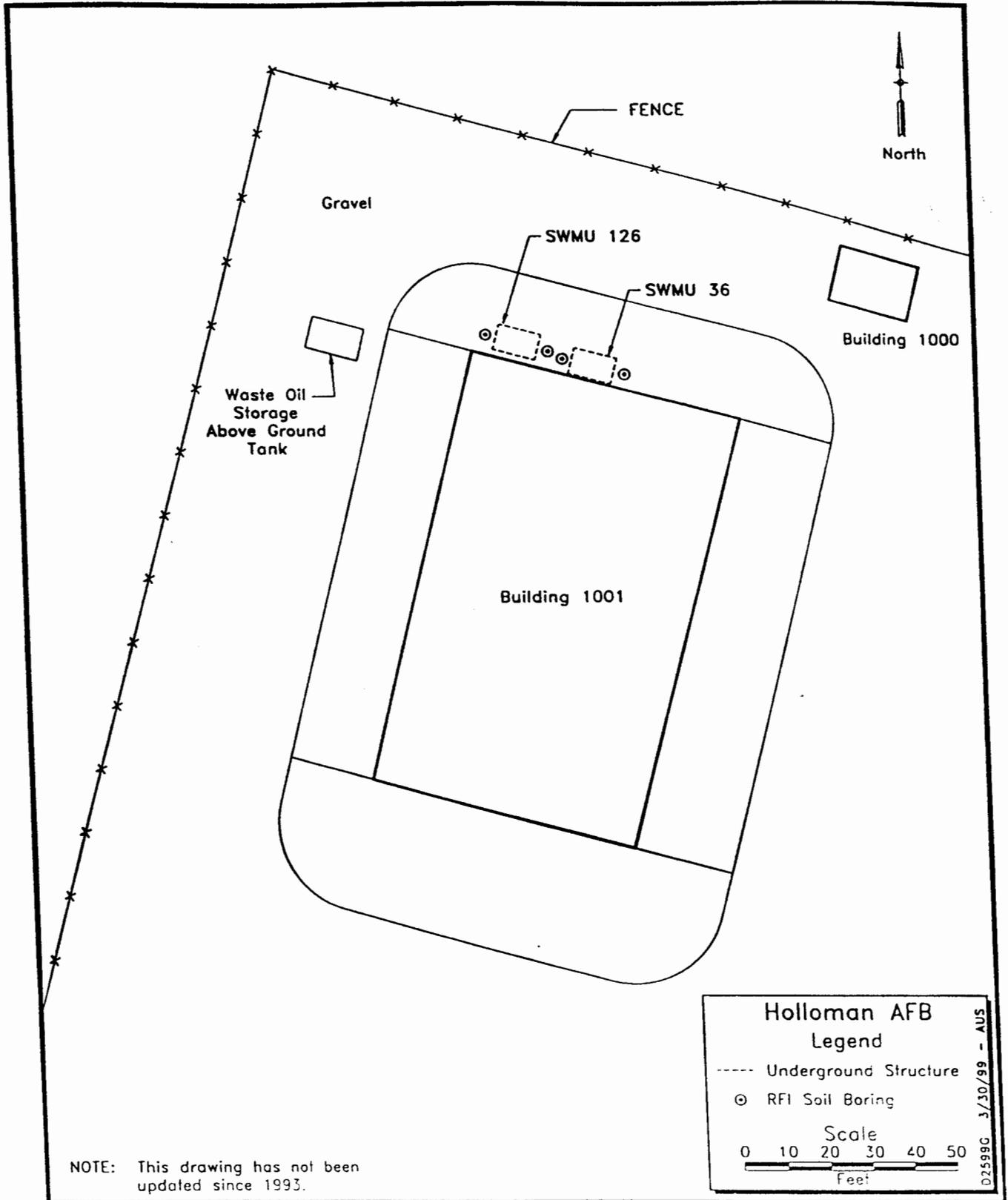
Acetone was detected in several samples at concentrations up to 965 µg/kg. Methylene chloride was also detected at concentrations near detection limits. However, both constituents were detected in concentrations below trigger criteria. Chromium, lead, and mercury were detected at concentrations above background UTLs in several samples; however, none were detected above trigger criteria. TRPH was detected in three samples at concentrations below trigger criteria, with the exception of the 9-ft to 11-ft interval in borehole 036-B01, which had a TRPH concentration of 5,030 mg/kg. Stained soil was observed in samples collected from 2 ft to 4 ft in borehole 126-B01; however, concentrations of TRPH in this sample did not exceed the New Mexico cleanup standard of 1,000 mg/kg.

A qualitative RA was conducted at SWMU 126 to help determine the need for further investigation based on the potential risk to human health or the environment. Although it was determined that SWMU 126 did not pose unacceptable risk to human health and the environment, an attempt to remove the WOT was made in 1997. Under the Phase II POL remediation project, 100 cubic yards of soil suspected to contain TRPH concentrations greater than 1,000 mg/kg were excavated, backfilled, and compacted. The WOT at SWMU 126 was not found during excavation activities.

Five closure soil samples were collected from the excavation site. All samples, which represent soil conditions upon completion of excavation, were beneath 1,000 mg/kg. One soil stockpile sample was collected and analyzed for TRPH, BTEX, and lead. The analytical results indicated TRPH concentrations greater than 1,000 mg/kg. All closure samples indicated TRPH concentrations less than 1,000 mg/kg.

Basis for Determination

SWMU 126 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 126 - Building 1001 Waste Oil Tank

Figure 62

63. SWMU 128--BUILDING 1166 WASTE OIL TANK
64. SWMU 138--BUILDING 1166 OIL/WATER SEPARATOR DRAINAGE PIT

Location

SWMUs 128 and 138 are adjacent to SWMU 40--Building 1166 O/WS. SWMUs 128 and 138 are located approximately 200 feet southeast of Building 1604. SWMU 128, Building 1166 Waste Oil Tank, was located immediately adjacent to the vehicle wash rack, while SWMU 138, Building 1166 O/WS drainage pit, is located 50 ft southeast of the wash rack. For a further description of the area, refer to Figure 63/64.

History

The year this site was first used is unknown, but its last period of operation was in 1992. Rinsate from the Building 1166 wash rack was the source of waste. Building 1166 O/WS received rinsate from the wash rack containing, water, oils, detergents, and fuels. Oils and fuels skimmed from the water in the O/WS were transferred by gravity to the waste oil tank (SWMU 128) via a subsurface pipe. The water remaining in the separator was then discharged to the unlined drainage pit (SWMU 138) through a subsurface pipe. The waste oil tank is constructed of steel and has a capacity of 250 gallons. The drainage pit is an unlined excavation 20 ft wide, 40 ft long, and 6 ft deep. Overflow from the waste oil tank is transferred via an underground pipe to the drainage pit.

During its period of operation, there were no reported spills or remedial actions performed at the site. A halon vapor monitoring system installed in October 1991 indicates that no leakage has occurred from SWMU 128. A records search conducted in 1992 and visual inspection of the site during the RFI did not indicate any other releases.

Evaluation of Relevant Information

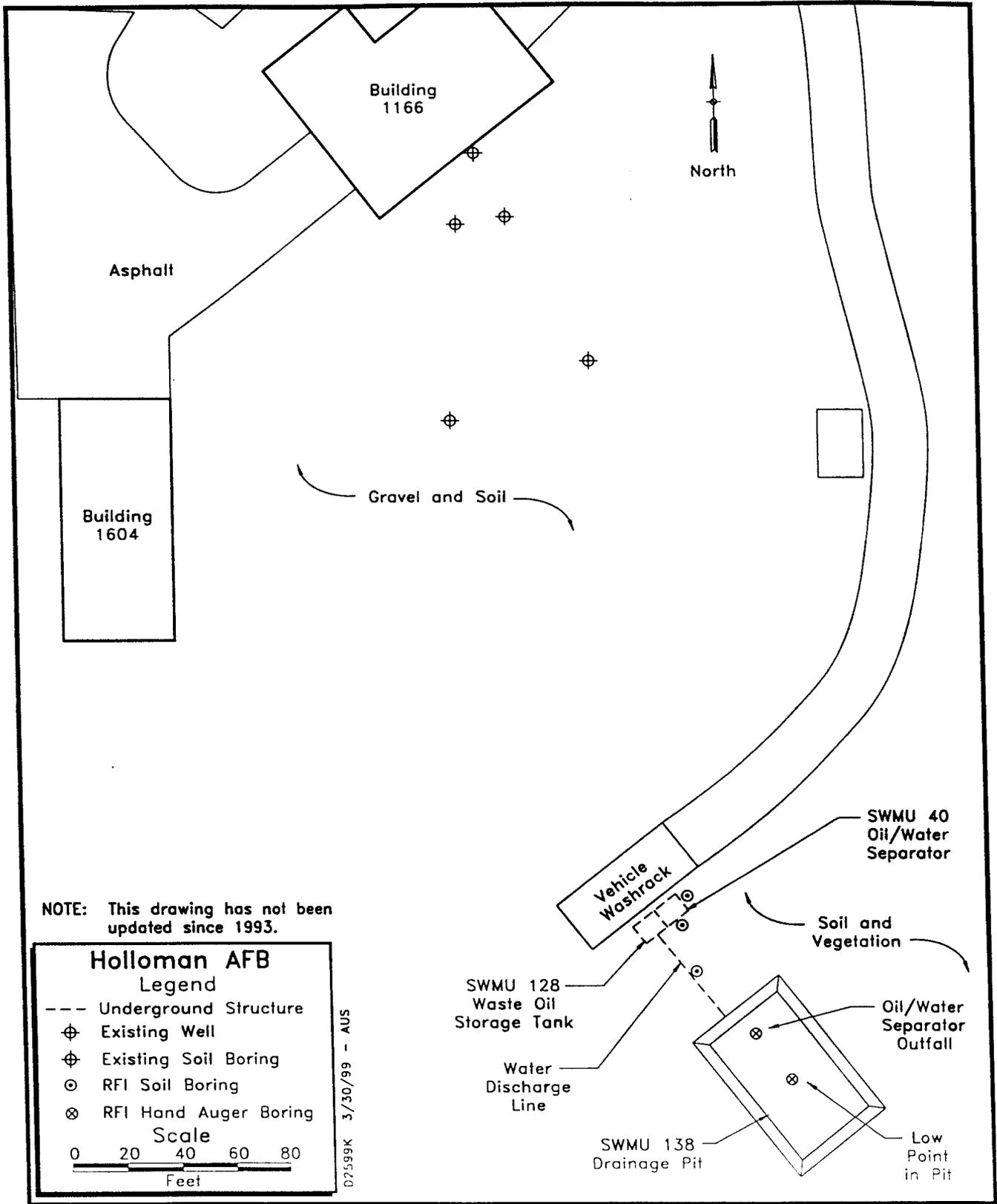
During a Phase I RI conducted in 1994, hand auger samples were collected from three locations at SWMU 138. In addition, three soil boreholes were installed at SWMU 40 (directly adjacent to SWMU 128), and samples were collected at 2-ft intervals. All samples were analyzed for VOCs, TRPH, and metals. In addition, samples collected from SWMU 138 that appeared visibly contaminated during collection were also analyzed for SVOCs.

Acetone and methyl ethyl ketone were detected at concentrations higher than in the method blanks in one or more samples. Barium, cadmium, chromium, lead, and mercury were detected above UTLs in several samples. However, none of the metals or VOCs exceeded trigger criteria. TRPH were detected in two surface soil samples from SWMU 138, and only one of those exceeded trigger criteria (13,400 mg/kg in sample 138-A01).

In 1995, SWMU 138 was remediated as part of the Phase I Remediation of POL-Contaminated Sites. TRPH concentrations in excess of 1,000 mg/kg were not detected at this site. SWMU 128, the waste oil tank, was excavated, removed, and destroyed off-site by Basin Pipe and metal. Five closure samples were collected from the excavation at this site to represent both SWMUs 128 and 40. Analytical results, which represent in-place soil conditions upon completion of excavation, were less than 1,000 mg/kg for all closure samples. No contamination was detected using field-screening methods, so stockpile samples were not collected.

Basis for Determination

SWMU 128 and SWMU 138 were determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 128 - Building 1166 Waste Oil Tank
SWMU 138 - Building 1166 Oil/Water Separator Drainage Pit
 Figure 63/64

65. SWMU 155--Sludge Drying Beds

Location

SWMU 155 is adjacent to SWMU 124--Building 752 Waste Oil Tank and SWMU 156--Imhoff Tanks (5). SWMU 155, the Sludge Drying Beds, were located approximately 100 ft west of Building 752. As-built drawings were used to locate the area, since the drying beds themselves have been removed. For a further description of the site, refer to Figure 65.

History

SWMU 155 consisted of three sludge drying beds, each approximately 50 ft wide by 150 ft long. Sludge was pumped from the bottom of the Imhoff tanks (SWMU 156) to the unlined beds, where it remained until dry. When the drying beds were deactivated in 1982, all of the sludge, the associated piping, and the concrete beams were removed.

SWMU 155 was in service from the 1950s to 1982. The source of waste was sludge from the Imhoff Tanks (SWMU 156). While in operation, wastewater containing sanitary wastes and de minimus quantities of dissolved hydrocarbons, solvents, industrial cleaners, paint stripper, methanol, acetone, formaldehyde, and a variety of listed wastes were processed by the wastewater treatment system.

There is no record of a release at the site. However, the potential for past releases is high, since the unit was unlined.

Evaluation of Relevant Information

During 1994, a Phase I RI was conducted at SWMU 155. Trenches ranging from 2-ft to 4-ft in depth were excavated across the area of the former sludge drying beds. Three hand-auger samples were collected from the most visibly contaminated areas. Samples were analyzed for VOCs, nonhalogenated VOCs, SVOCs, organochlorine and organophosphorus pesticides, chlorinated herbicides, PCBs, sulfide, cyanide, and metals.

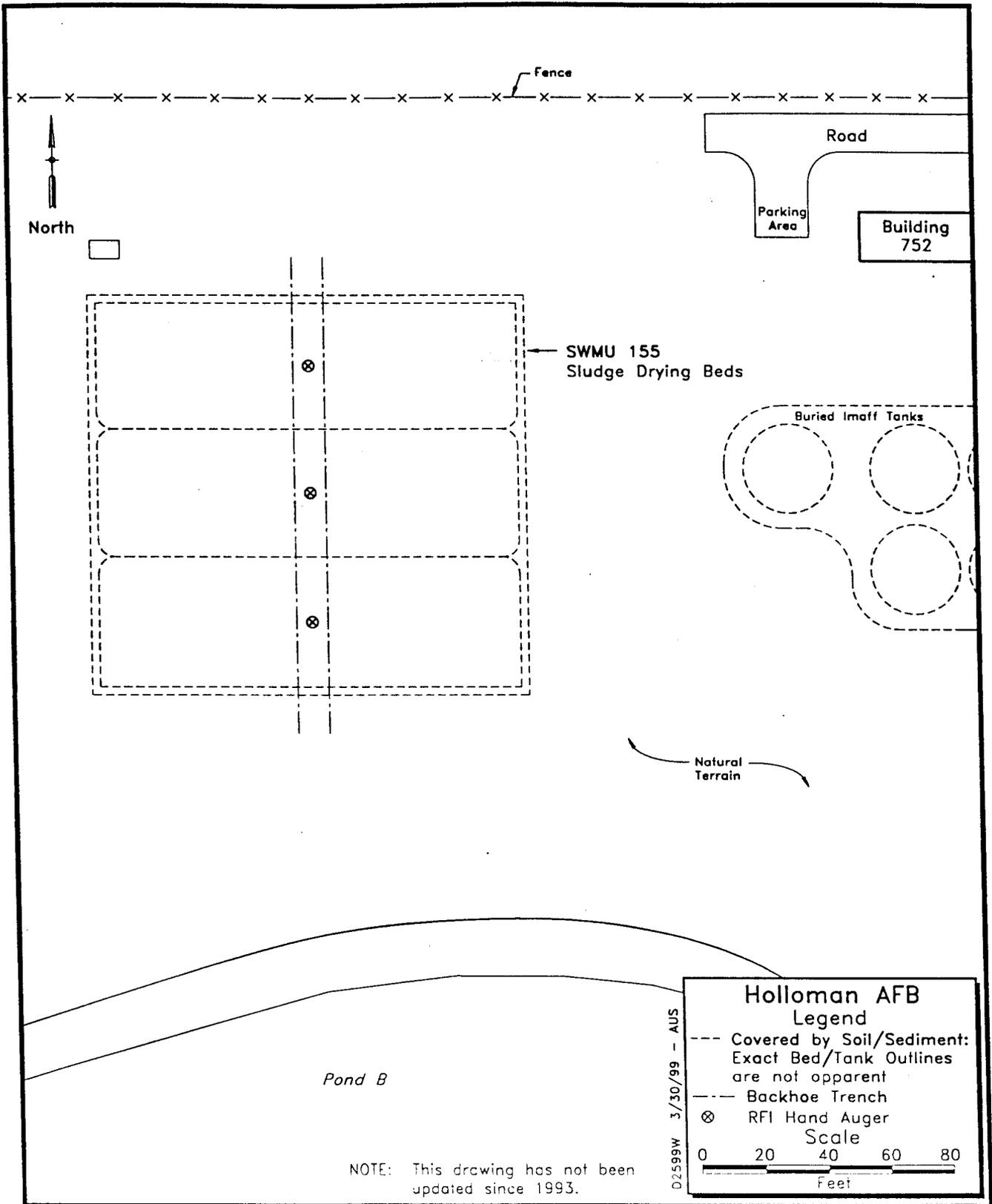
All detected concentrations of VOCs and SVOCs were below trigger criterion. Although pesticides and herbicides were detected in most samples, all detected concentrations were also below trigger criteria. Of the metals detected, only beryllium was measured above trigger criteria.

A qualitative RA was conducted for SWMU 155 to help determine the need for further investigation. Beryllium was the only COPC identified for this SWMU; however, it is naturally present in Base background soils at concentrations greater than those detected at SWMU 155.

Based on the results of the remedial investigation, it appeared that a release had occurred at SWMU 155. However, only beryllium exceeded trigger criteria, and natural levels around the SWMU are higher than those detected; therefore, it is unlikely to pose a risk to human health or the environment.

Basis for Determination

SWMU 155 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 155 - Sludge Drying Beds

Figure 65

66. SWMU 156--Imhoff Tanks

Location

SWMU 156 is adjacent to SWMU 124--Building 752 Waste Oil Tank and SWMU 155--Sludge Drying Beds. SWMU 156, Imhoff Tanks, were located approximately 30 ft south of Building 752. The tanks are visible beneath a gently sloping mound of fill dirt that is intended to cover the tanks. For a further description of the area, refer to Figure 66.

History

SWMU 156 consists of five cylindrical concrete tanks, each having a diameter of approximately 26-ft and ranging from 24.5 ft to 42 ft in depth. The Imhoff Tanks operated as in-ground units to remove sludge from the primary sewage received from the Base. The sludge was pumped from the bottom of the Imhoff Tanks to the sludge drying beds (SWMU 155). The water was collected by an underground piping system and discharged into sewage lagoons.

SWMU 156 was in service from 1950-1982. Sewage from the Base was the source of waste. While in operation, wastewater containing sanitary wastes and de minimis quantities of dissolved hydrocarbons, solvents, industrial cleaners, paint stripper, methanol, acetone, formaldehyde, and a variety of listed wastes were processed by the wastewater treatment system.

There is no record of a release at the site. However, the potential for past releases could be high due to the concrete construction of the tanks. Sewer-like waste was observed in the soil borehole to the west of the tanks during drilling operations at the SWMU; however, this waste is believed to be the result of a break in the sewer line that flows from Building 752 and not a release from SWMU 156.

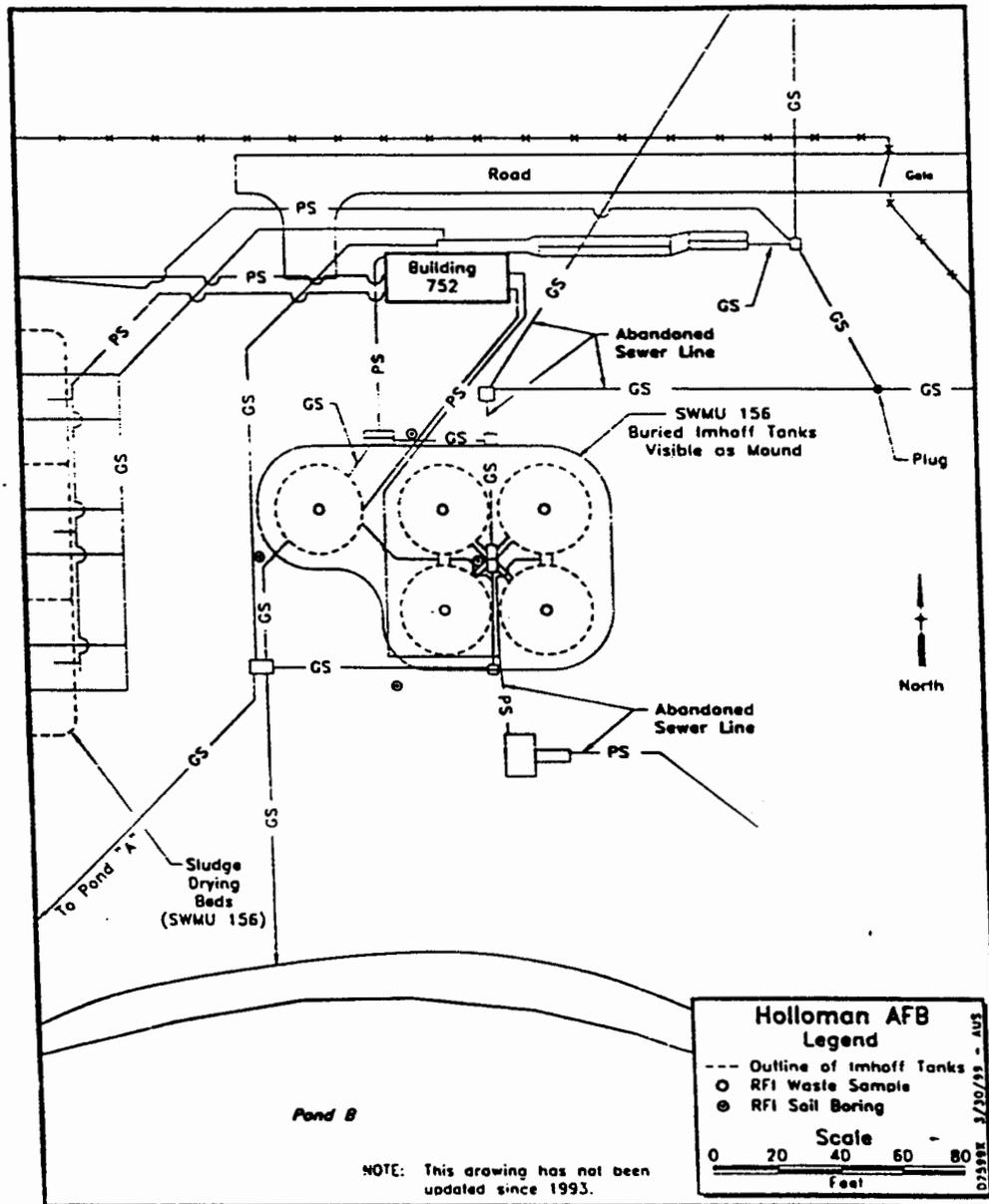
Evaluation of Relevant Information

A Phase I site investigation began in 1994. Four soil boreholes were installed at the site, and soil samples were collected at 2 ft intervals to the base of the shallowest tank. Attempts to drill into the tanks to collect sludge samples were unsuccessful because hollow stem auger technology is not appropriate for drilling through reinforced concrete. Instead, a hand auger was used to collect a sample from the western most tank. All samples were analyzed for nonhalogenated VOCs, VOCs, SVOCs, organophosphorus pesticides, PCBs, chlorinated herbicides, and metals. No organic compounds were detected at concentrations exceeding trigger criteria, although several volatile, semivolatiles, and nonhalogenated organic compounds were present at concentrations below detection limits, including methyl ethyl ketone and acetone. Although seventeen detections of organochlorine pesticides were confirmed at concentrations above detection limits, none of these compounds was detected above trigger criteria. A variety of organochlorine and organophosphorus pesticides, chlorinated herbicides, and PCBs were detected at concentrations at or below detection limits.

Metals, several of which include chromium, vanadium, and zinc were detected at concentrations above background UTLs. However, none of the concentrations of metals, except beryllium, exceeded trigger criteria. Beryllium was detected at a maximum concentration of 1.87 mg/kg in borehole 56-B04 from 40 ft to 42 ft bgl (the trigger criteria for beryllium is 0.16 mg/kg). A quantitative RA was conducted for SWMU 156 to determine the need for further investigation based on potential risk to human health or the environment. Two potential human pathways and two potential receptors were identified. Although a variety of constituents were detected, the risk-based screen indicated that only beryllium concentrations were above the EPA Region IV criteria for ingestion. Elevated levels of beryllium alone are highly unlikely to pose an unacceptable risk to human health or the environment.

Basis for Determination

SWMU 156 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 156 - Imhoff Tanks

Figure 66

67. SWMU 164--Building 1080 Pond

Location

There are no SWMUs adjacent to SWMU 164. SWMU 164, Building 1080 Pond, is located approximately 300 ft southeast of Building 1080. For a further description of the area, refer to Figure 67.

History

The unit consists of a low-lying area covering approximately two acres. Runoff from the asphalt-paved area near Building 1080 and from the flight line collects in the area during periods of heavy rainfall and eventually evaporates or infiltrates into the underlying soil.

SWMU 164 began service in 1956 and is still being used today. SWMU 164 collects runoff from the surrounding flight line, which was previously found to contain metals. Excavation of contaminated soil following a recent fuel spill extended into the pond, and there have been reports of standing fuel product immediately north of the unit.

Contaminated soil was excavated following a nearby JP-4 spill of approximately 1,000 gallons in November 1992. Part of the excavation extended into the pond.

Evaluation of Relevant Information

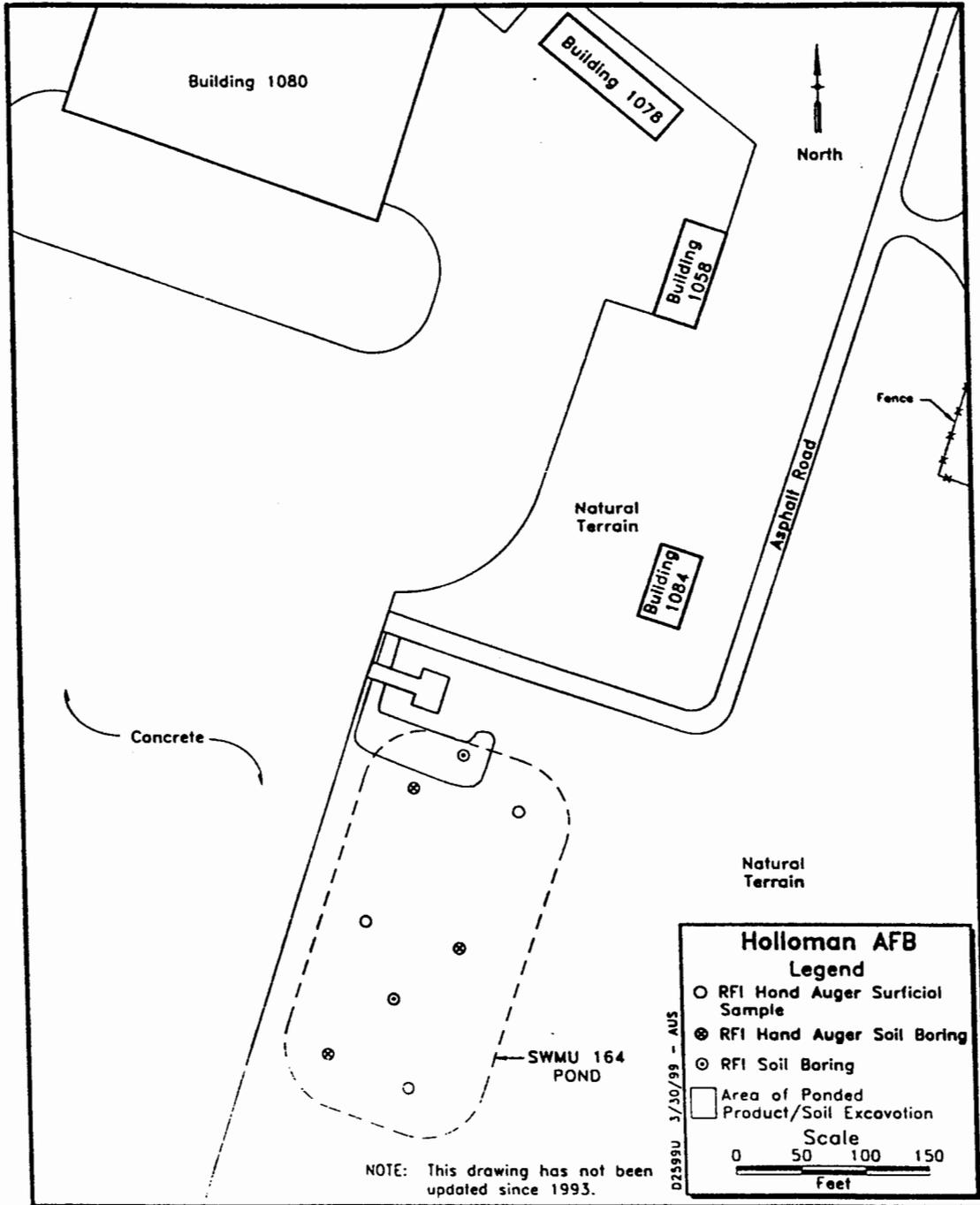
A Phase I site investigation began in 1994. Samples from two soil boreholes and six hand auger locations were collected. Soil borehole samples were collected at 2-ft intervals to groundwater, and were analyzed for TRPH, VOCs, SVOCs, and metals. The 0-ft to 1-ft hand auger samples (164-A04, 164-A05, and 164-A06) were analyzed for VOCs and metals; the 0-ft to 2-ft samples (164-A01, 164-A02, and 164-A03) were analyzed for metals only. Ethylbenzene, toluene, and xylenes were detected in two of the surface samples; however, concentrations were below trigger criteria.

Chromium and lead were detected above background UTLs in one or more of the samples. However, no metals or TRPH were detected in concentrations exceeding trigger criteria.

A qualitative RA was conducted as part of the site investigation, and concluded that there is some evidence of a limited release from SWMU 164. The elevated levels of ethylbenzene, toluene, and xylenes in the surface soil at 164-A06 were probably the result of the November 1992 fuel spill. All of the remaining detected constituents at this location and in other sampling locations at the SWMU were below risk-based trigger criteria. The RA concluded that the SWMU does not pose an unacceptable risk to human health or the environment.

Basis for Determination

SWMU 164 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 164 - Building 1080 Pond

Figure 67

68. SWMU 231--Incinerator Landfill

Location

There are no SWMUs adjacent to SWMU 231. SWMU 231, the incinerator landfill, is located off a dirt road east of De Zonia Road and several hundred yards west of the Former Unconventional Fuels Storage Area (the current Base Equestrian Facility). For a further description of the area, refer to Figure 68.

History

The incinerator, which operated from 1955 to 1960, is a small brick structure with a metal roof, burner, and 40-ft stack. Unconventional fuels including aniline, xylydine, and furfuryl alcohol were reportedly transported to the site in tank trucks. Fuel was then pumped into the incinerator and burned. Five areas of disturbed soils and debris (Waste Areas A through E) were identified in a 1993 site investigation and are located northwest of the incinerator. These areas were used to dispose of empty drums, stainless steel piping, and other materials used in the transport, storage, and handling of unconventional fuels. Approximately 100-ft southwest of the incinerator is another fill line presumably used for conventional fuels to start the fire.

Results of site investigations performed in 1993 and 1994 indicate limited surface releases of unconventional fuels. The groundwater underlying SWMU 231 has not been affected.

Evaluation of Relevant Information

A PA/SI was conducted under the IRP for SWMU 231 in 1993. During the PA/SI, three soil boreholes were installed near the inactive incinerator. Elevated aniline and metals concentrations were detected in the shallow samples (0 ft to 2 ft) collected at the site, but were absent in soil samples collected from 20 ft to 22 ft and 25 ft to 27 ft bgl. A Phase I RI began in 1993. Two EM surveys were conducted to attempt to identify the location of buried wastes. The survey determined five areas (Areas A-E) thought to represent the location of burned waste.

A Phase II RI was conducted in 1994 to further investigate the site and to assess the potential risk to human health and the environment. Three specific areas were targeted by the Phase II RI: 1) the incinerator area; 2) the waste areas (A-E); and 3) the groundwater site. The results of Phase II are summarized below.

Incinerator Area: Sixteen soil boreholes were installed and samples were collected. Samples were analyzed for unconventional fuels (primarily aniline, dimethylanilines, furfuryl alcohol, and tetrahydrofuran), and several samples were also analyzed for metals. At location BH-58-20, purple staining of the soils coincided with the detection of aniline (18.6 µg/kg), dimethylanilines (100 µg/kg - 4690 µg/kg), and furfuryl alcohol (428 µg/kg). Only cobalt and copper were detected at or slightly above their background UTLs.

Waste Areas A-E: To determine if a release had occurred in any of the five waste areas, eight soil boreholes were installed and samples were collected. Samples were analyzed for SVOCs, unconventional fuels, and metals.

Waste Area A: Soil boreholes BH-58-10 and BH-58-11 were drilled in Waste Area A. No unconventional fuels or SVOCs were detected.

Waste Area B: Soil boreholes BH-58-07, BH-58-08, and BH-58-09 were installed in Waste Area B. No unconventional fuels or SVOCs were detected. Metals, including beryllium, (ranging up to 0.62 mg/kg) were measured above background UTLs in the composite samples collected from 0 to 4 ft.

Waste Area C: Soil borehole BH-58-06 was installed in Waste Area C. No unconventional fuels or SVOCs metals were detected.

Waste Area D: Soil borehole 58-BH-05 was installed in Waste Area D. Aniline was detected in a composite sample from 1 ft to 5-ft bgl at a concentration of 83 µg/kg. In the 5 ft to 7-ft sample interval, aniline was at a concentration of 48.4 µg/kg. Dimethylanilines, 2-methylnaphthalene, and naphthalene were also detected in the 5-ft to 7-ft sample interval. Chromium, copper, iron, manganese, and zinc were detected above their background UTLs in the 1-ft to 5-ft composite sample.

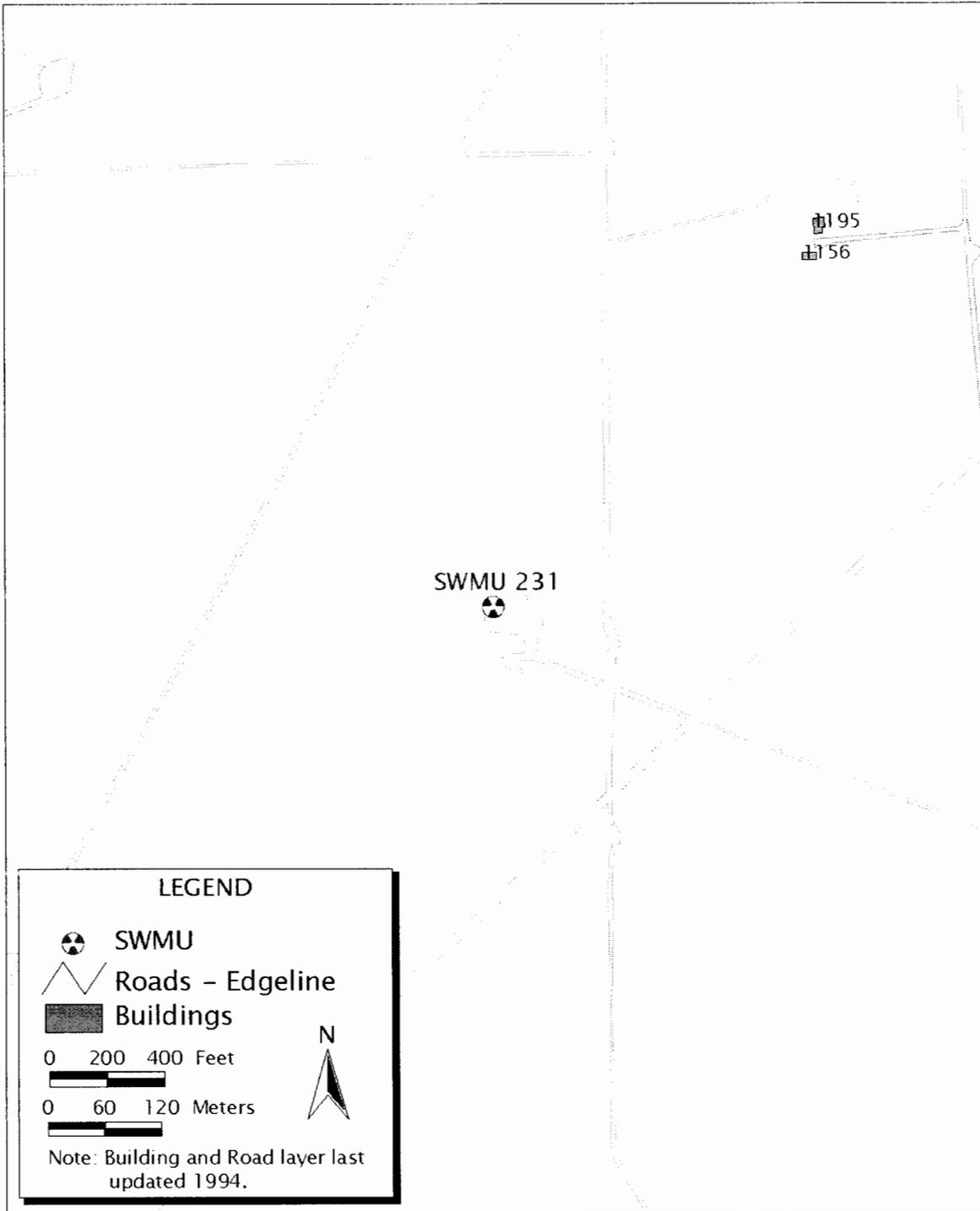
Waste Area E: Soil borehole BH-58-04 was installed in Waste Area E. No unconventional fuels or SVOCs were detected. No metals were detected above their background UTLs.

Site Groundwater: Four groundwater-monitoring wells were installed and sampled to determine if a release to the groundwater had occurred. One well was installed downgradient of the incinerator, and three wells were installed downgradient of the waste areas. Groundwater samples were analyzed for VOCs, SVOCs, metals, and unconventional fuels. Unconventional fuel constituents were not detected in the groundwater samples from any of the four monitoring wells. Only tetrachloroethene (8.8 µg/l) was detected above the detection limit in well BH-58-03. Metals were not detected at concentrations above background UTLs in the samples.

Based on the results of the investigation, it was concluded that the extent of the unconventional fuels related contamination was limited to two areas: 1) a discontinuous, shallow (<2 ft) purple-stained area near the incinerator, and 2) the soils within and directly below Waste Area D. Groundwater data indicated that the presence of unconventional fuels in the soil had not affected the groundwater quality. Consequently, the site does not pose unacceptable risk to human health or the environment.

Basis for Determination

SWMU 231 was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



SWMU 231 - Incinerator Landfill

Figure 68

69. AOC-G--Atlas Substation PCB Spill

Location

There are no SWMUs adjacent to AOC-G. AOC-G (IRP Site 43), the Atlas Electrical Substations site, is located in the North Base area near the eastern boundary of Holloman AFB. For a further description of the area, refer to Figure 69.

History

The site consists of two substations, one small inactive substation to the north and one larger active substation to the south. The substations are thought to have been active for 30 to 40 years. The beginning of the period of operation is unknown, but it was last in service in 1979. The source of waste was the electrical transformers. As late as 1979, it was standard practice for Exterior Electric Shop personnel to dispose of transformer insulating oil on the ground near the substations. The amount of transformer oil disposed of in this manner is unknown. Groundwater occurs at a depth of 5 to 40 ft bgl, and groundwater flow is influenced by southwest-trending arroyos in the vicinity.

Evaluation of Relevant Information

A records search in 1983 indicated the need for a remedial investigation which was conducted in 1991. The site revealed evidence of a recent oil circuit-breaker fire and spill in the northeast corner of the active substation. A total of 81 samples were collected at a depth of 2.5 ft below grade level. Thirty-two samples were collected on a grid at the small substation, and 49 samples were collected on a grid at the large substation. All samples were screened in the field for PCBs and VOCs. Field screening results were used to select samples for laboratory analysis. A total of 25 samples were submitted for laboratory analyses of TRPH and PCBs.

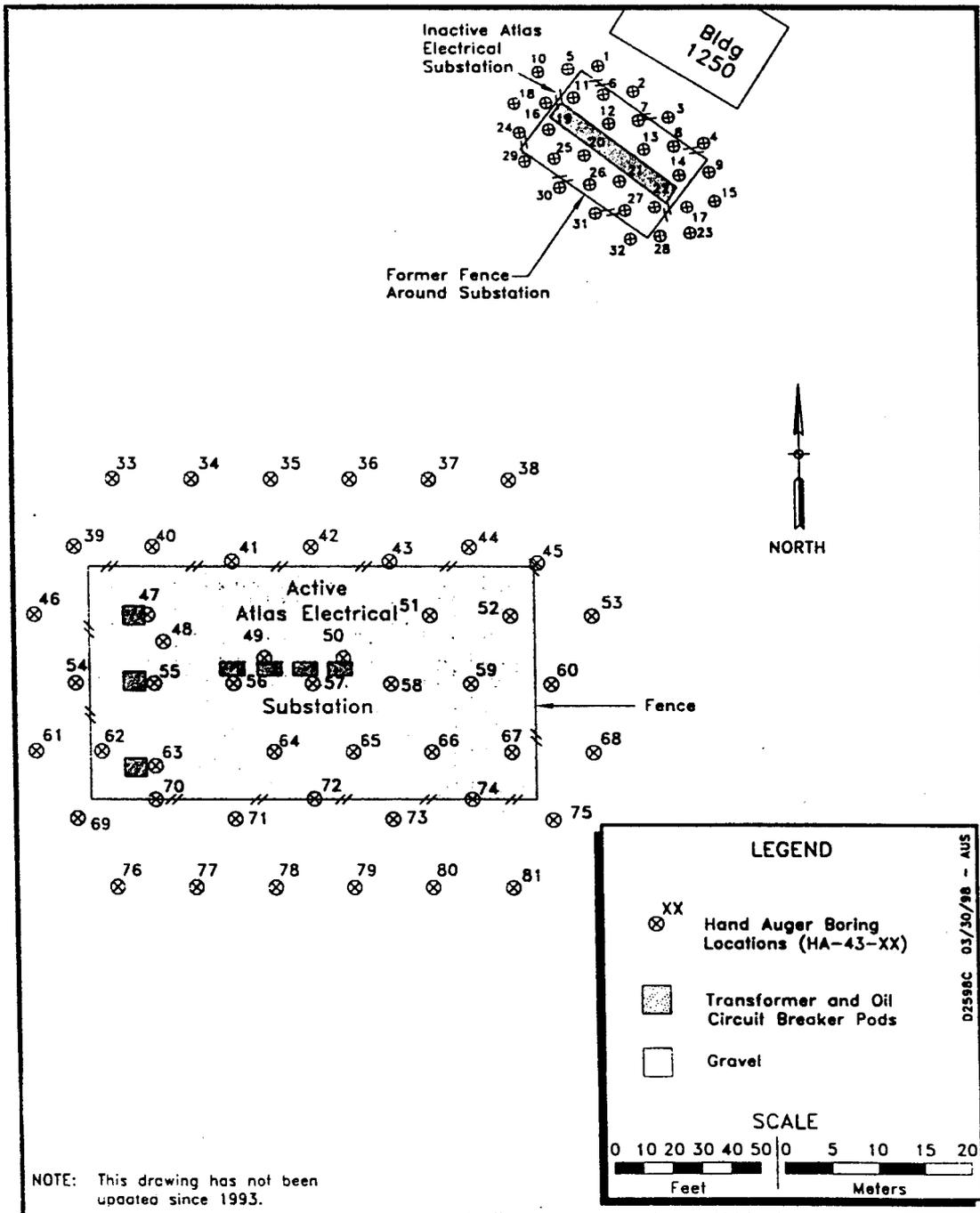
PCBs were detected only at the edge of the concrete transformer pad around the small inactive substation. Petroleum hydrocarbon concentrations were highest adjacent to the concrete transformer pad and decreased to the southeast limits of the sampling grid. PCBs were detected in the soils next to a transformer pad at the site of a recent oil circuit-breaker fire and spill in samples taken near the large active substation. The highest concentrations of petroleum hydrocarbons were detected next to the oil-circuit pad. PCB and petroleum hydrocarbon results indicate that these constituents are not as widespread as at the inactive station. Groundwater analyses were not conducted due to the physical and chemical properties of the contaminants. PCBs have low solubility and tend to adhere to soils. As a result, their ability to reach the water table is limited.

An RA determined that there were no existing or future potential risk of human receptors for this site. An environmental evaluation indicated an acceptable level of risk for this site. The no action alternative was chosen, with the following two requirements: 1) a RCRA-required plat of survey which will locate the site in relation to a permanent benchmark, and 2) the remediation of soils with petroleum contamination concentrations exceeding the 1,000 mg/kg TRPH cleanup criteria.

By December 1997, a total of 112.6 cubic yards of TRPH-contaminated soil had been excavated and removed from site AOC-G. The excavation was completed in two phases, and four of five initial closure samples indicated TRPH levels less than 1,000 mg/kg. Final closure samples collected after the second phase of excavation were analyzed; all samples contained less than 1,000 mg/kg TRPH.

Basis for Determination

AOC-G was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



AOC-G – Atlas Substation PCB Spill

Figure 69

70. AOC-L--Early Missile Test Site

Location

There are no SWMUs adjacent to AOC-L. AOC-L (IRP Site 37), the Early Missile Testing Site, is located east of the Sled Test Maintenance Area in the North Base Area. For a further description of the area, refer to Figure 70.

History

Used to develop rocket and missile systems from 1947 to 1955, AOC-L was identified as a potential spill site. The areas of concern at AOC-L include three block houses, the inclined track, a very large pit northwest of Block Houses 1142, four former step-down transformer stations, the fueling/staging area, and at least three vertical launching pads. Groundwater occurs at a depth of 5 to 40 ft bgl, and groundwater flow is influenced by southwest-trending arroyos in the vicinity of the site.

The source of waste is unknown. Fuels commonly used at these sites include kerosene, JP-4, and solid propellants. At some sites solid rocket propellants such as nitrocellulose, nitroglycerine, potassium perchlorate, and polysulfide were exclusively used. The amount of waste disposed of at this site is unknown. Results of a Phase I RI conducted in 1991 concluded that a release to the soil beneath OT-37 has likely occurred. The most common constituents are petroleum hydrocarbons and PCBs. A groundwater survey found all water quality parameters to be within established background levels. ←

Evaluation of Relevant Information

During the remedial investigation, four hand-auger soil samples were collected from each of the four step-down transformer stations. Each sample was screened in the field using the PCB Risc Test System to help select the sample for laboratory analysis. Based on the screening results, one sample from each pad was selected and submitted for laboratory analyses for PCB and petroleum hydrocarbon. Petroleum hydrocarbons were detected in samples from all the transformer locations at concentrations ranging from 21.6 mg/kg to 30,600 mg/kg. PCBs were detected at three of the transformer locations, although the concentrations of PCBs and petroleum hydrocarbons were inversely related.

At the launch facilities, a total of six soil boreholes were installed, and two samples from each borehole were collected and analyzed. Metals detected in soil samples collected at the launch facilities were compared to the background UTLs, and generally fell below these values. The exceptions, lead and cadmium, were detected at 14 mg/kg and 4.7 mg/kg, respectively. Since the detected level is within 10% of the background level for lead and the background level for cadmium has not been established, it is uncertain whether activities at OT-37 contributed to their presence. Petroleum hydrocarbons were detected in five of the 14 samples. With the exception of one sample, all petroleum hydrocarbon concentrations were less than 48 mg/kg. Several organic compounds were detected across the site. Ethyl benzene, tetrachloroethene, and xylene were detected in one sample while 1,1-dichloroethene was detected in two others.

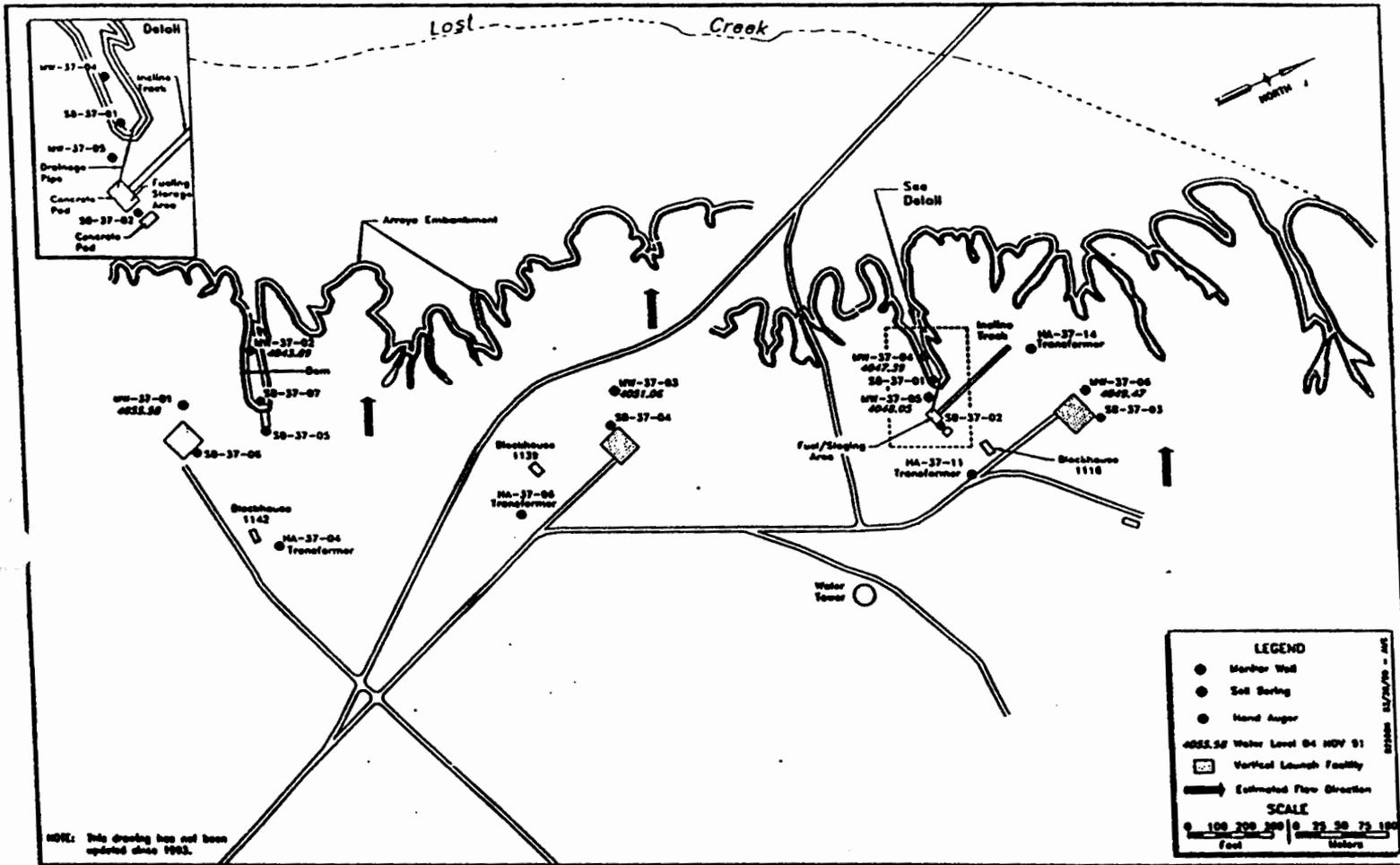
Six groundwater-monitoring wells were installed at locations downgradient of the potential spill sites. Samples from these wells were analyzed for VOCs, TDS, total metals, and anions and compared with their respective background levels. All water quality parameters were below background, and copper and arsenic were the only metals detected.

A RA was conducted to evaluate potential risks presented to human health and the environment by a release from AOC-L. The exposure evaluation determined that there are no existing or potential human receptors for this site. It was determined that the black-tailed jackrabbit may be at risk, although the ecological assessment was based on conservative assumptions.

As part of the no-action remedy and closeout procedures, a RCRA-required plat of survey locates the site in relation to a permanent benchmark.

Basis for Determination

AOC-L was determined to be appropriate for NFA status because even though a release to the environment may have occurred, the SWMU has been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat for human health or the environment.



AOC-L - Early Missile Test Site

Figure 70

J. SUPPORTING DOCUMENTATION

- Radian International, April 1999, *Draft Briefing Document for the Table 1 Solid Waste Management Units, RCRA Corrective Action Program, Holloman AFB, New Mexico.*
- Radian International, April 1999, *Draft Briefing Document for the Table 2 Solid Waste Management Units, RCRA Corrective Action Program, Holloman AFB, New Mexico.*
- Radian International, April 1999, *Draft Briefing Document for the Table 3 Solid Waste Management Units, RCRA Corrective Action Program, Holloman AFB, New Mexico.*
- Foster Wheeler, December 1997, *Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil Water Separator and Waste Oil Tank Removals.*
- Radian, October 1997, *RFI Report, Table 3 RCRA Facility Investigation, Volume I.*
- Radian, December 1998, *Briefing Document for the Table 3 Solid Waste Management Units, RCRA Corrective Action Program.*
- Foster Wheeler, July 1997, *Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil Water Separator and Waste Oil Tank Removals.*
- Radian, June 1997, *Phase II RCRA Facility Investigation Report, Table 1 SWMUs, Volume I.*
- Radian, June 1997, *Draft Final Phase II RCRA Facility Investigation Report, Table 1 SWMUs.*
- Radian, September 1996, *Decision Documents, Installation Restoration Program.*
- Radian, December 1995, *Phase I RCRA Facility Investigation Report, Table 2 Solid Waste Management Units, Volume I.*
- EBASCO, 1996, *Closure Report for Remediation of POL-Contaminated Sites and OW/S Removals July-November 1995.*
- Radian, September 1994, *Decision Documents, Investigation, Study, and Recommendation for 29 Waste Sites.*
- Radian, September 1994, *Decision Documents, Installation Restoration Program.*
- Radian, 1992, *Remedial Investigation (RI) Report, Volume 1 - Text and Plates, Investigation, Study, and Recommendation for 29 Waste Sites.*
- Radian, 1992, *Risk Assessment Report for the Remedial Investigation - Investigation, Study and Recommendation for 29 Waste Sites.*
- CH2M Hill, 1983, Records search.