



October 30, 2000

Court Fesmire
49 CES/CEV
550 Tabosa Avenue
Holloman AFB, NM 88330
(505) 572-5395

RE: Final Statement of Basis-Approval of No Further Action for 70 Solid Waste Management Units (SWMUs)

Mr. Fesmire,

Enclosed are two copies of the Final Statement of Basis and one electronic copy submitted pursuant to Contract F44650-94-D0003, Delivery Order No. 6X07. Four copies and one electronic copy are also being sent to Cornelius Amindyas at the New Mexico Environment Department.

Please do not hesitate to call me at (505) 878-1012 or Pat Nelson at (505) 672-2106 if you have any questions.

Sincerely,

Tamara A. Singletary
Civil Engineer

Enclosures

cc: Jose Gallegos, Holloman AFB (w/o enc.)
Cornelius Amindyas, New Mexico Environment Department
Pat Nelson, Radian
File (630238.07)

**FINAL
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:
Radian International
6400 Uptown Blvd., NE, Suite 250E
Albuquerque, NM 87110**

October 2000

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List of Acronyms

AFB	Air Force Base
AOC	Area of Concern
bgl	below ground level
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
GWQB	Ground Water Quality Bureau
HSWA	Hazardous and Solid Waste Amendments
HWB	Hazardous Waste Bureau
IRP	Installation Restoration Program
NFA	No Further Action
NMED	New Mexico Environment Department
O/WS	Oil/Water Separator
PCBs	Polychlorinated Biphenyls
POL	Petroleum, Oils, and Lubricants
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RSI	Request for Supplemental Information
SVOCs	Semivolatile Organic Compounds
SWMU	Solid Waste Management Unit
TBD	To Be Determined
TPH	Total Petroleum Hydrocarbons
TRPH	Total Residual Petroleum Hydrocarbons
UTL	Upper Tolerance Limit
VOCs	Volatile Organic Compounds
WOT	Waste Oil Tank

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 southwest 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 49th Fighter Wing, which includes pilot training, mobility support, and combat support operations. The primary Air Force Materiel Command 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. A general layout of the facility is provided in Figure A. Locations of SWMUs are identified on Figures B, C, and D.

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 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 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 Waste 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/Area of Concern (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 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 in Section I. Table 2 provides a list of SWMUs in order of NFA criterion.

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 1999 in Alamogordo, NM, at the Alamogordo Civic Center to request removal of 104 SWMUs. 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 Waste Bureau (HWB) was good at communicating with other bureaus and that she would keep in touch with HWB.

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 Waste Bureau
2044-A Galisteo
Santa Fe, New Mexico 87505
(505) 827-1558

Table 1. SWMUs Approved for No Further Action

Solid Waste Management Unit Number	Installation Restoration Program Site Number	Unit Name	No Further Action Criterion	Administrative Record/Information Repository No.	Administrative Record/Information Repository Title
1	N/A	Building 55 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
2	N/A	Building 121 O/WS	5	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
3	N/A	Building 130 O/WS	5	1093	December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
5	N/A	Building 137 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
6	N/A	Building 193 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
7	N/A	Building 198 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
9	N/A	Building 282 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
10	N/A	Building 283 O/WS	5	1011	February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995
11	N/A	Building 300 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
12	N/A	Building 304 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
13	N/A	Building 304A O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
14	N/A	Building 306 O/WS	5	1093	December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
15	N/A	Building 309 O/WS	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
16	N/A	Building 315 O/WS	5	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
17	N/A	Building 316 O/WS	5	1093	December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
18	N/A	Building 500 O/WS	5	1011	February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995
21	N/A	Building 702 O/WS	3	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
22	N/A	Building 704 O/WS	3	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
23	N/A	Building 800 O/WS	5	1093	December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
24	N/A	Building 801 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
25	N/A	Building 805 O/WS	3	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
26	N/A	Building 809 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I

Table 1 (Continued)

Solid Waste Management Unit Number	Installation Restoration Program Site Number	Unit Name	No Further Action Criterion	Administrative Record/Information Repository No.	Administrative Record/Information Repository Title
27	N/A	Building 810 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
28	N/A	Building 822 O/WS	5	1093	December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
29	N/A	Building 827 O/WS	4	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
30	N/A	Building 830 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
31	N/A	Building 855 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
32	N/A	Building 868 O/WS	5	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
33	N/A	Building 869 O/WS	3	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
34	N/A	Building 902 O/WS	5	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
35	N/A	Building 903 O/WS	3	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
36	N/A	Building 1001 O/WS	5	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
37	N/A	Building 1080 O/WS	5	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
38	N/A	Building 1080A O/WS	5	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
40	N/A	Building 1166 O/WS	5	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
41	N/A	Building 1266 O/WS	5	909, 1056	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
42	SS-09	Building 1 Waste Accumulation Area	3	468	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
54	N/A	Building 702 Waste Accumulation Area	5	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
55	N/A	Building 702A Waste Accumulation Area	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
56	N/A	Building 807 Waste Accumulation Area	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
63	N/A	Building 867 Waste Accumulation Area	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
71	N/A	Building 1178A Waste Accumulation Area	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
78	N/A	Trim Pad 3 Waste Accumulation Area	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
91	N/A	Building 816 Wash Rack	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
102	OT-04	Acid Trailer Burial Site	5	899	June 1995, Draft Final Phase II RFI Report – Table 1 SWMUs, Volume I
107	OT-11	Main Base Substation PCB Disposal Area	5	468, 1093	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites; December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals

Table 1 (Continued)

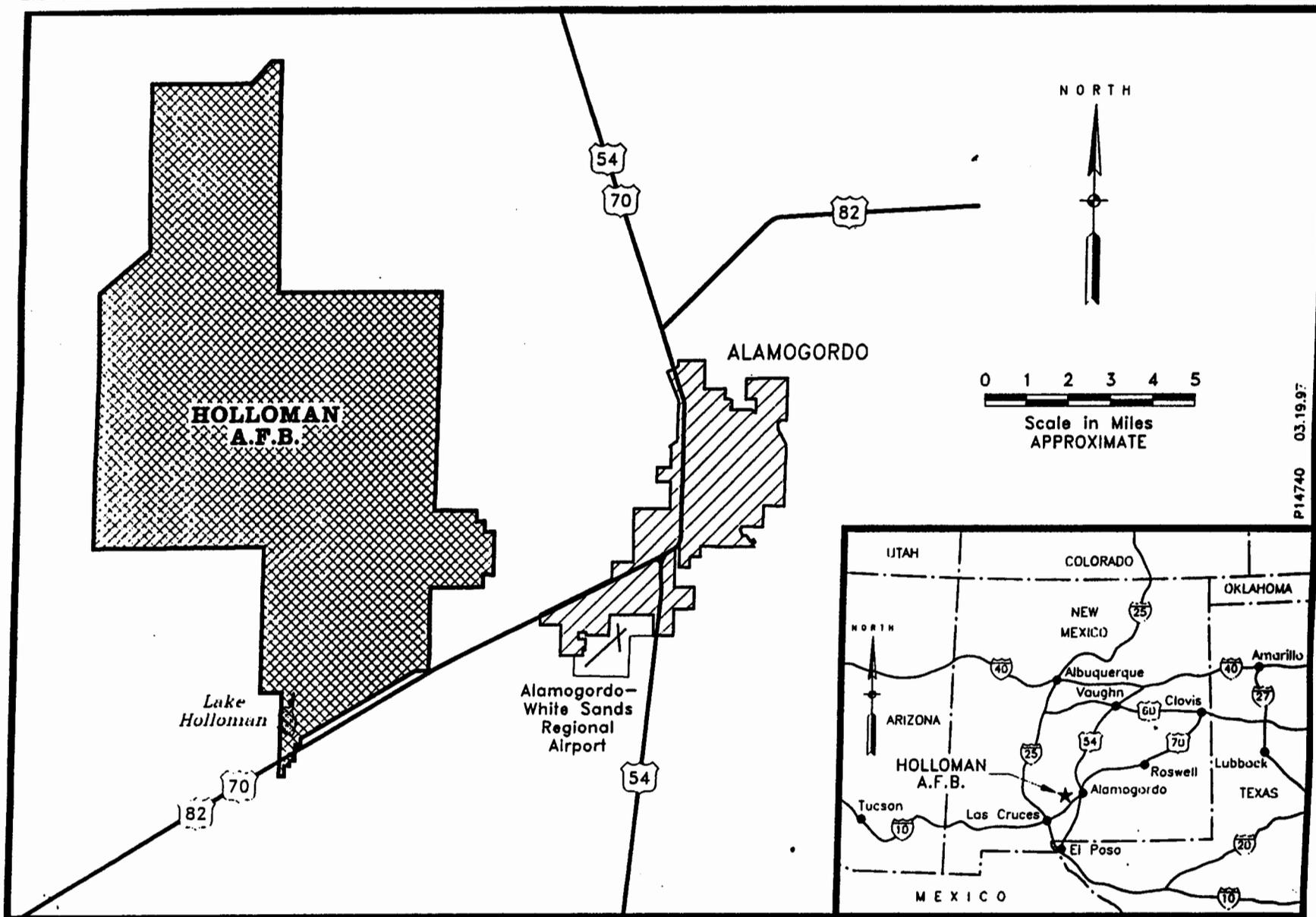
Solid Waste Management Unit Number	Installation Restoration Program Site Number	Unit Name	No Further Action Criterion	Administrative Record/Information Repository No.	Administrative Record/Information Repository Title
119	N/A	Building 121 Waste Oil Tank	4	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
120	N/A	Building 309 Waste Oil Tank	1	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
121	N/A	Building 316 Waste Oil Tank	5	810, 1093	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
123	N/A	Building 704 Waste Oil Tank	5	810, 1011, 1093, TBD	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995; December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals; April 1999, Results of Additional Soil Sampling for Remediation of the POL-Contaminated SWMU 123, at Holloman AFB, New Mexico (letter report)
124	N/A	Building 752 Waste Oil Tank	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
125	N/A	Building 868 Fire Water Tank	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
126	N/A	Building 1001 Waste Oil Tank	5	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
128	N/A	Building 1166 Waste Oil Tank	5	810, 1056	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I; July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
129	SS-36	Buildings 1191 and 1192 Spill Tanks	3	1011	February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995
133	SD-47	Building 703 Washrack Discharge Pit	5	1103, TBD	March 1998, Final Characterization Summary and NFA Documentation for IRP Sites SS2/5 POL Yard, SD-47 POL Washrack Area, and SS-60 Building 828; March 2000, Request for Supplemental Information (RSI) on AOC-T, SWMUs 133 and 230 Characterization Report dated March 1998
134	OT-24	Buildings 920-924 Drainage Ditch	3	899	June 1995, Draft Final Phase II RFI Report – Table 1 SWMUs, Volume I
138	N/A	Building 1166 O/WS Drainage Pit	5	1011	February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995
155	N/A	Sludge Drying Beds	5	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
156	N/A	Imhoff Tanks	5	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
164	N/A	Building 1080 Pond	5	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
171	FT-31	Fire Department Training Area 2	3	899	June 1995, Draft Final Phase II RFI Report – Table 1 SWMUs, Volume I
178	SS-36	Building 1191 Fuel Runoff Pits	3	1011	February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and O/WS Removals, Holloman AFB, New Mexico, July – November 1995
184	N/A	Wastewater Recirculation Line	3	810	October 1994, Draft Final Phase I RFI Report – Table 2 SWMUs, Volume I
192	OT-41	Coco Block House Disposal Well	3	468	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
212	SD-28	Former North Area Wash Rack	3	468	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
230	SS-60	Building 828 Fuel Spill Site	5	1103, TBD	March 1998, Final Characterization Summary and NFA Documentation for IRP Sites SS2/5 POL Yard, SD-47 POL Washrack Area, and SS-60 Building 828; March 2000, Request for Supplemental Information (RSI) on AOC-T, SWMUs 133 and 230 Characterization Report dated March 1998
231	LF-58	Incinerator Landfill	5	909	July 1995, Draft Final RFI Report – Table 3 RFI, Volume I
AOC-D	SD-26	Building 882 Spills	3	468	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
AOC-G	DP-43	Atlas Substation PCB Spill	5	468, 1093	October 1992, RI Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites; December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals

Table 2. SWMUs in Order of NFA Criterion

NFA Criterion 1:	SWMU 120
NFA Criterion 3:	SWMU 5 SWMU 6 SWMU 9 SWMU 15 SWMU 21 SWMU 22 SWMU 24 SWMU 25 SWMU 26 SWMU 30 SWMU 33 SWMU 35 SWMU 42 SWMU 55 SWMU 56 SWMU 63 SWMU 71 SWMU 78 SWMU 91 SWMU 124 SWMU 125 SWMU 129 SWMU 134 SWMU 171 SWMU 178 SWMU 184 SWMU 192 SWMU 212 SWMU AOC-D
NFA Criterion 4:	SWMU 29 SWMU 119
NFA Criterion 5:	SWMU 1 SWMU 2 SWMU 3 SWMU 7 SWMU 10 SWMU 11 SWMU 12 SWMU 13 SWMU 14 SWMU 16 SWMU 17 SWMU 18 SWMU 23 SWMU 27 SWMU 28

Table 2. (continued)

NFA Criterion 5:	SWMU 31
	SWMU 32
	SWMU 34
	SWMU 36
	SWMU 37
	SWMU 38
	SWMU 40
	SWMU 41
	SWMU 54
	SWMU 102
	SWMU 107
	SWMU 121
	SWMU 123
	SWMU 126
	SWMU 128
	SWMU 133
	SWMU 138
	SWMU 155
	SWMU 156
	SWMU 164
	SWMU 230
	SWMU 231
	SWMU AOC-G



General Location of Holloman Air Force Base

Figure A

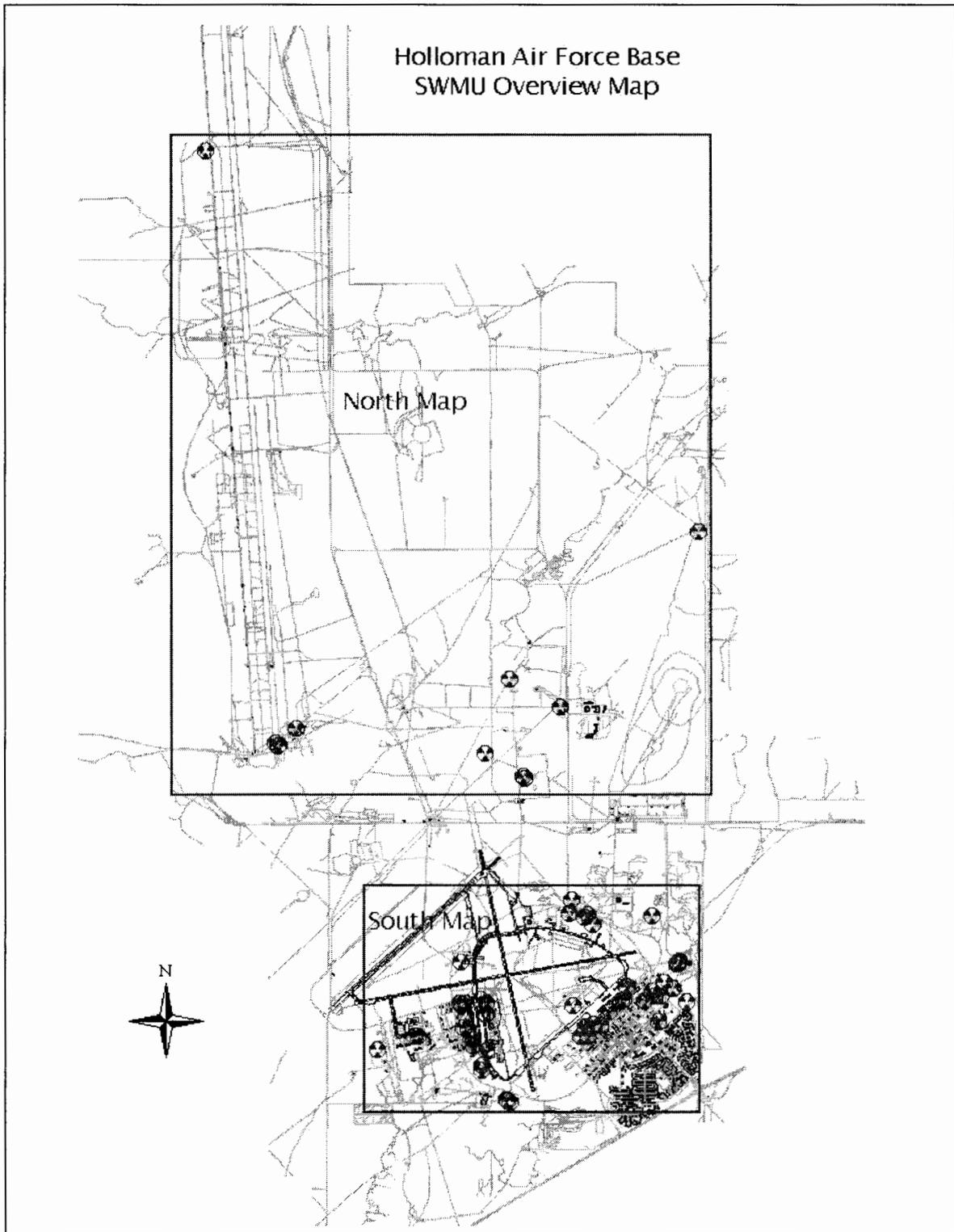


Figure B

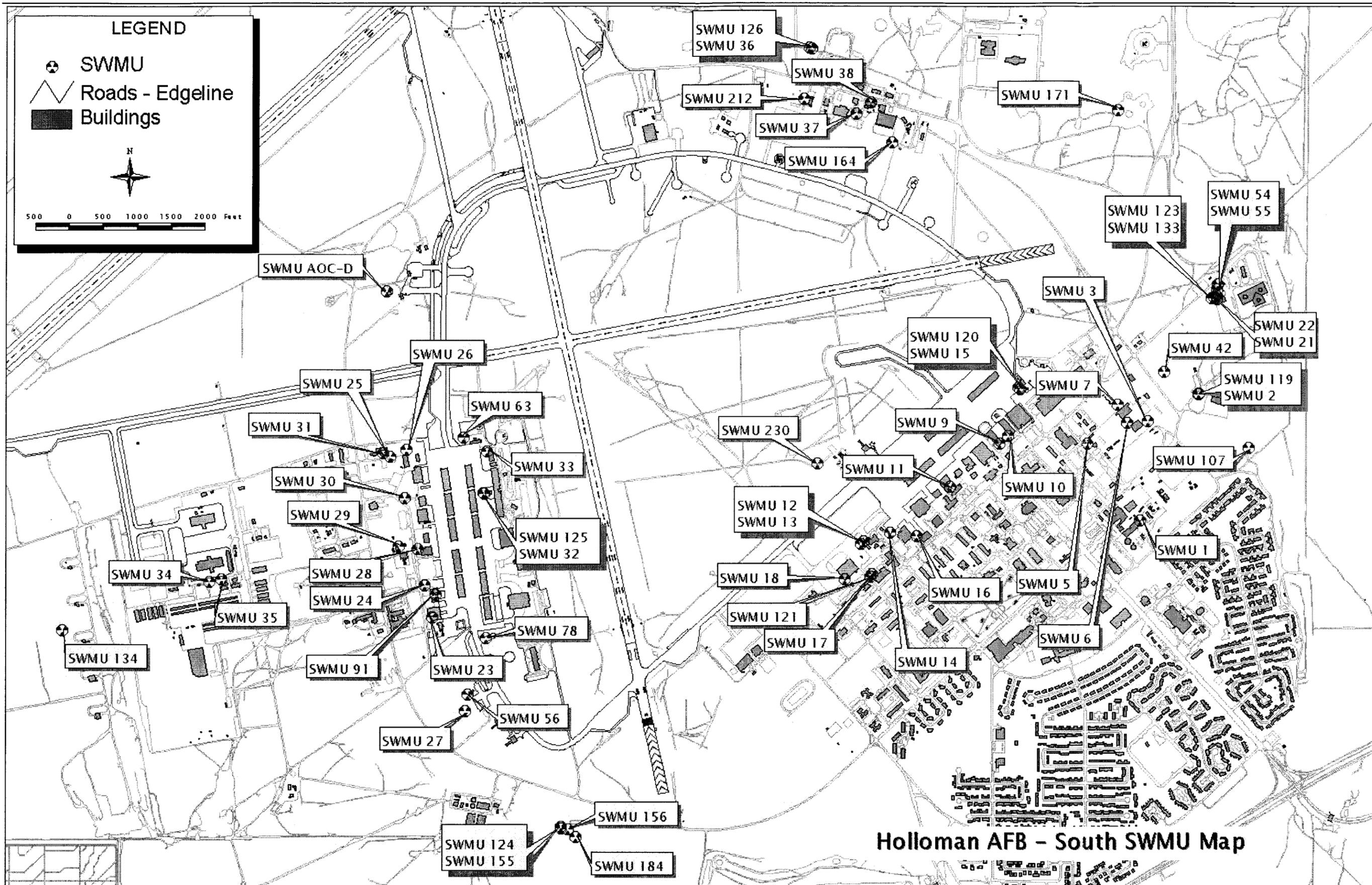


Figure C

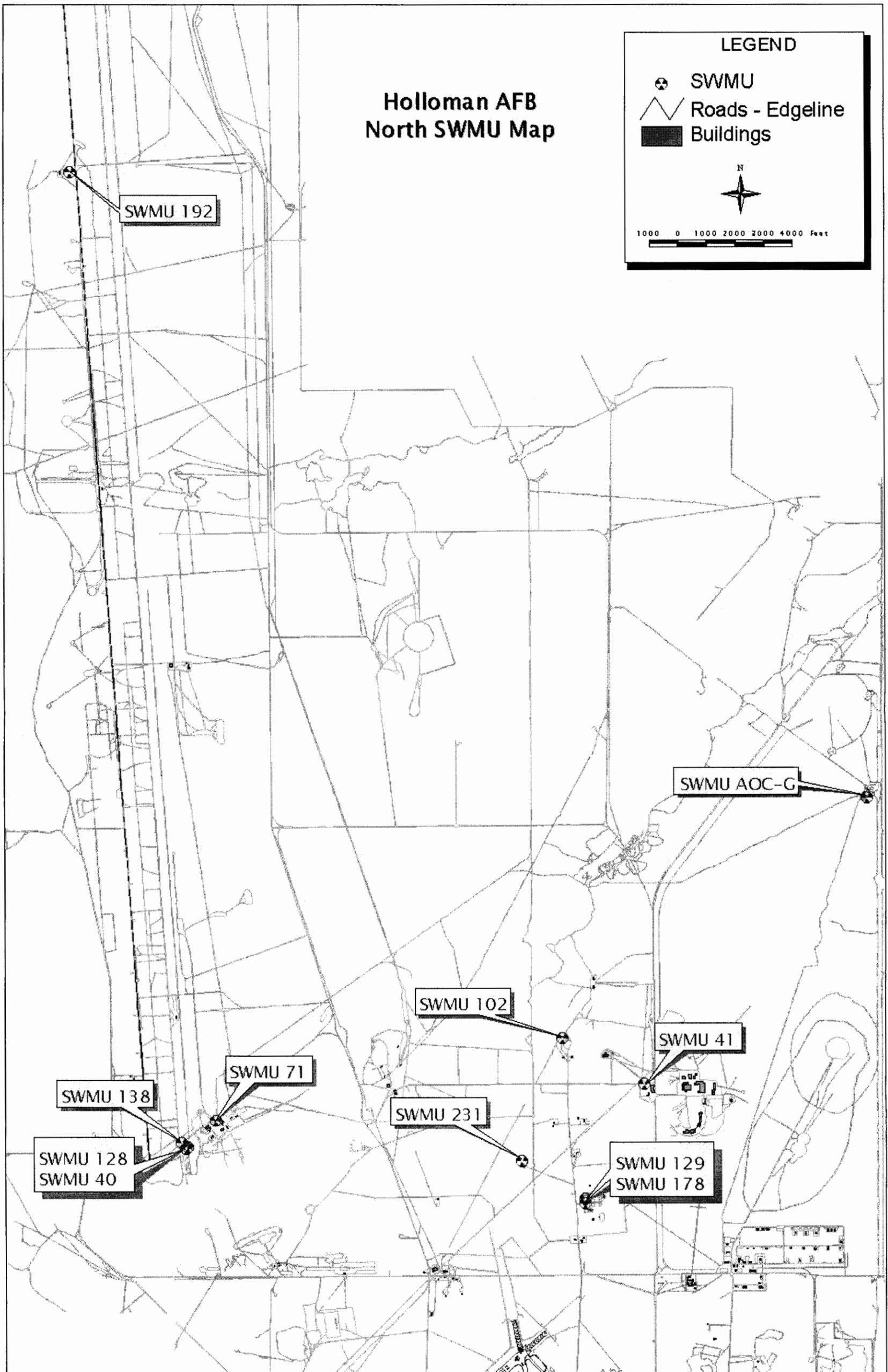


Figure D

I. DESCRIPTION OF SWMUs PROPOSED FOR NO FURTHER ACTION

SWMU 1--Building 55 Oil/Water Separator (O/WS)

Location

SWMU 1 is located near Building 55. For a further description of the area, refer to Figure 1.

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 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 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 100 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 was not detected at any groundwater sampling point or in any soil boring.

A site-specific risk assessment was conducted after a risk-based screen identified benzo (a)-pyrene, mercury, and thallium as chemicals of concern 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.

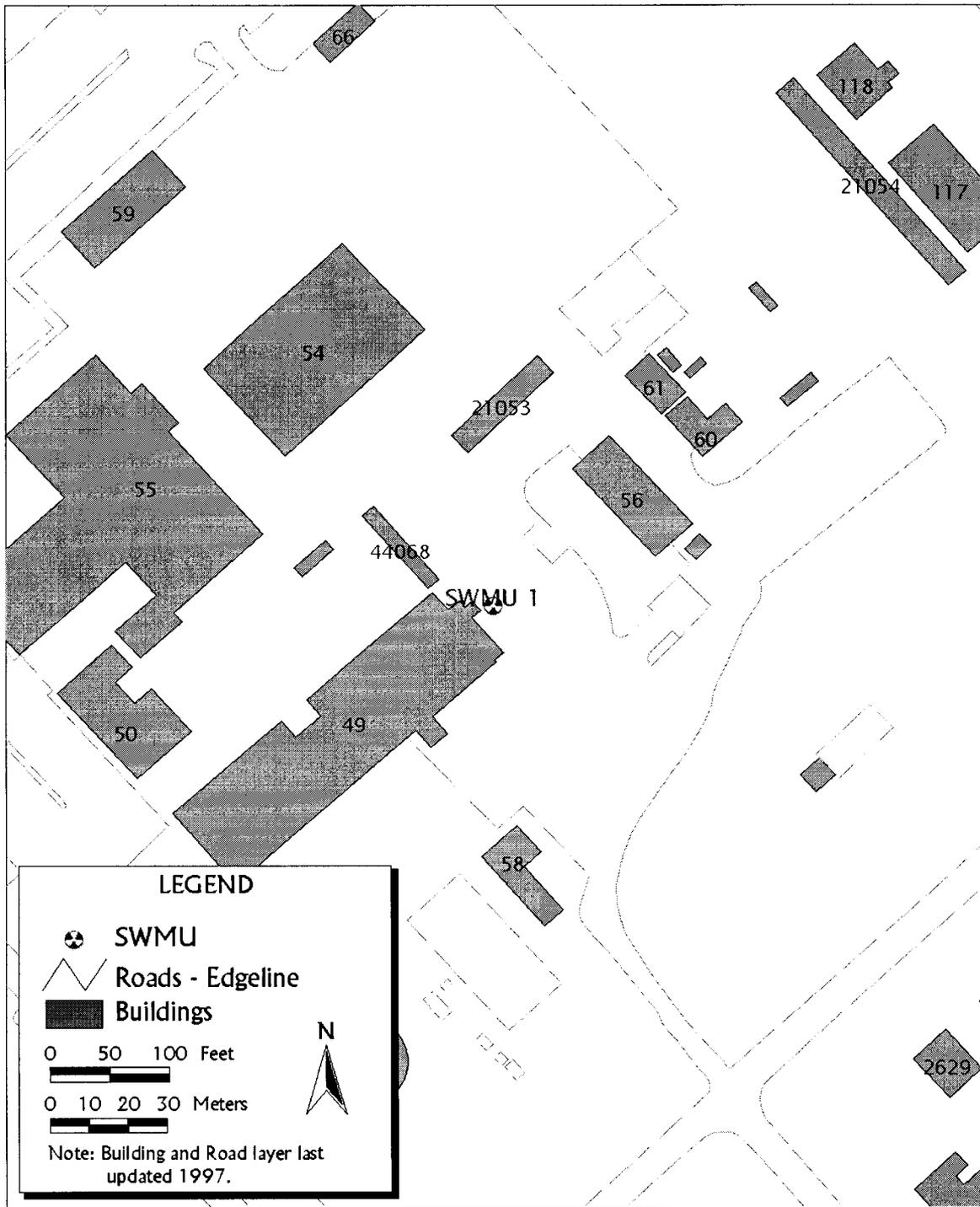
Ten closure samples were collected from the excavation at this site. The analytical results, which represent in-place soil conditions upon completion of excavation, were less than 1,000 mg/kg TRPH for all closure samples. SWMU 1 remains active, and is managed in accordance with the *Guidance on Management 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 1 - Building 55 Oil/Water Separator

Figure 1

SWMU 2--Building 121 Oil/Water Separator (O/WS)**Location**

SWMU 2 is adjacent to SWMU 119--Building 121 Waste Oil Tank and SWMU 101--Building 121 Landfill. 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 2.

History

The period of operation for this site was from 1984 to 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 Remedial Investigation 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 chemicals of potential concern. Although SWMU 2 was recommended for NFA, the O/WS was removed in 1997 as part of the Base-wide Petroleum, Oils, and Lubricants 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.

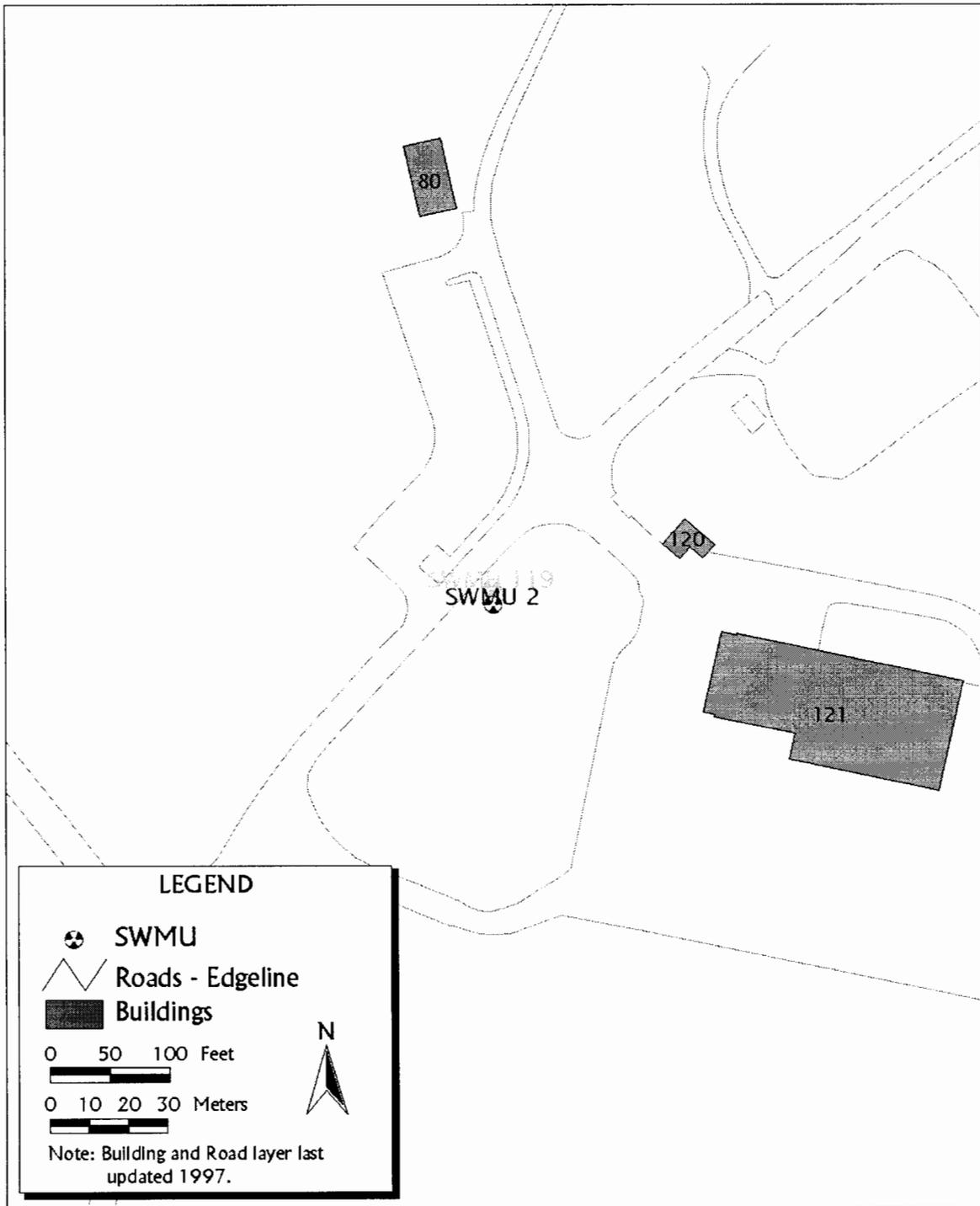
Five closure soil samples were collected at SWMU 2 after restoration activities were completed. Analytical results were less than Base cleanup criteria for all closure samples.

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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 2 - Building 121 Oil/Water Separator

Figure 2

SWMU 3--Building 130 Oil/Water Separator (O/WS)**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 3.

History

The date when this site was first used is unknown. The O/WS was removed during Phase I Petroleum, Oils, and Lubricants 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 a 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 RCRA Facility Investigation in 1997 because the unit was scheduled for removal. Instead, soil samples were collected during Phase I Petroleum, Oils, and Lubricants restoration activities and analyzed for TRPH, Toxicity Characteristic Leaching Procedure 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.

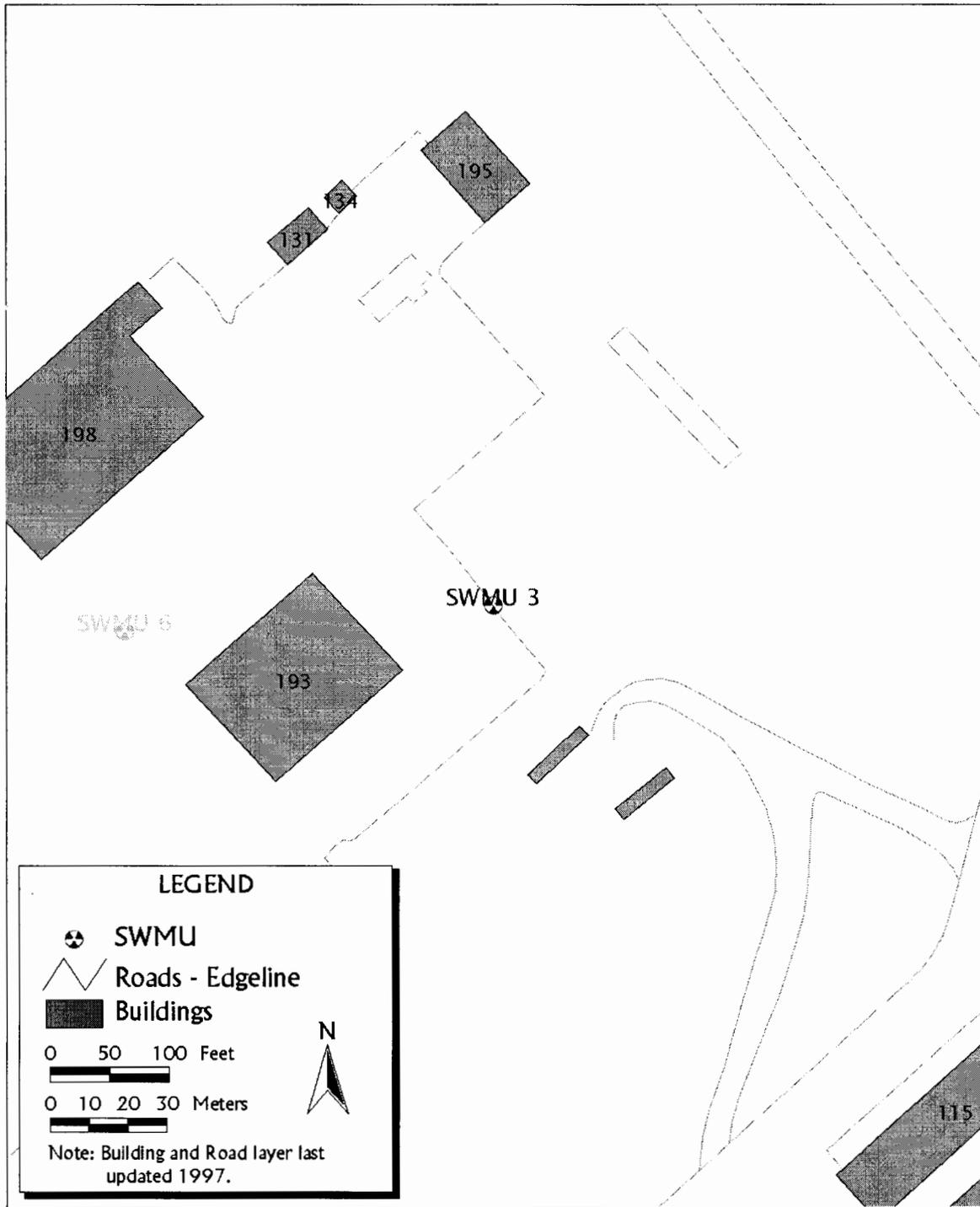
Following excavation activities, eight closure samples were collected from the side walls of the excavation and analyzed for TRPH, metals, and selected VOCs and SVOCs. The highest TRPH concentration (24 mg/kg) was well below the cleanup standard of 1,000 mg/kg. Eleven soil stockpile samples were also collected from this site and analyzed for TRPH, PCBs, Toxicity Characteristic Leaching Procedure, 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 to human health or the environment.

References

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 3 - Building 130 Oil/Water Separator

Figure 3

SWMU 5--Building 137 Oil/Water Separator (O/WS)

Location

This SWMU is not located near any of the other SWMUs. SWMU 5 is located near Building 137. 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 4.

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 of Relevant Information

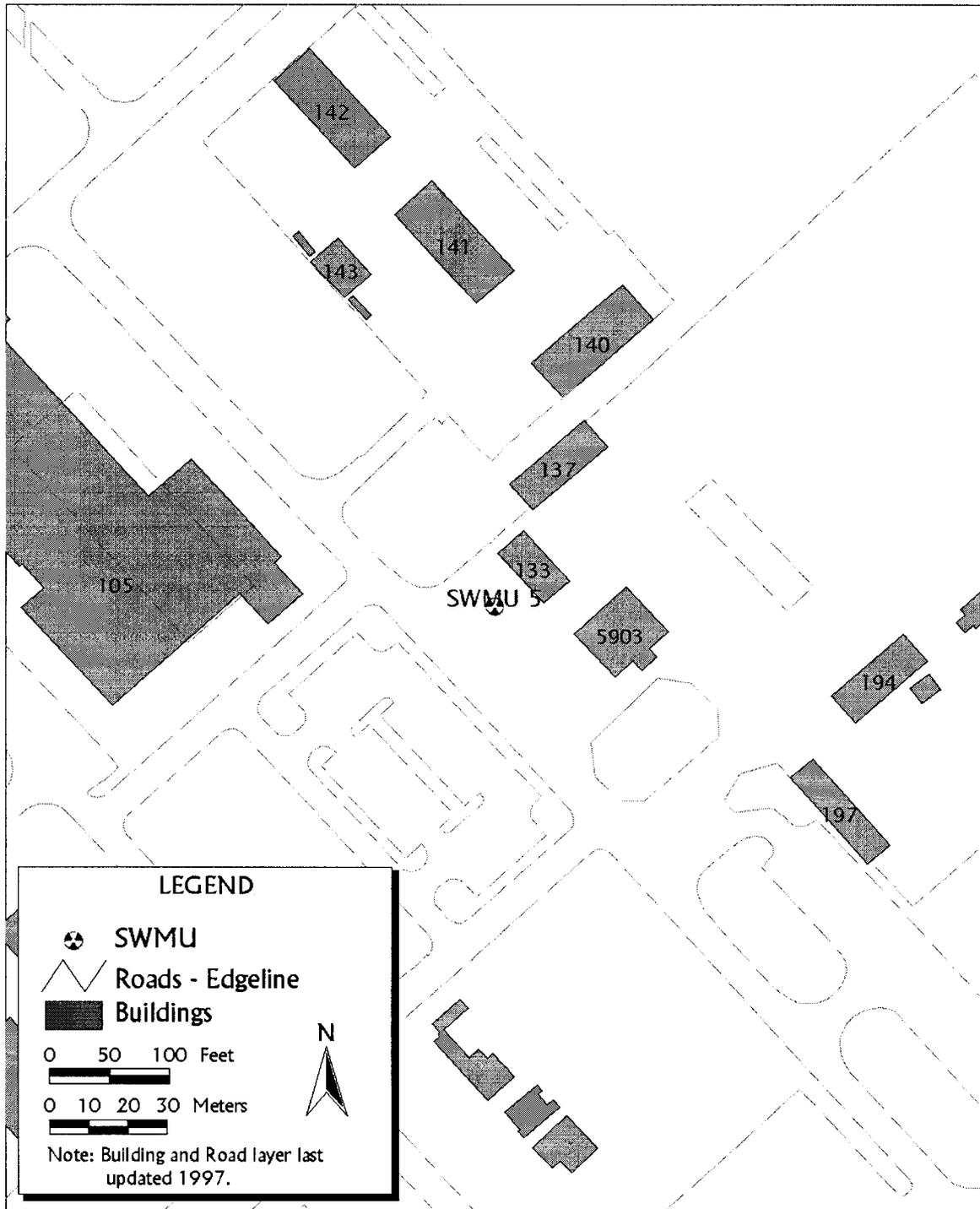
It was determined that a site investigation was not necessary at SWMU 5.

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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 5 - Building 137 Oil/Water Separator

Figure 4

SWMU 6--Building 193 Oil/Water Separator (O/WS)

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 5.

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 of Relevant Information

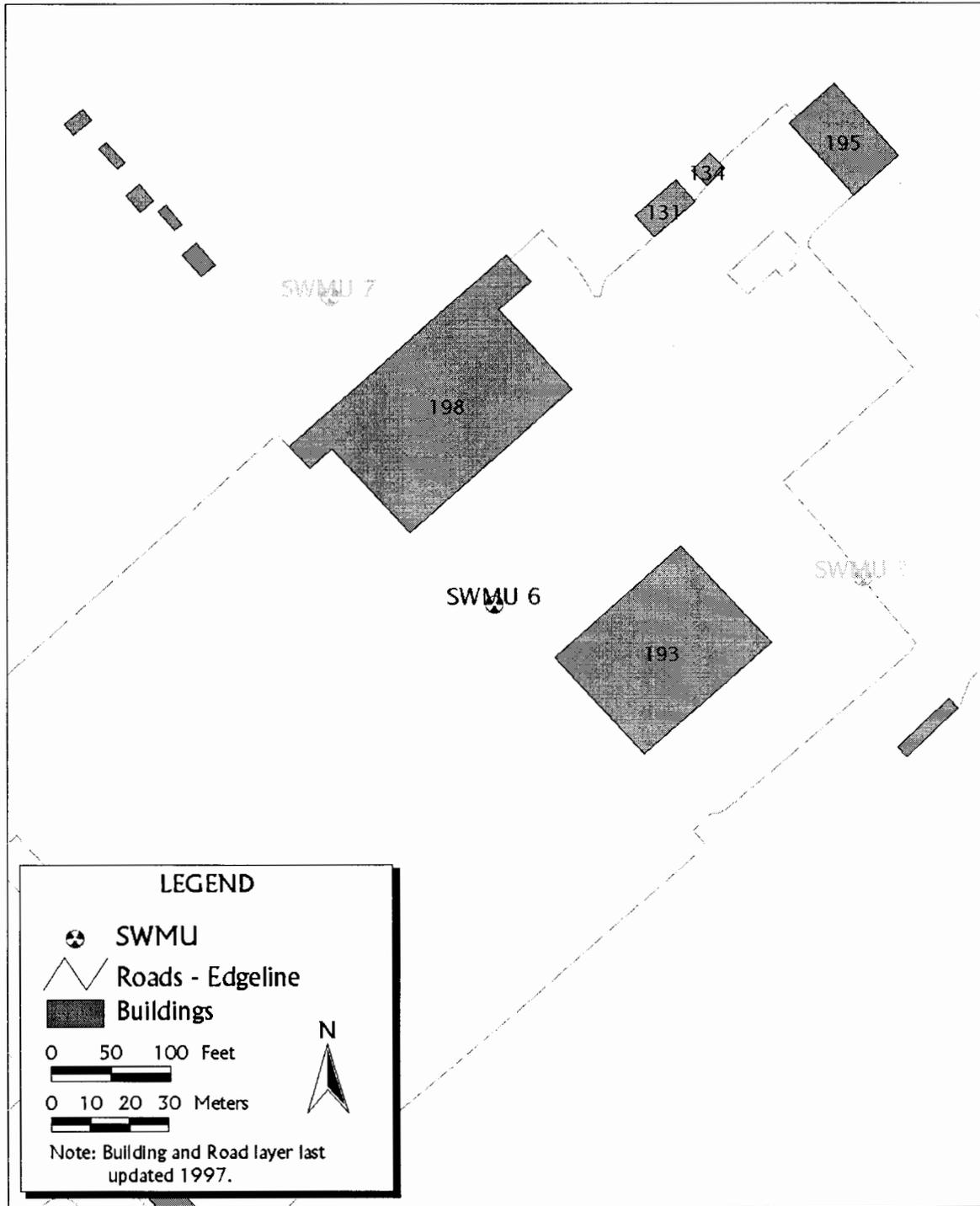
It was determined that a site investigation was not necessary at SWMU 6.

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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 6 - Building 193 Oil/Water Separator

Figure 5

SWMU 7--Building 198 Oil/Water Separator (O/WS)**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 6.

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 RCRA Facility Investigation 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. Light Non-Aqueous Phase Liquid was not detected at any groundwater sampling point or in any borehole. The results of the RCRA Facility Investigation concluded that the subsurface release was confined to an area directly north and west of the O/WS.

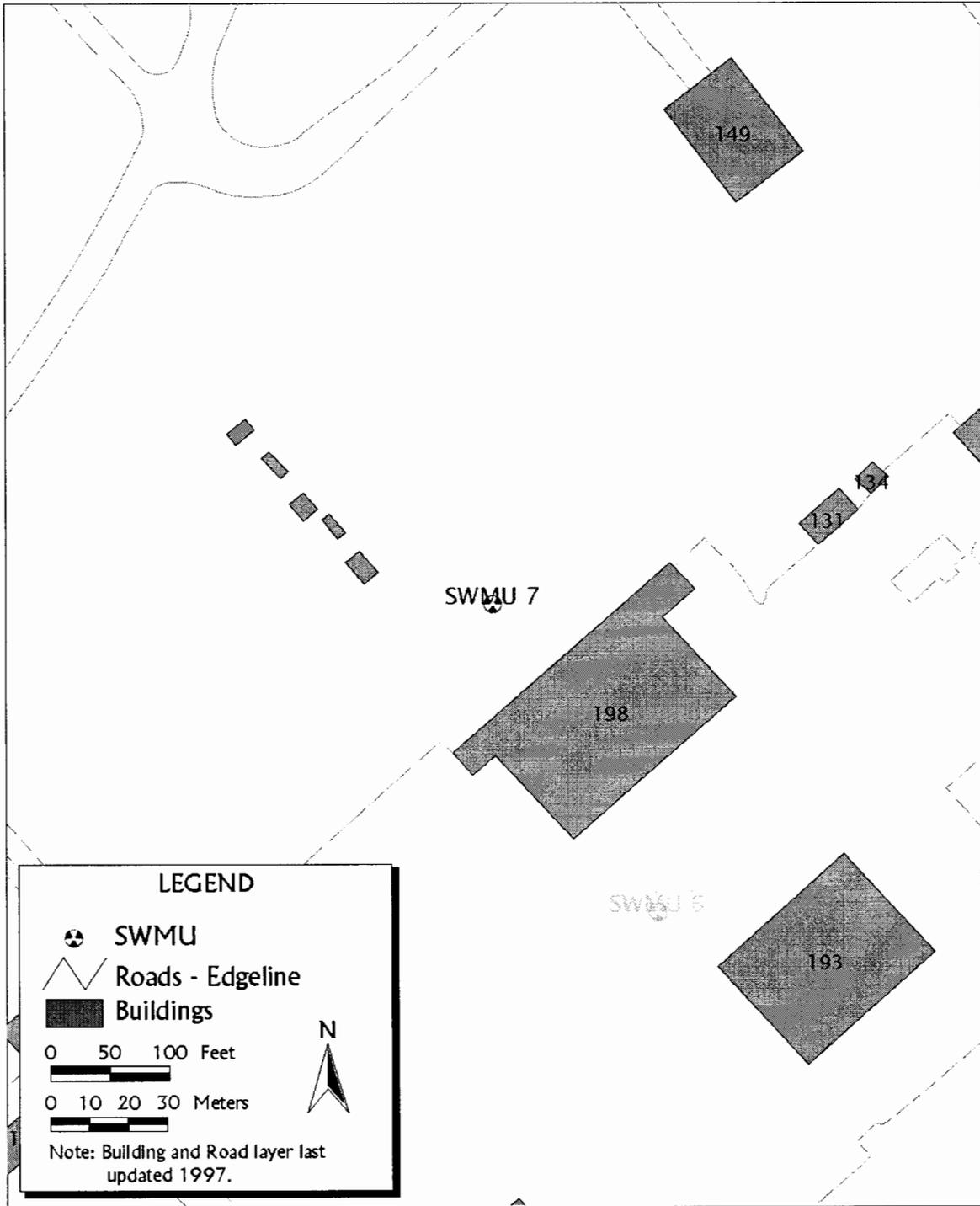
The risk-based screen did not identify any chemicals of concern, and conditional NFA was recommended for SWMU 7 with the requirement that soils exceeding 1,000 mg/kg TRPH be remediated. By July 1997, SWMU 7 had been excavated, removed, decontaminated, and broken into manageable pieces. The piping was 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 7 - Building 198 Oil/Water Separator

Figure 6

SWMU 9--Building 282 Oil/Water Separator (O/WS)**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 7.

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 RCRA Facility Investigation. During a Phase I Remedial Investigation, 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.

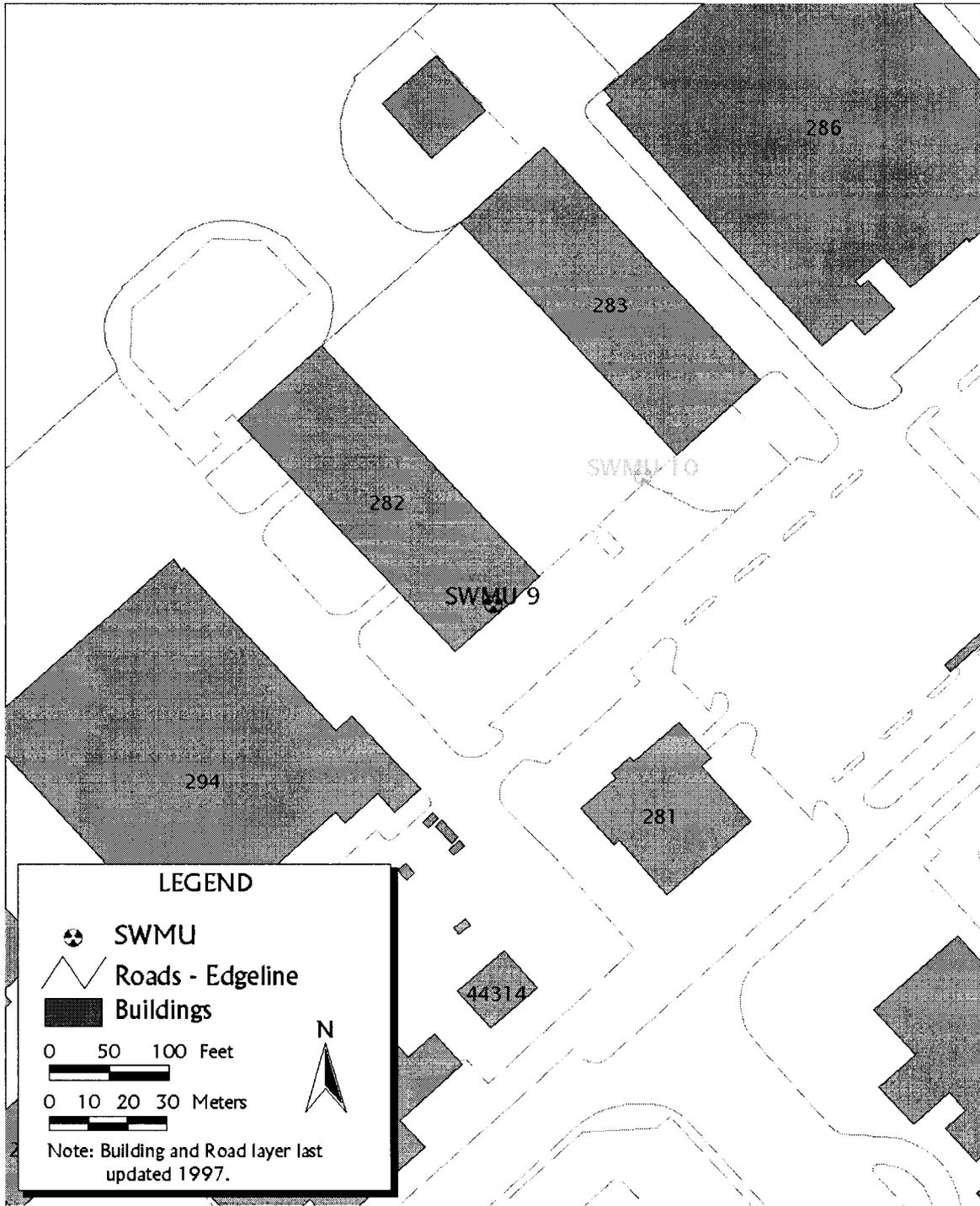
Although TRPH results indicate that there has not been a release from the separator, slightly elevated concentrations at borehole 09-02 suggest that an isolated surface spill may have occurred at this location. The TRPH results, however, were well below the 100 mg/kg release criterion, and borehole logs 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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 9 - Building 282 Oil/Water Separator

Figure 7

SWMU 10--Building 283 Oil/Water Separator (O/WS)

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 8.

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 of 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

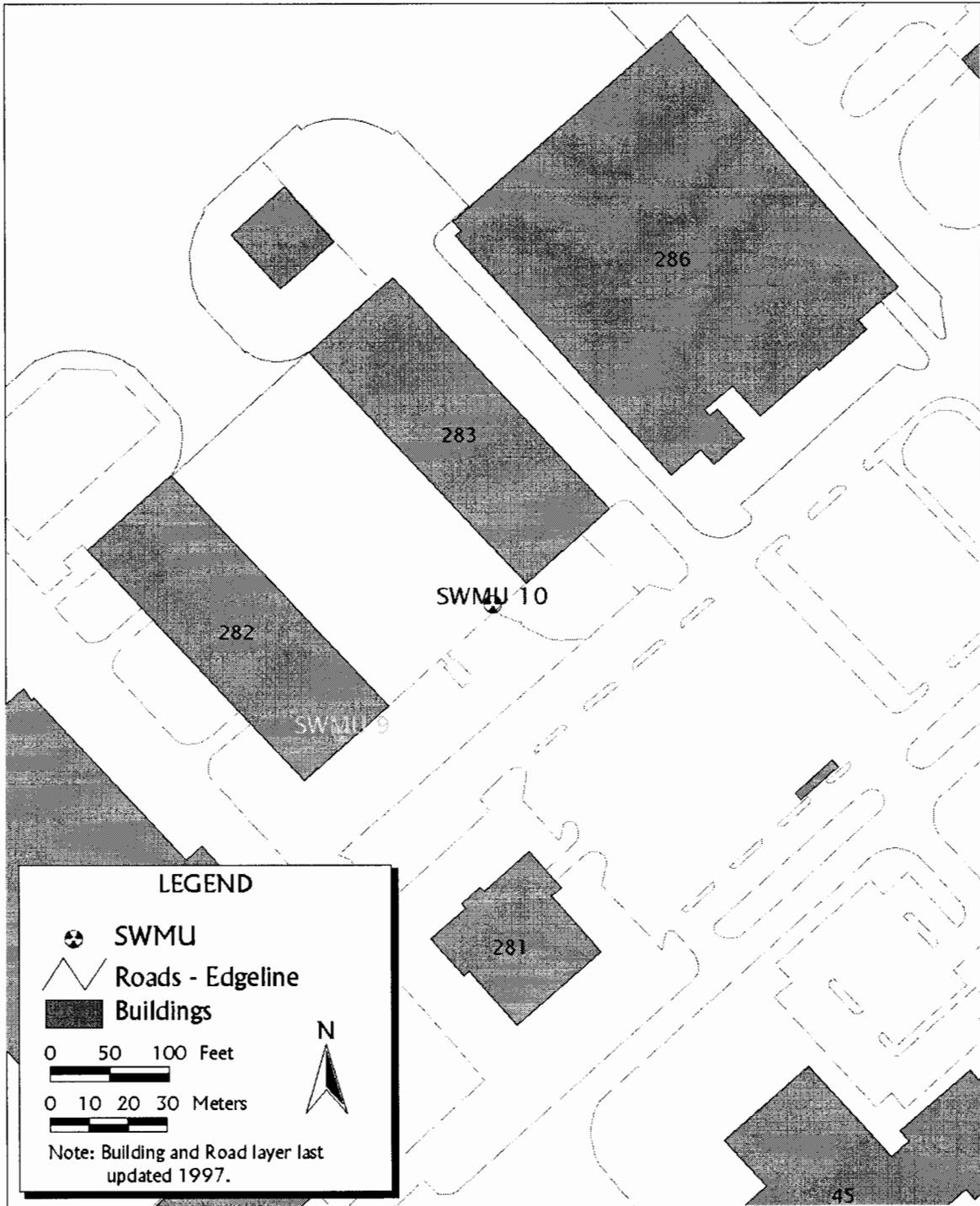
It was determined that a site investigation was not necessary at SWMU 10.

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 to human health or the environment.

References

February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995



SWMU 10 - Building 283 Oil/Water Separator

Figure 8

SWMU 11--Building 300 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to SWMU 11. SWMU 11 is located near Building 300. 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 9.

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 RCRA Facility Investigation. 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 risk assessment was performed to evaluate further risk. It showed that concentrations of the chemicals of concern 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. Laboratory 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.

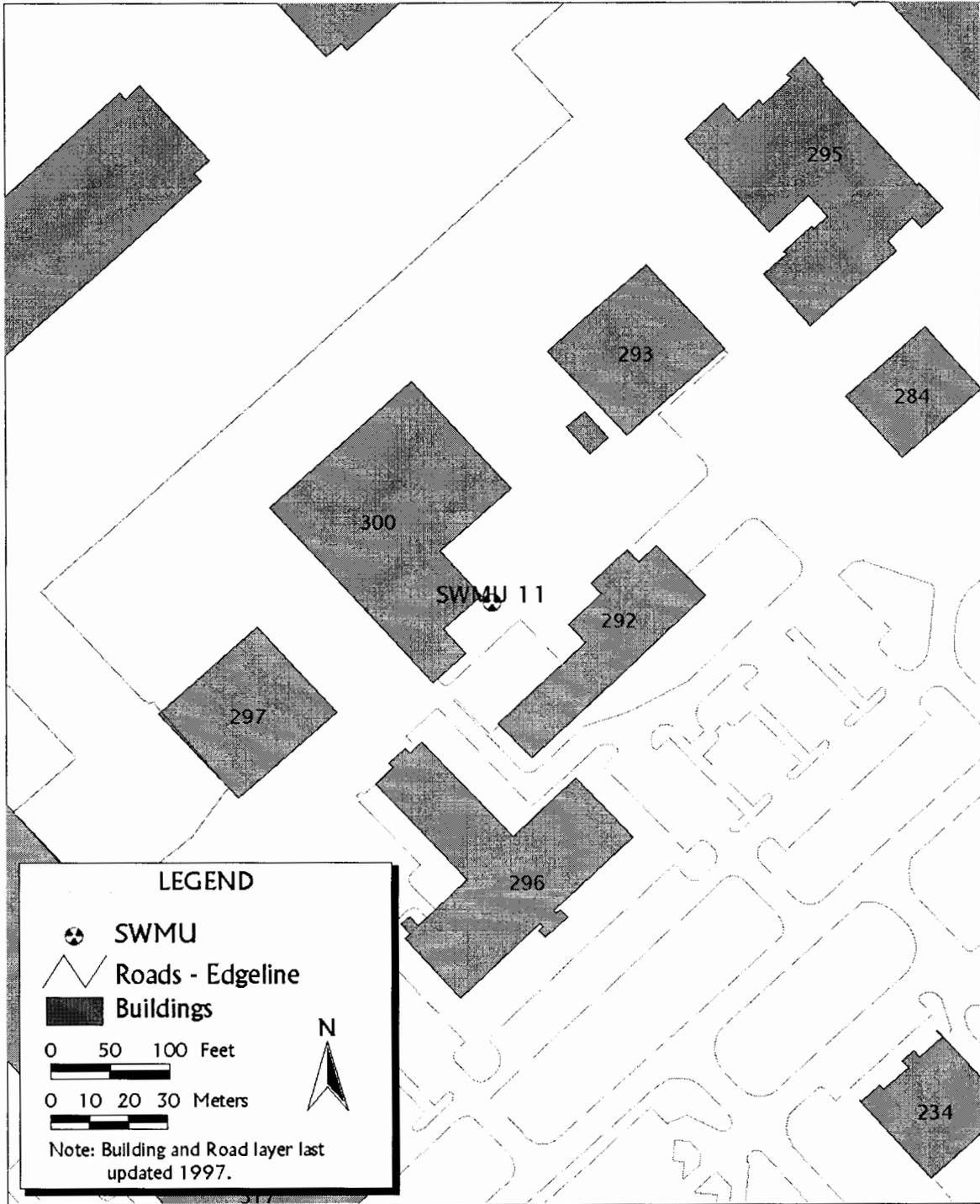
Five closure samples were collected from the excavation for site closure. None of the closure samples taken in the vadose zone indicated TRPH above 1,000 mg/kg; only sample number 5, collected near the water table at the base of the excavation, indicated TRPH above the cleanup criterion. Two soil stockpile 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 11 - Building 300 Oil/Water Separator

Figure 9

SWMU 12--Building 304 Oil/Water Separator (O/WS)**Location**

SWMU 12 is adjacent to SWMU 13--Building 304A O/WS. For a further description of the area, refer to Figure 10.

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 RCRA Facility Investigation. 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. Light Non-Aqueous Phase Liquid 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 Risk-Based Concentration. Conditional NFA was recommended for SWMU 12, with the requirement that TRPH-contaminated soil would be remediated.

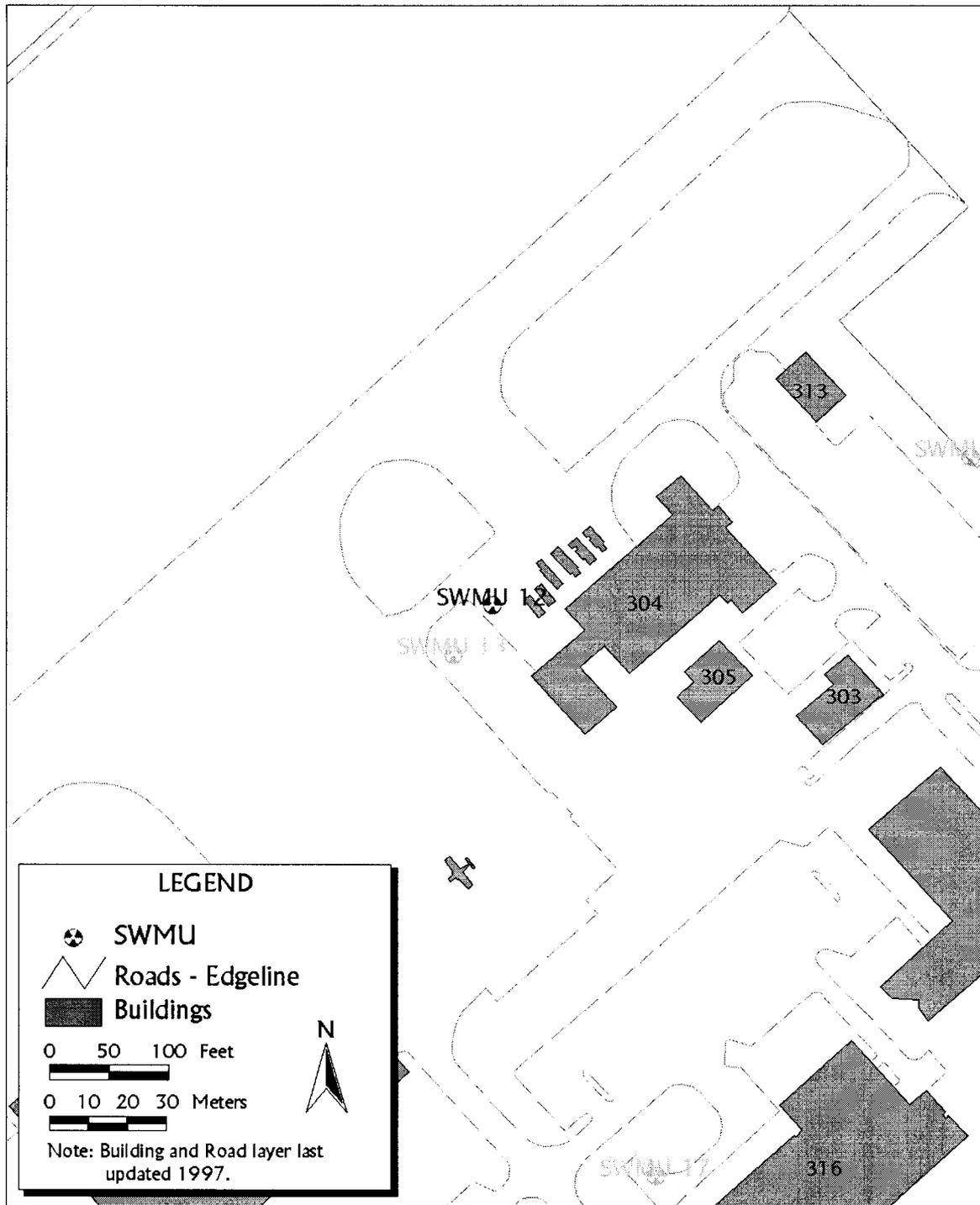
By 1997, an area of TRPH-contaminated soil measuring approximately 28 ft by 30 ft was excavated. The total volume of soil removed was 249 cubic yards. Laboratory analysis of the excavated soil indicated TRPH levels were less than 1,000 mg/kg cleanup criteria; therefore, the soil stockpile was spread.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

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 12 - Building 304 Oil/Water Separator

Figure 10

SWMU 13--Building 304A Oil/Water Separator (O/WS)**Location**

SWMU 13 is adjacent to SWMU 12--Building 304 Oil/Water Separator. For a further description of the area, refer to Figure 11.

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 RCRA Facility Investigation. 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. Light Non-Aqueous Phase Liquid 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 Risk-Based Concentration. Conditional NFA was recommended for SWMU 13, with the requirement that TRPH-contaminated soil would be remediated.

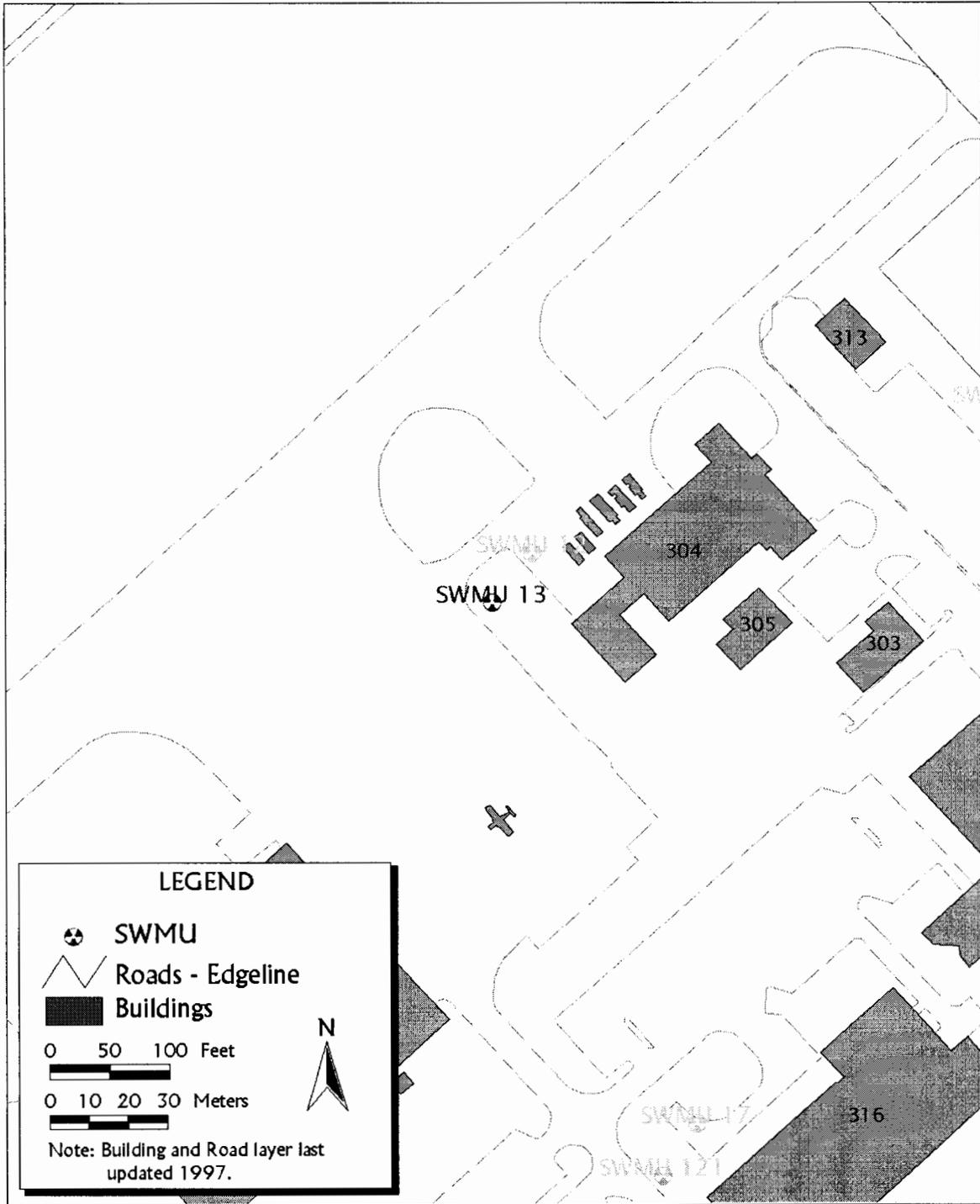
By 1997, an area of TRPH-contaminated soil measuring approximately 28 ft by 30 ft was excavated. The total volume of soil removed was 249 cubic yards. Laboratory analysis of the excavated soil indicated TRPH levels were less than 1,000 mg/kg cleanup criteria; therefore, the soil stockpile was spread.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

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 13 - Building 304A Oil/Water Separator

Figure 11

SWMU 14--Building 306 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to SWMU 14. SWMU 14 is located near Building 306. For a further description of the area, refer to Figure 12.

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 RCRA Facility Investigation. 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 Remedial Investigation 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. Light Non-Aqueous Phase Liquid 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.

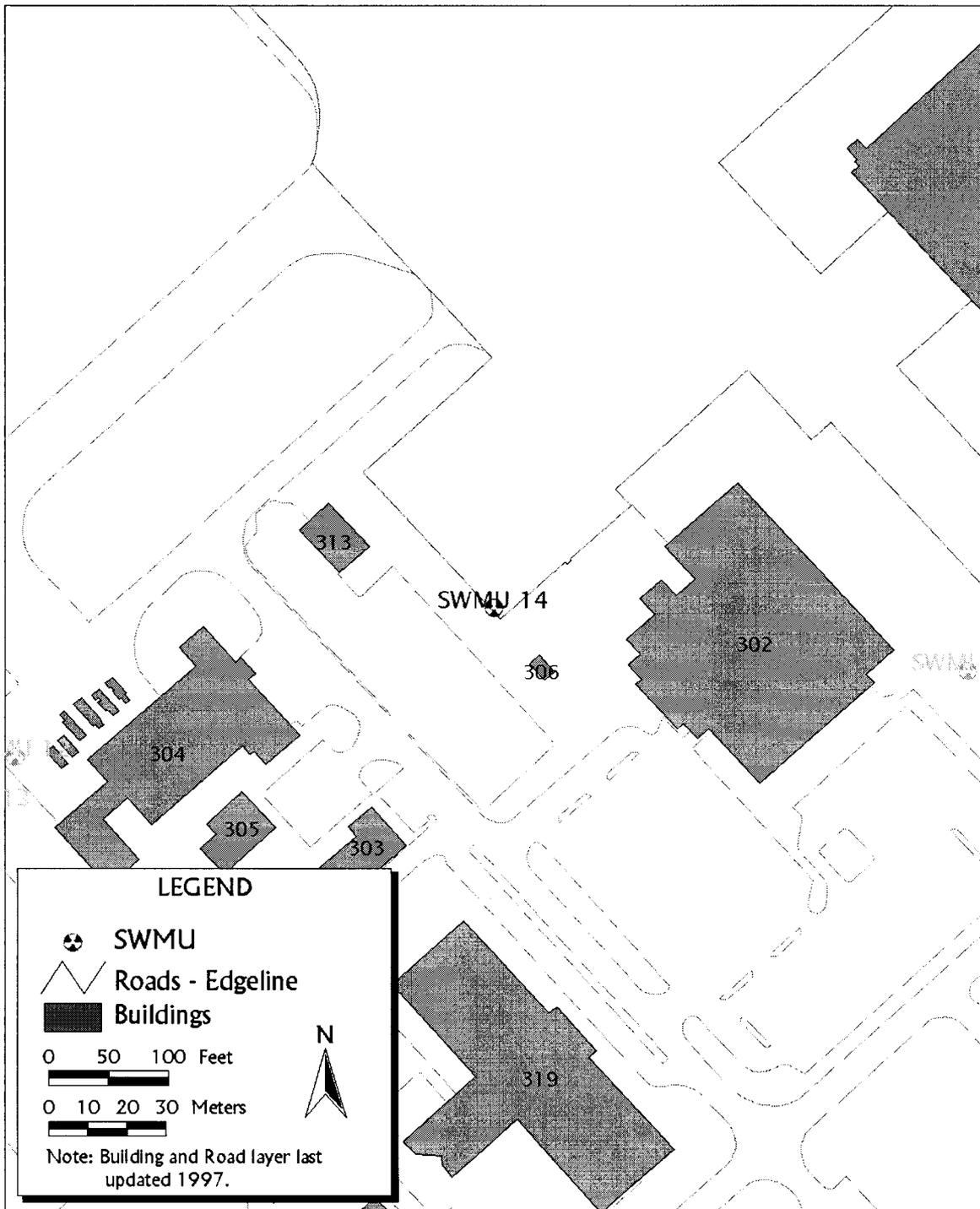
Three closure samples were collected from the excavation at this site and analyzed for TRPH. The analytical results, which represent in-place soil conditions upon completion of excavation, revealed TRPH concentrations were below the 1,000 mg/kg cleanup criteria for all closure samples.

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 to human health or the environment.

References

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 14 - Building 306 Oil/Water Separator

Figure 12

SWMU 15--Building 309 Oil/Water Separator (O/WS)**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 13.

History

This site was in operation from 1975 until 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 through the O/WS for processing. The amount of waste disposed of at this site is unknown.

Evaluation of Relevant Information

A Phase I Remedial Investigation 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 UTLs in three samples, but all were below background levels. No chemicals of potential concern were identified by the risk screening process.

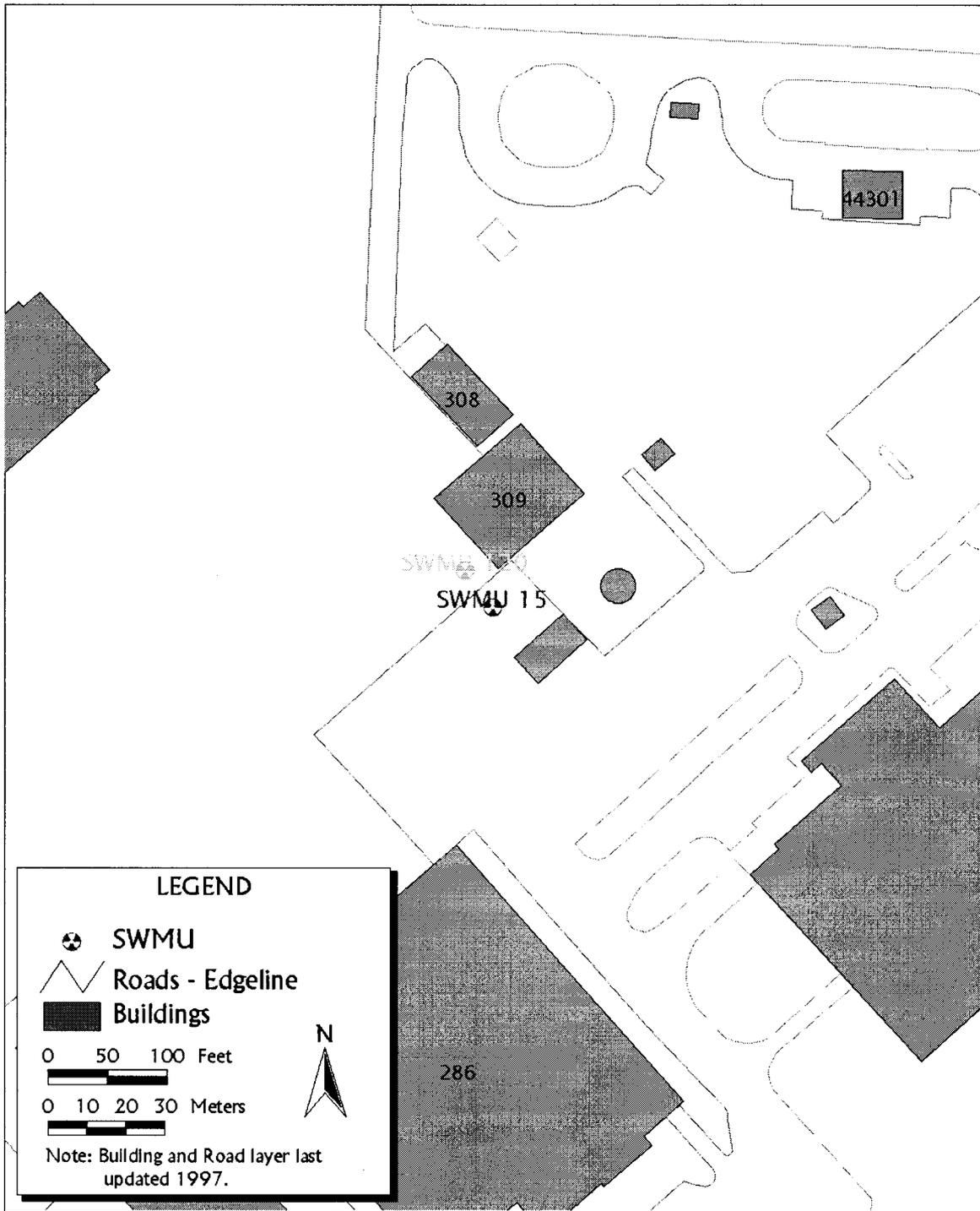
Results from the remedial investigation indicate that a release had not occurred at this site from either SWMU 15 or SWMU 120. The concentrations of all detected constituents were below risk-based trigger criteria.

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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 15 - Building 309 Oil/Water Separator

Figure 13

SWMU 16--Building 315 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to SWMU 16. SWMU 16 is located near Building 315. For a further description of the area, refer to Figure 14.

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 the ground 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 RCRA Facility Investigation. 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 Remedial Investigation indicated that a release had occurred from SWMU 16. On this basis, a Phase II Remedial Investigation was initiated.

During the Phase II Remedial Investigation, 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.

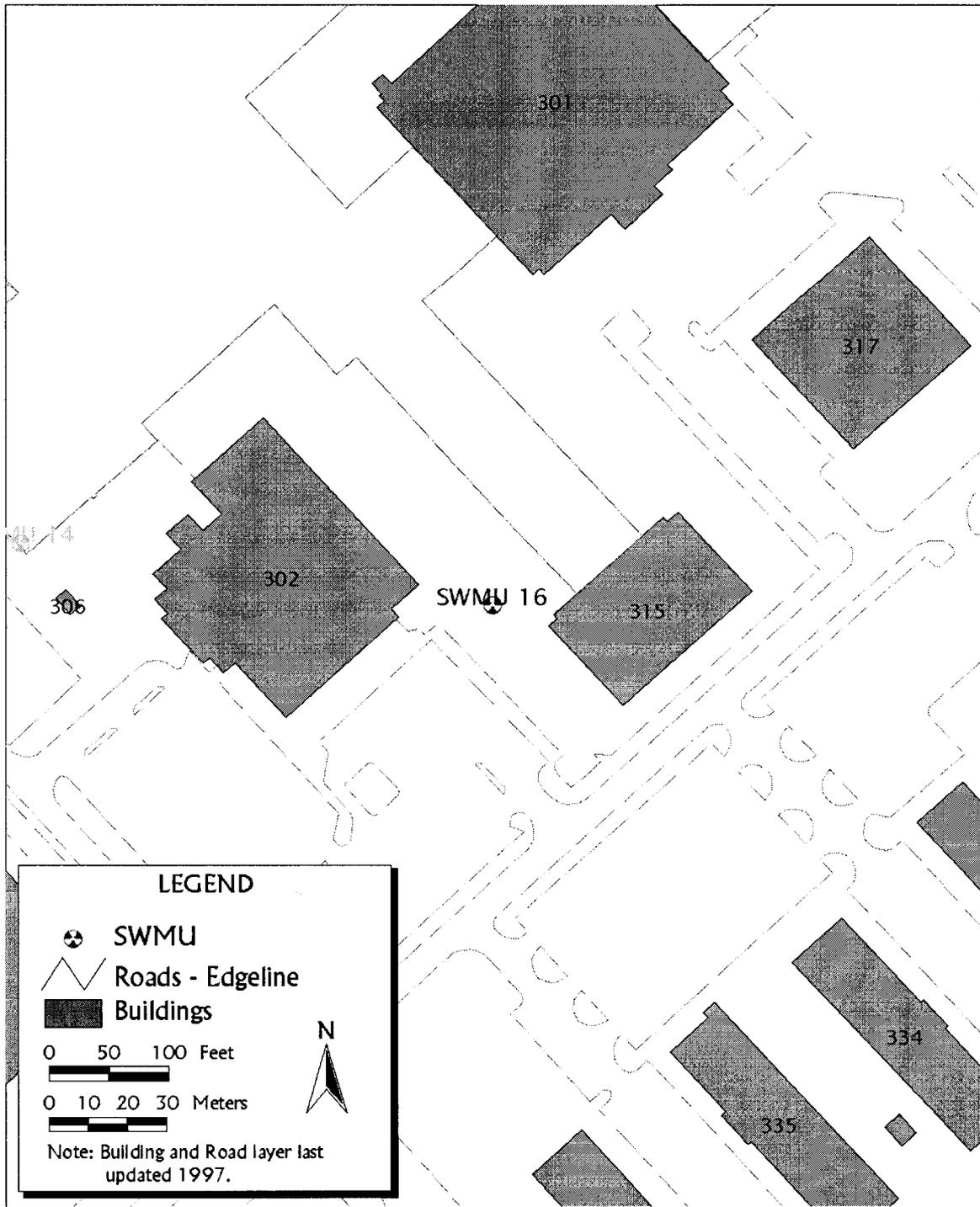
Groundwater samples from three locations were collected and analyzed. One sample was taken directly below the area of highest TRPH contamination, one upgradient, and one downgradient of the release. None of the samples exceeded 10 mg/l TRPH release criteria. The data did not indicate that any constituents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

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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 16 - Building 315 Oil/Water Separator

Figure 14

SWMU 17--Building 316 Oil/Water Separator (O/WS)**Location**

SWMU 17 is adjacent to SWMU 121--Building 316 Waste Oil Tank. For a further description of the site, refer to Figure 15.

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. This washwater containing hydraulic fluid is 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 chemicals of potential concern were identified by the risk screening process.

A qualitative risk assessment 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 O17-B01 and O17-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/WSs 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.

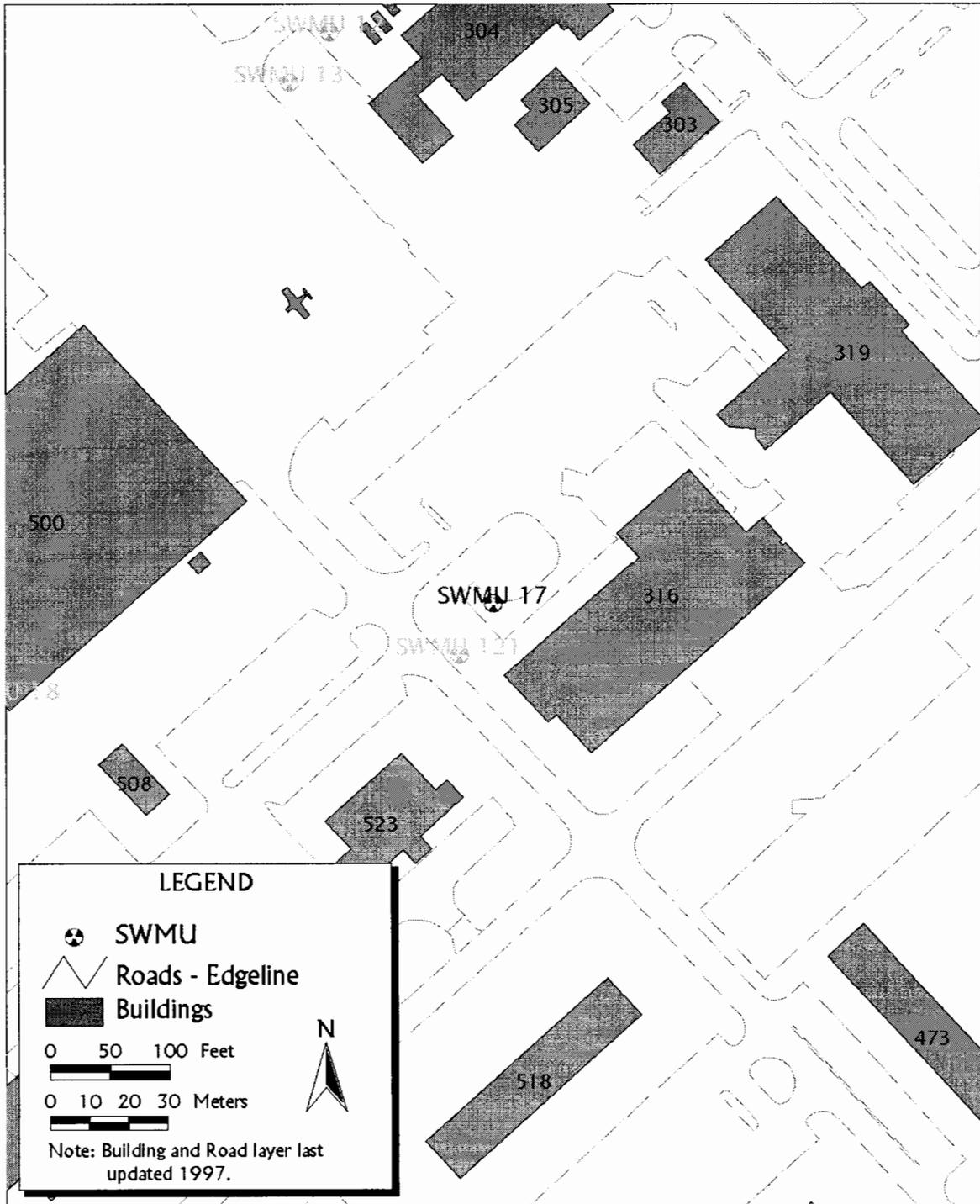
After the first phase, ten closure samples were collected and analyzed for TRPH; seven of the ten samples exceeded the TRPH cleanup standard of 1,000 mg/kg. Following the second phase, a second round of closure samples was collected and analyzed for TRPH; all samples were well below the cleanup standard (ranging from non-detect [ND] to 80 mg/kg). 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 to human health or the environment.

References

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 17 - Building 316 Oil/Water Separator

Figure 15

SWMU 18--Building 500 Oil/Water Separator (O/WS)

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 16.

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

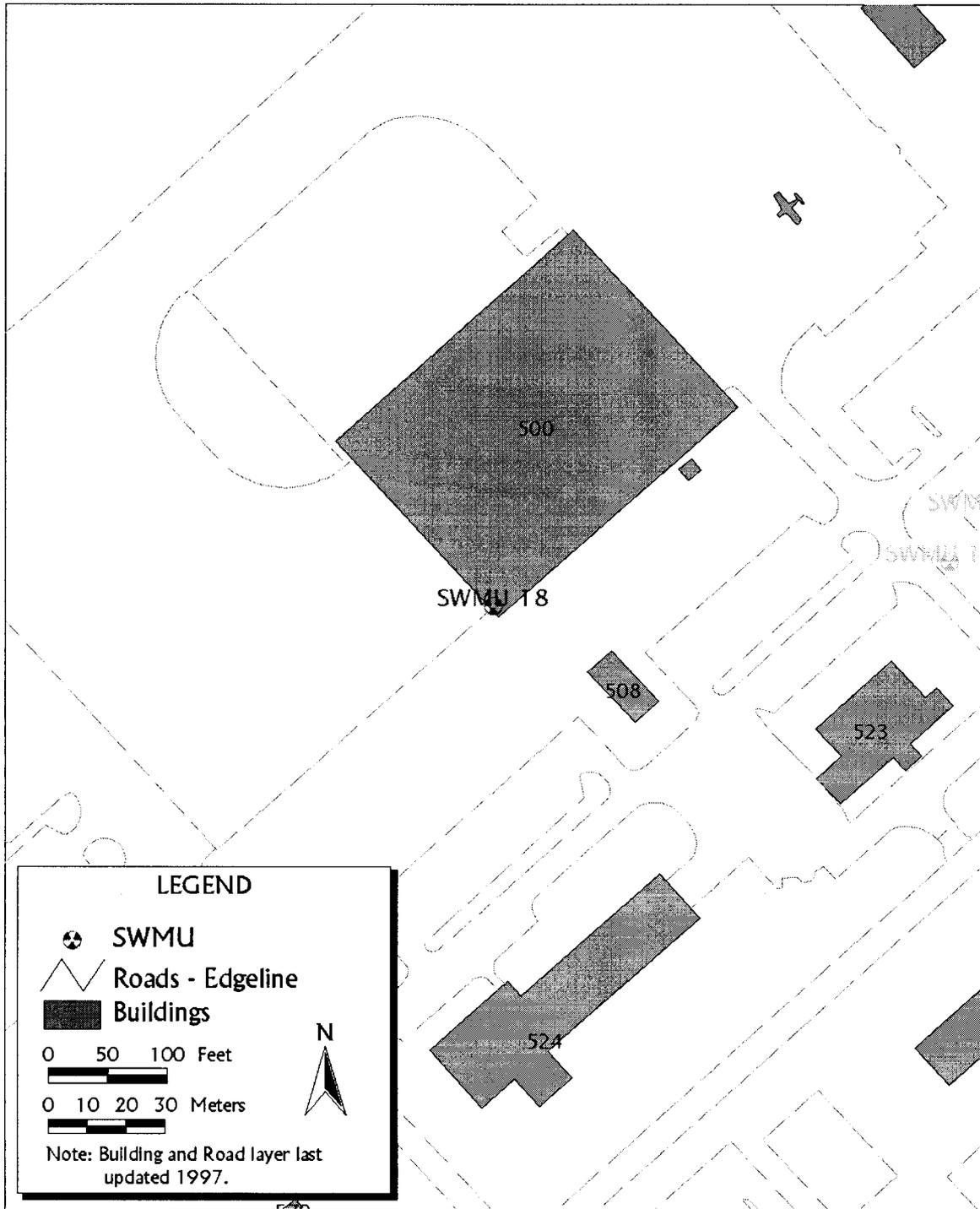
It was determined that a site investigation was not necessary for SWMU 18. NFA was recommended and granted for this site.

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 to human health or the environment.

References

February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995



SWMU 18 - Building 500 Oil/Water Separator

Figure 16

SWMU 21--Building 702 Oil/Water Separator (O/WS)**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 Petroleum, Oils, and Lubricants 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 17.

History

The year this site was first used is unknown. 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 Remedial Investigation 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. These samples were below detection limits and are shown on Table 4.4.1 of the Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I, dated October 1994.

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.

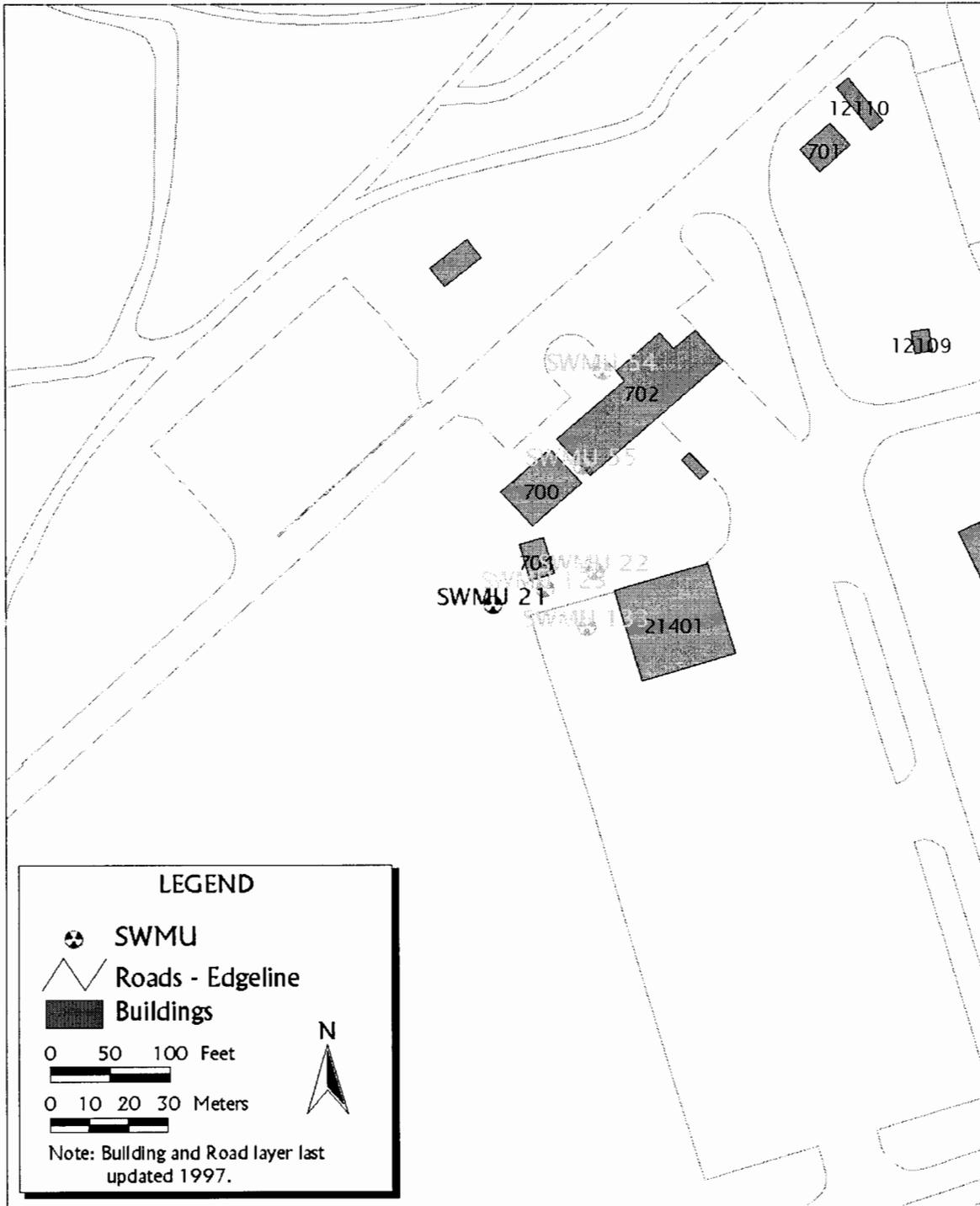
By 1997, the SWMU 21 O/WS had been removed and decontaminated. Five closure samples were collected and analyzed for TRPH; analysis indicated that all samples were beneath 1,000 mg/kg.

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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 21 - Building 702 Oil/Water Separator

Figure 17

SWMU 22--Building 704 Oil/Water Separator (O/WS)**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 Petroleum, Oils, and Lubricants wash rack approximately 50 ft south of Building 703. For further description of this site, refer to Figure 18.

History

The period of operation for this site was 1980 to 1991. The source of waste was from the washwater from an adjacent Petroleum, Oils, and Lubricants 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 is 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 Remedial Investigation 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. These samples were below detection limits and are shown on Table 4.4.1 of the Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I, dated October 1994.

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

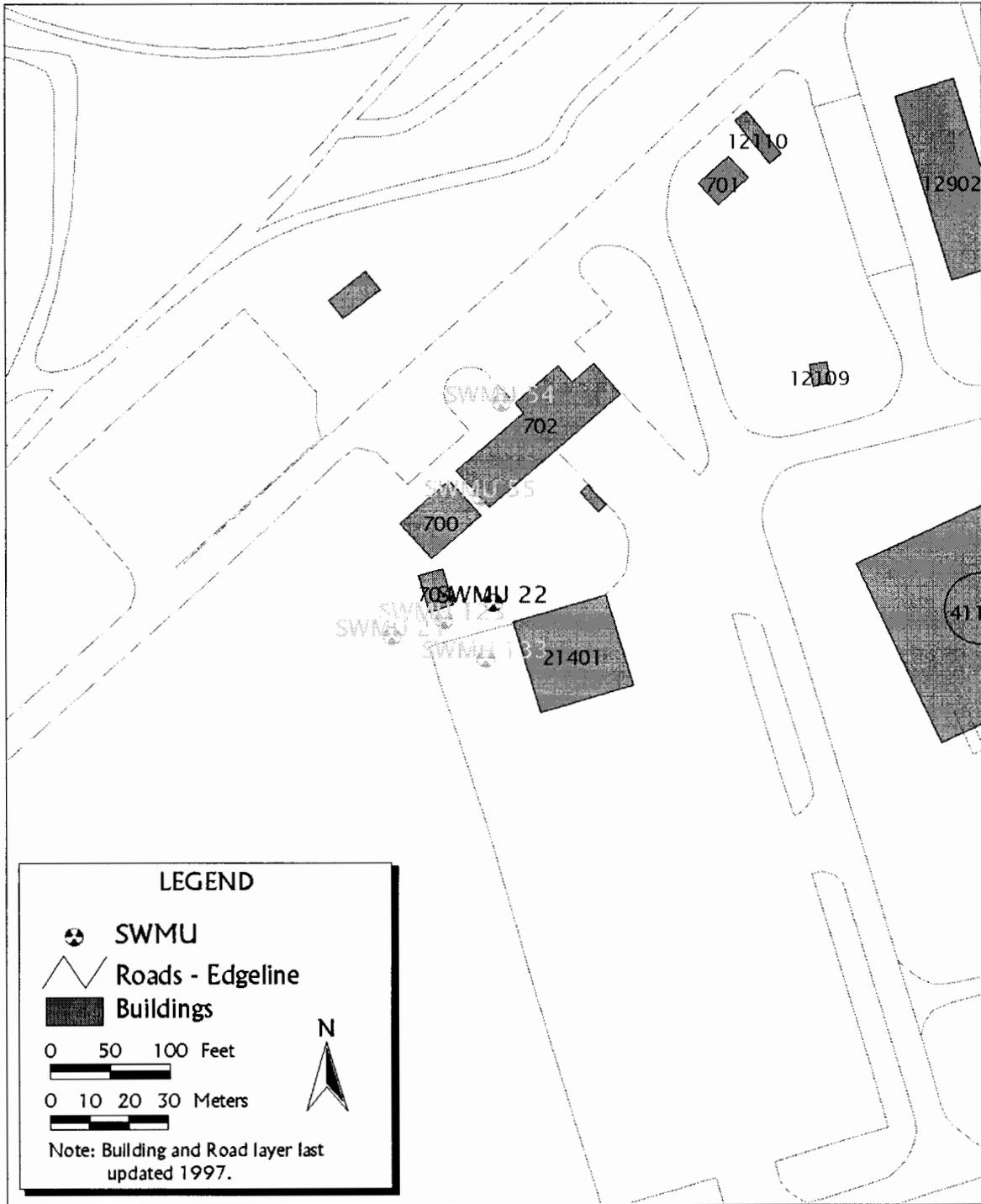
Basis for Determination

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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I

July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 22 - Building 704 Oil/Water Separator

Figure 18

SWMU 23--Building 800 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to SWMU 23. SWMU 23 is located near Building 800. For a further description of the area, refer to Figure 19.

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 RCRA Facility Investigation in 1997. During Phase I of the RCRA Facility Investigation, 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. Light Non-Aqueous Phase Liquid 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.

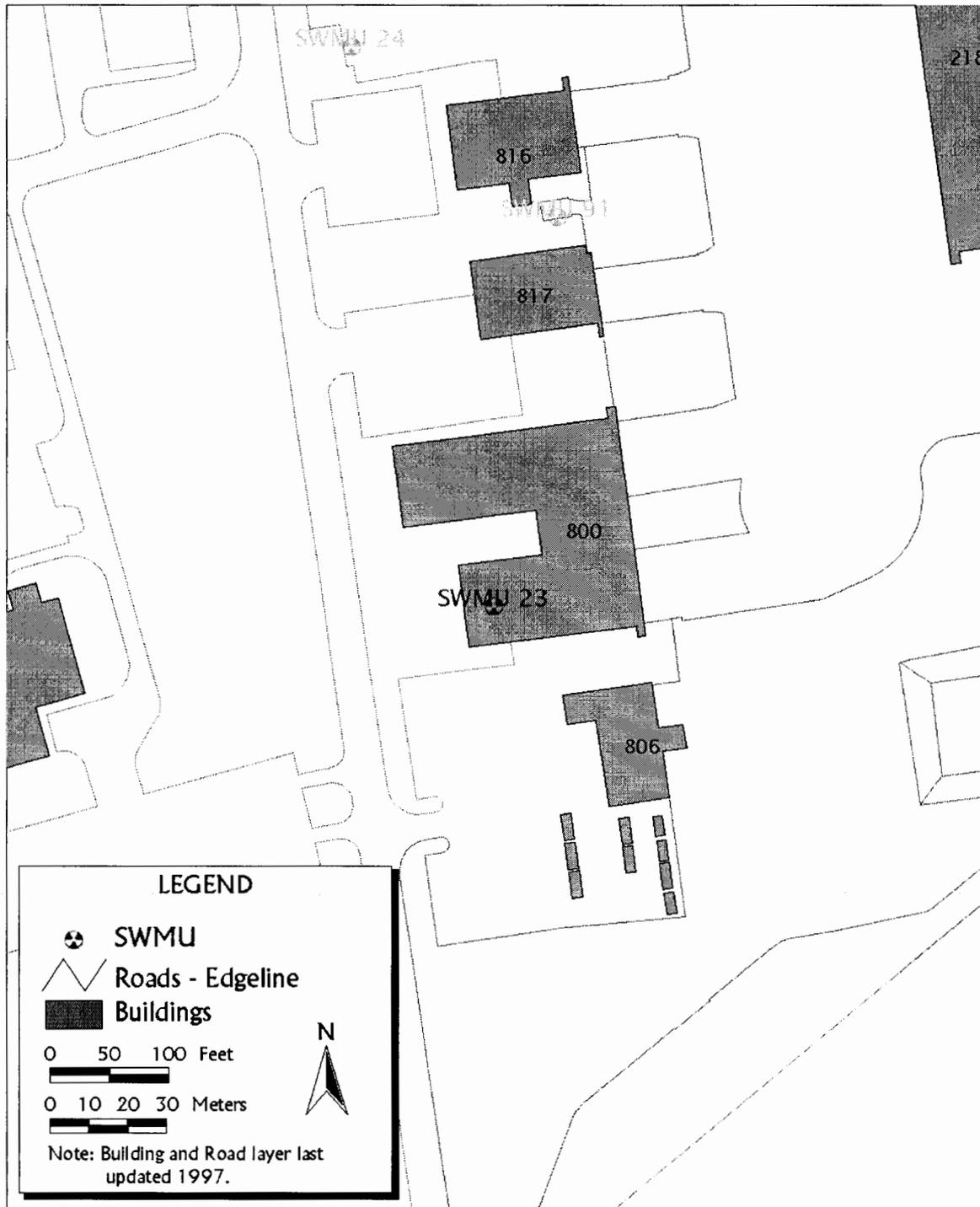
Three closure samples were collected and analyzed for TRPH. All samples contained less than 1,000 mg/kg TRPH and the site was recommended and approved for NFA.

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 to human health or the environment.

References

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 23 - Building 800 Oil/Water Separator

Figure 19

SWMU 24--Building 801 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to this site. SWMU 24, Building 801 O/WS, services the aerospace ground equipment 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 20.

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 of 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

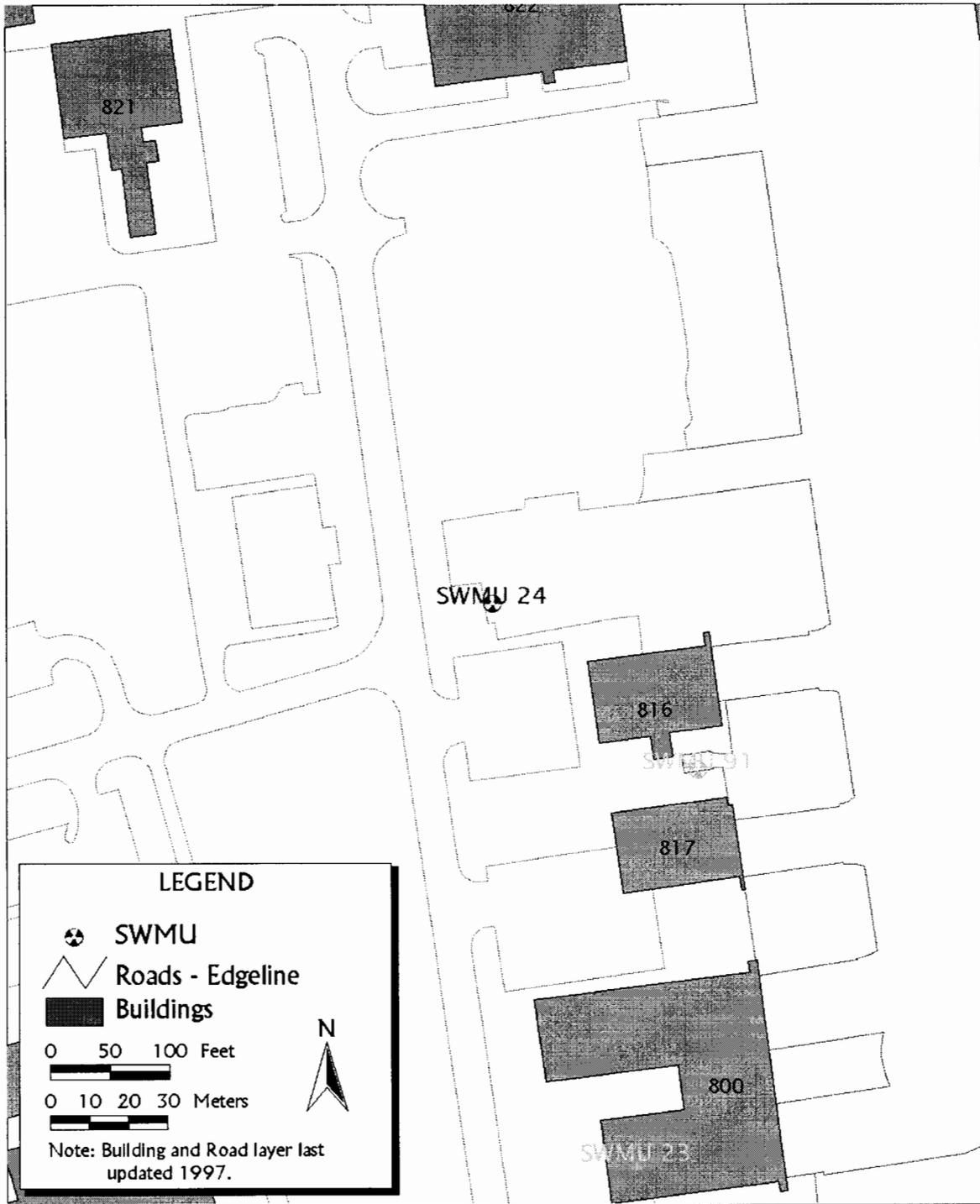
In 1997, the area around the current location of the sediment trap (former location of SWMU 24) was investigated to determine whether a release of a hazardous constituent had occurred from the unit. Eight soil samples from four boreholes were collected around SWMU 24 and analyzed for TRPH. As no TRPH 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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 24 - Building 801 Oil/Water Separator

Figure 20

SWMU 25--Building 805 Oil/Water Separator (O/WS)

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 21.

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

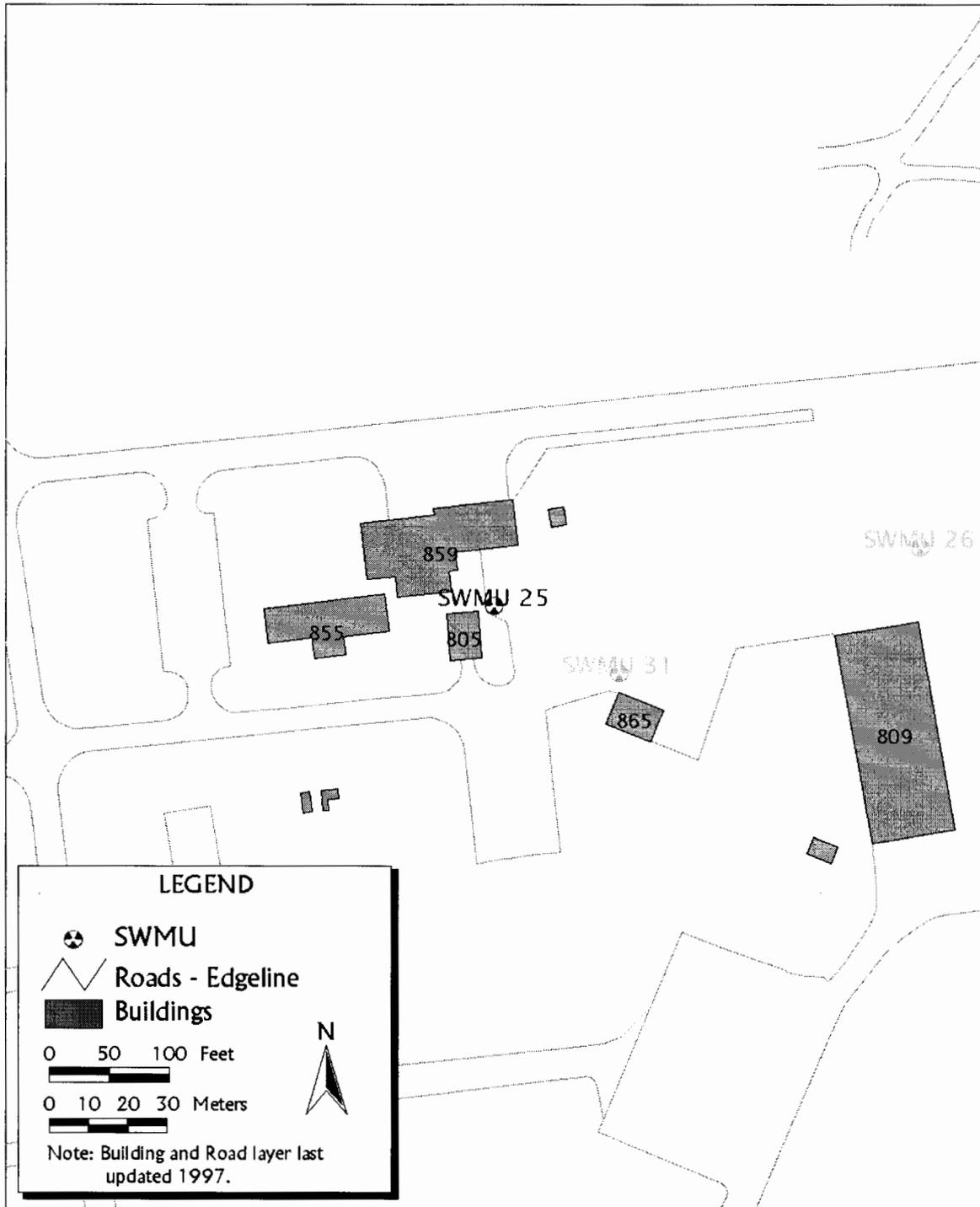
SWMU 25 was investigated as part of the Table 3 RCRA Facility Investigation in 1997. To determine whether a release had occurred from the unit, samples were collected from three boreholes adjacent to the existing O/WS at two depths. The analytical data indicated that a release from SWMU 25 had not occurred, 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

References

July 1995, Draft Final RFI Report -- Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 25 - Building 805 Oil/Water Separator

Figure 21

SWMU 26--Building 809 Oil/Water Separator (O/WS)

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 22.

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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 26 - Building 809 Oil/Water Separator

Figure 22

SWMU 27--Building 810 Oil/Water Separator (O/WS)**Location**

There are no SWMUs adjacent to SWMU 27. SWMU 27 is located near Building 810. For a further description of the area, refer to Figure 23.

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 was 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.

To confirm releases from the unit in 1985 and 1988, SWMU 27 was investigated under the Table 3 RCRA Facility Investigation (Radian, 1995).

Evaluation of Relevant Information

To confirm the reported releases, SWMU 27 was investigated under the Table 3 RCRA Facility Investigation conducted in 1997. During the Phase I Remedial Investigation, 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, Light Non-Aqueous Phase Liquid was detected at locations 27-01, 27-04, and 27-28.

Conditional NFA was recommended for SWMU 27, with the requirement that vadose zone 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.

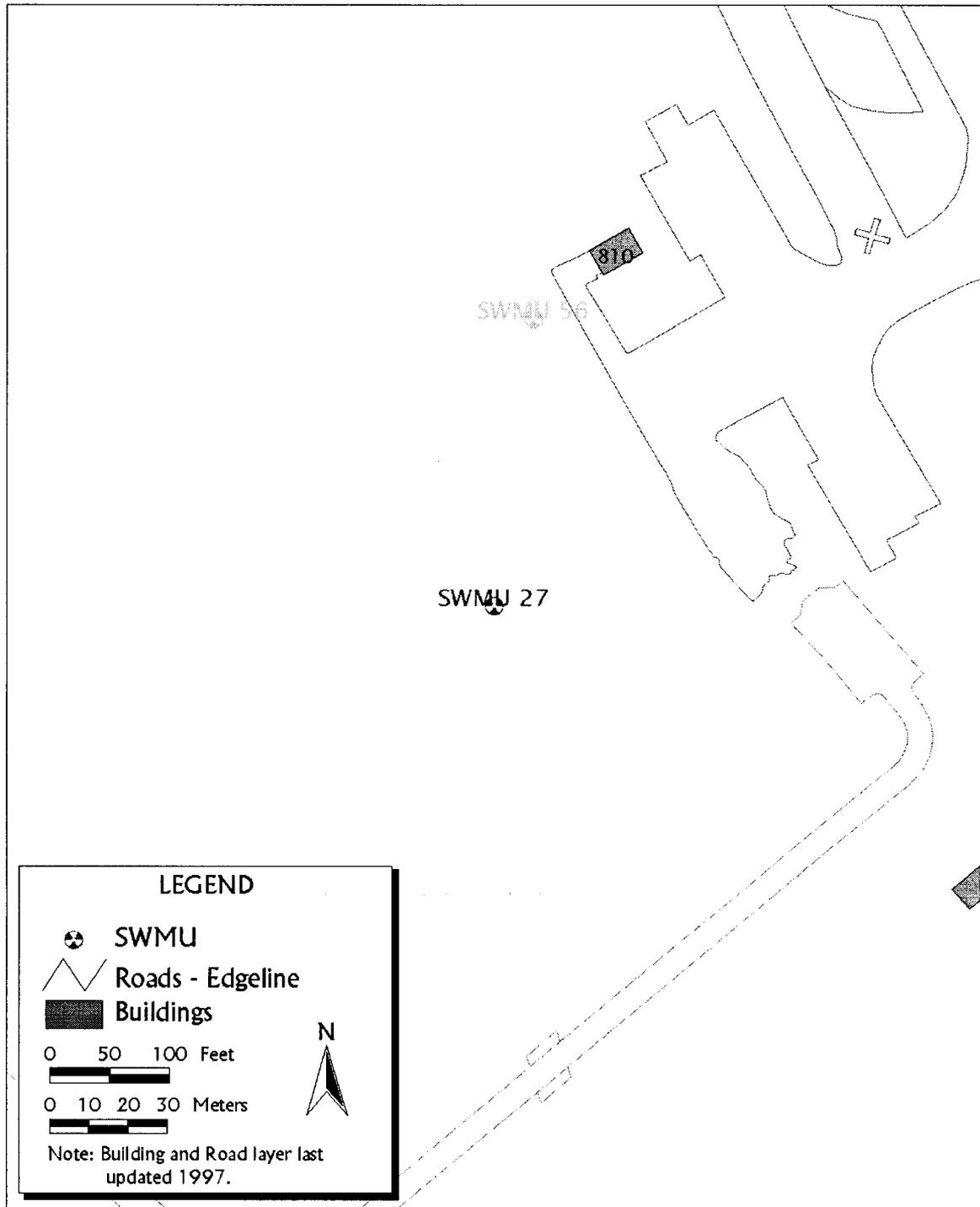
Ten samples were collected from the excavation for site closure and analyzed for BTEX, TRPH, SVOCs, and lead. Analytical results were less than Base cleanup criterion for all closure samples.

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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 27 - Building 810 Oil/Water Separator

Figure 23

SWMU 28--Building 822 Oil/Water Separator (O/WS)**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 24.

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 RCRA Facility Investigation 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.

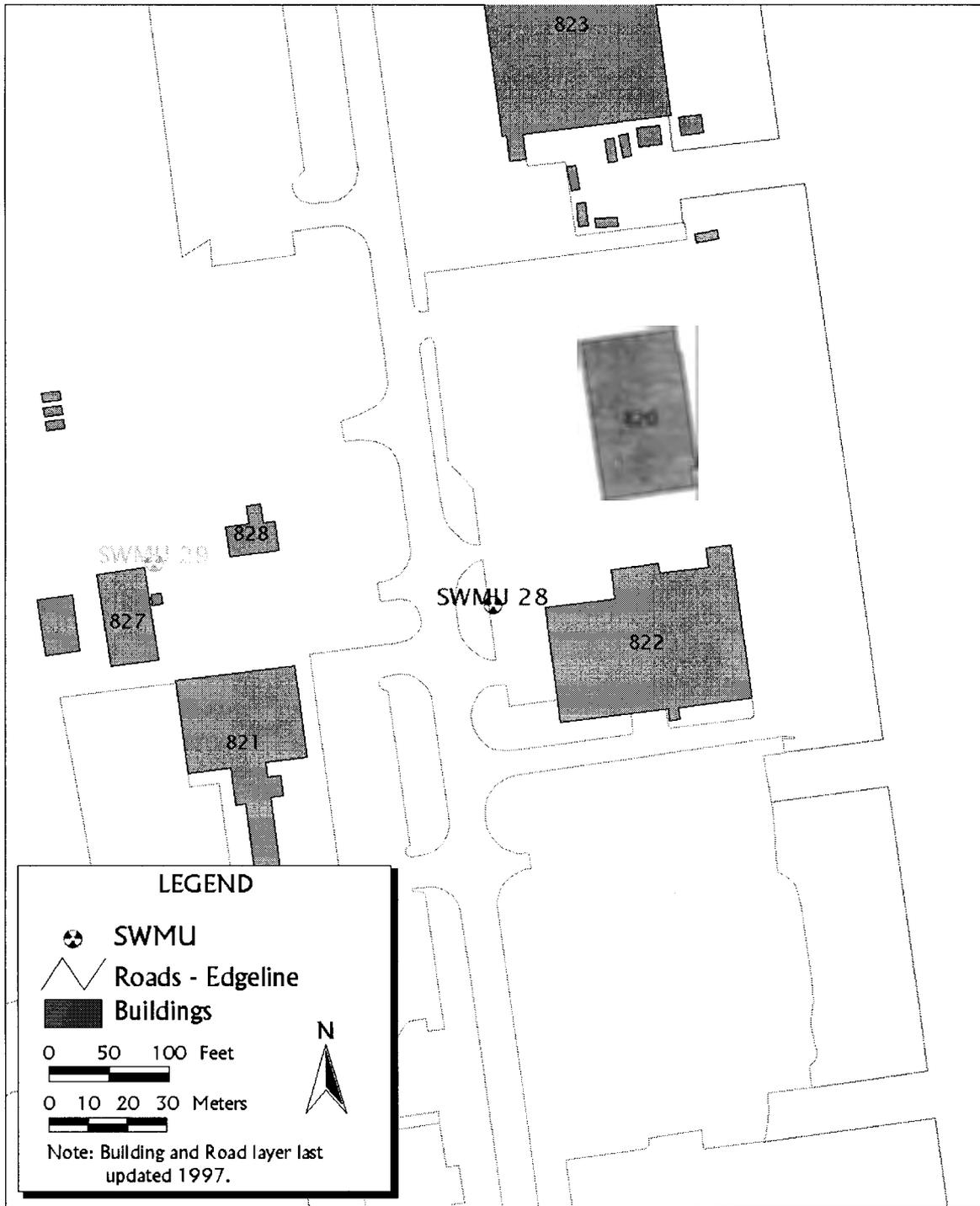
Closure samples were collected from the excavation and analyzed for TRPH. Analytical results showed concentrations of TRPH were less than Base cleanup criterion for all closure samples.

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 to human health or the environment.

References

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 28 - Building 822 Oil/Water Separator

Figure 24

SWMU 29--Building 827 Oil/Water Separator (O/WS)**Location**

SWMU 29 is adjacent to SWMU 230--Building 828 Fuel Spill site. SWMU 29, Building 827 O/WS, serviced the aerospace ground equipment 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 25.

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 RCRA Facility Investigation 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 RCRA Facility Investigation 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 100 mg/kg release criterion. Four of those samples were collected at a depth of 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.

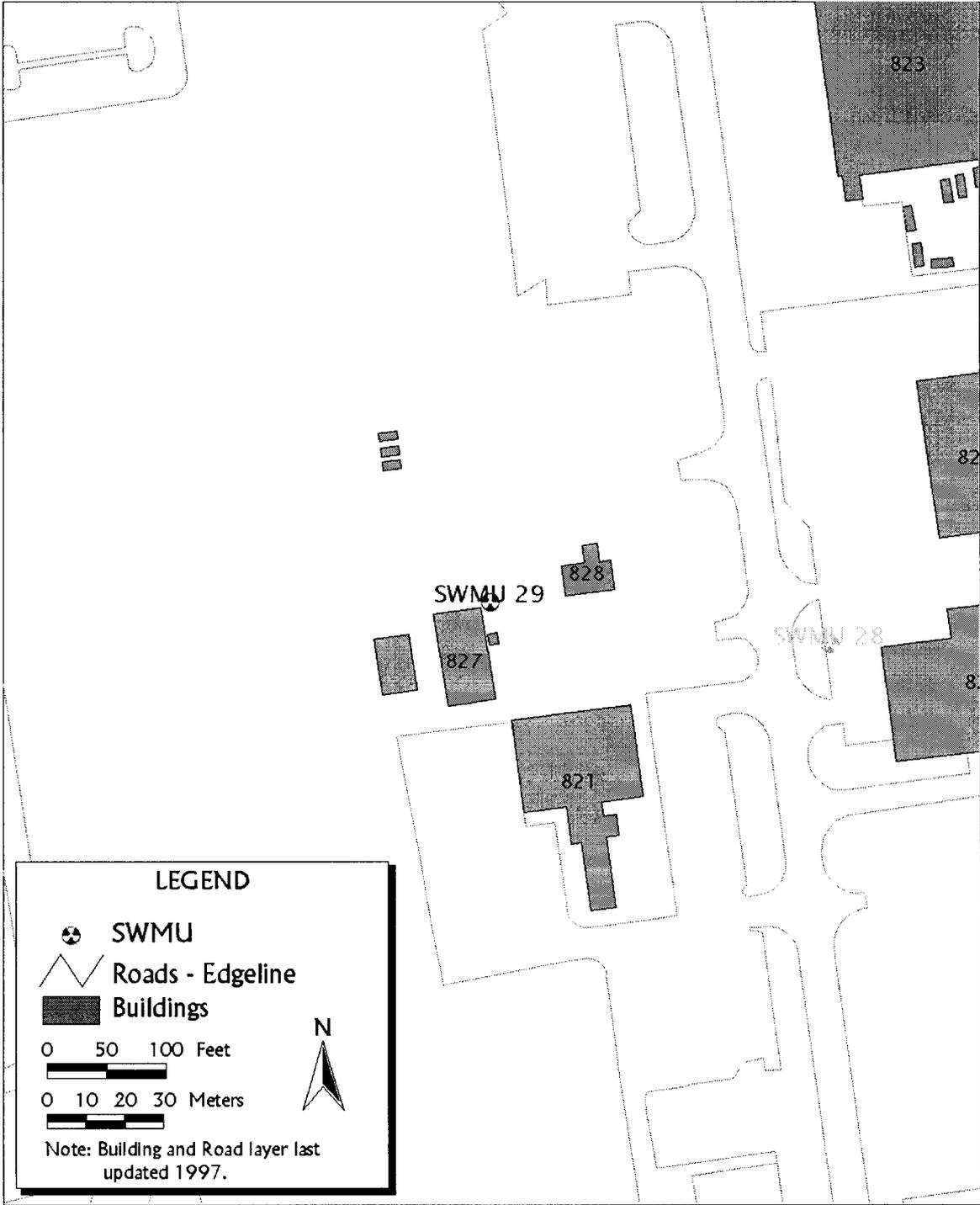
By July 1997, a new unit had replaced the O/WS at SWMU 29. In addition, approximately 124 cubic yards of TRPH-contaminated soil were excavated and remediated by the high vacuum dual phase extraction system at Building 828. Confirmation soil borings were planned to be taken across SWMU 29, to ensure that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

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 29 - Building 827 Oil/Water Separator

Figure 25

SWMU 30--Building 830 Oil/Water Separator (O/WS)

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 26.

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

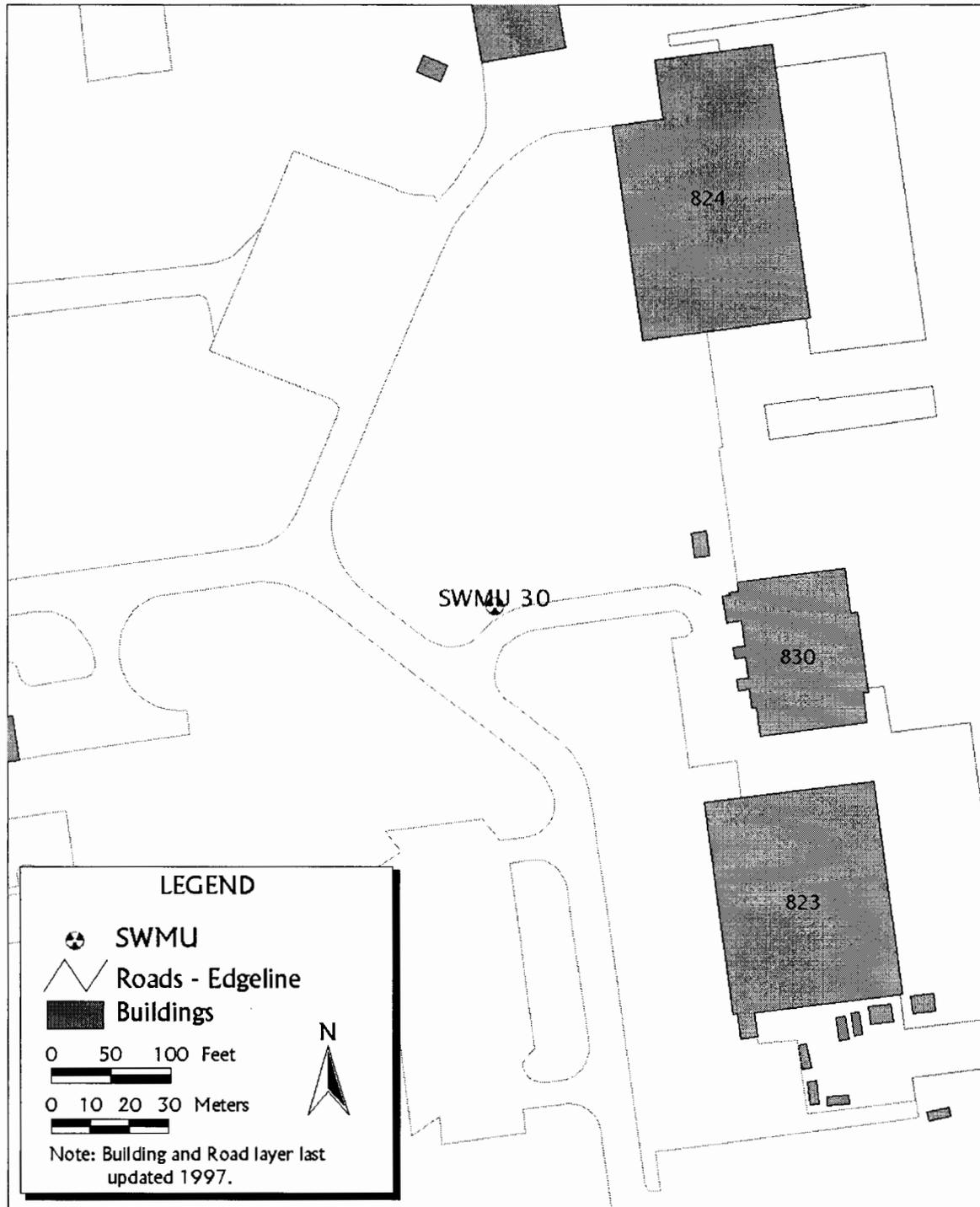
It was determined that a site investigation was not necessary at SWMU 30.

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

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 30 - Building 830 Oil/Water Separator

Figure 26

SWMU 31--Building 855 Oil/Water Separator (O/WS)**Location**

SWMU 31 is adjacent to SWMU 25--Building 805 Oil/Water Separator. For a further description of the area, refer to Figure 27.

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 RCRA Facility Investigation 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. Light Non-Aqueous Phase Liquid was not detected in any groundwater or soil samples.

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.

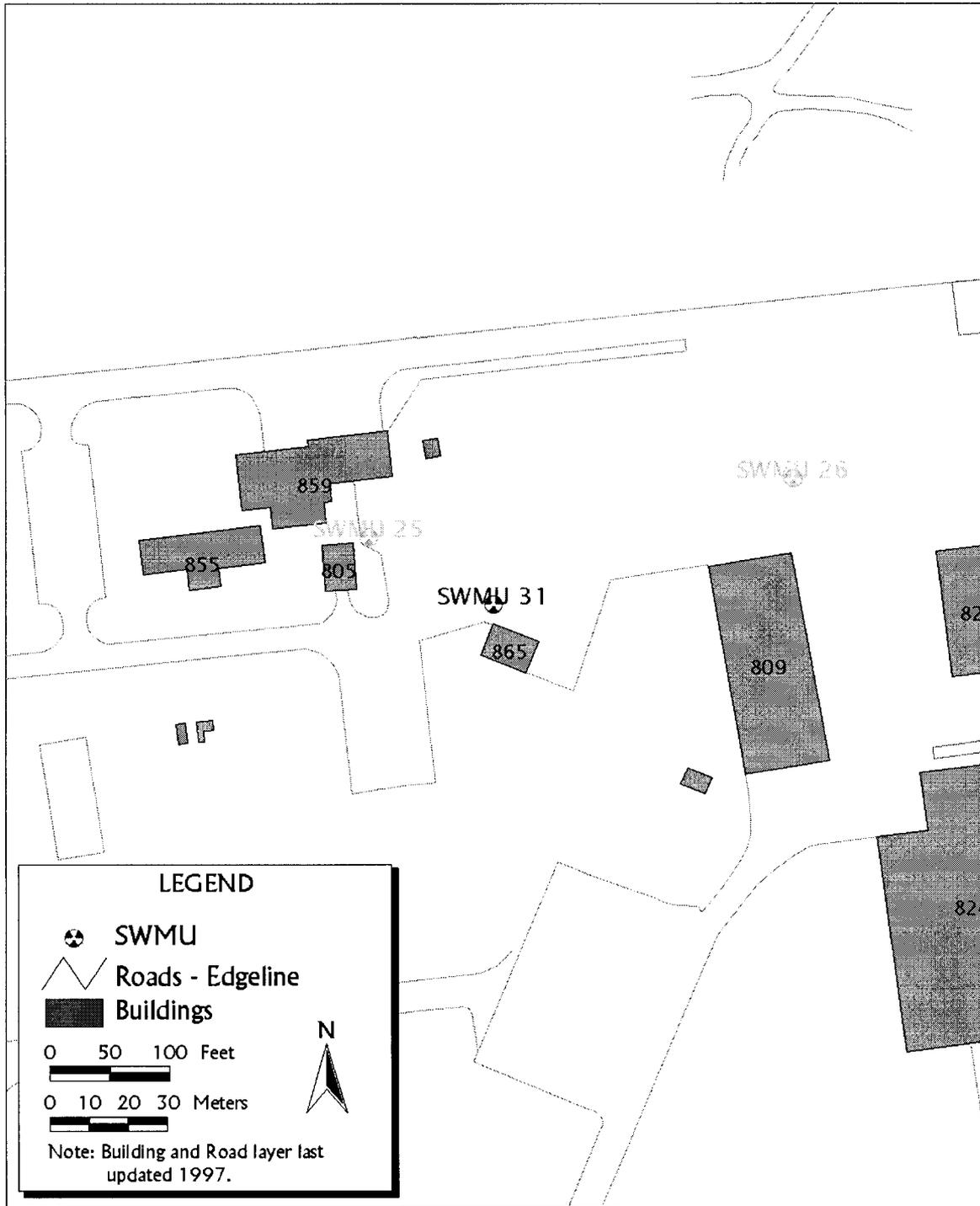
Five closure samples were collected from the excavation site and submitted for analysis. All samples displayed TRPH concentrations less than 1,000 mg/kg.

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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 31 - Building 855 Oil/Water Separator

Figure 27

SWMU 32--Building 868 Oil/Water Separator (O/WS)

Location

SWMU 32 is adjacent to SWMU 125--Building 868 Fire Water Tank. For further description of the site, refer to Figure 28.

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.

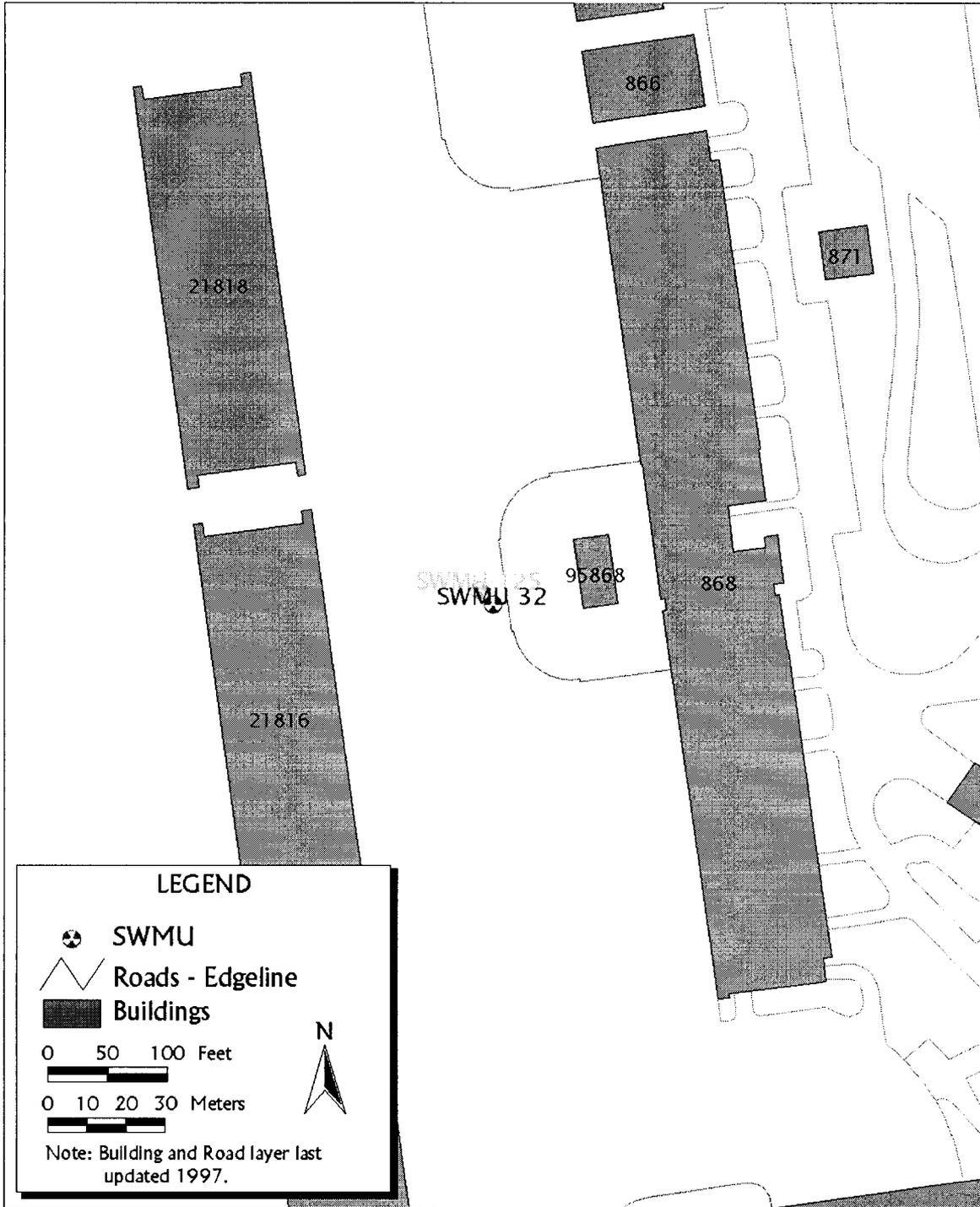
A qualitative risk assessment was conducted for SWMU 32 to help determine the need for further investigation based on the potential risk to human health and the environment. Although the presence of visibly contaminated soil provided some evidence of a release from the SWMU, no constituents were detected 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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 32 - Building 868 Oil/Water Separator

Figure 28

SWMU 33--Building 869 Oil/Water Separator (O/WS)

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 29.

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

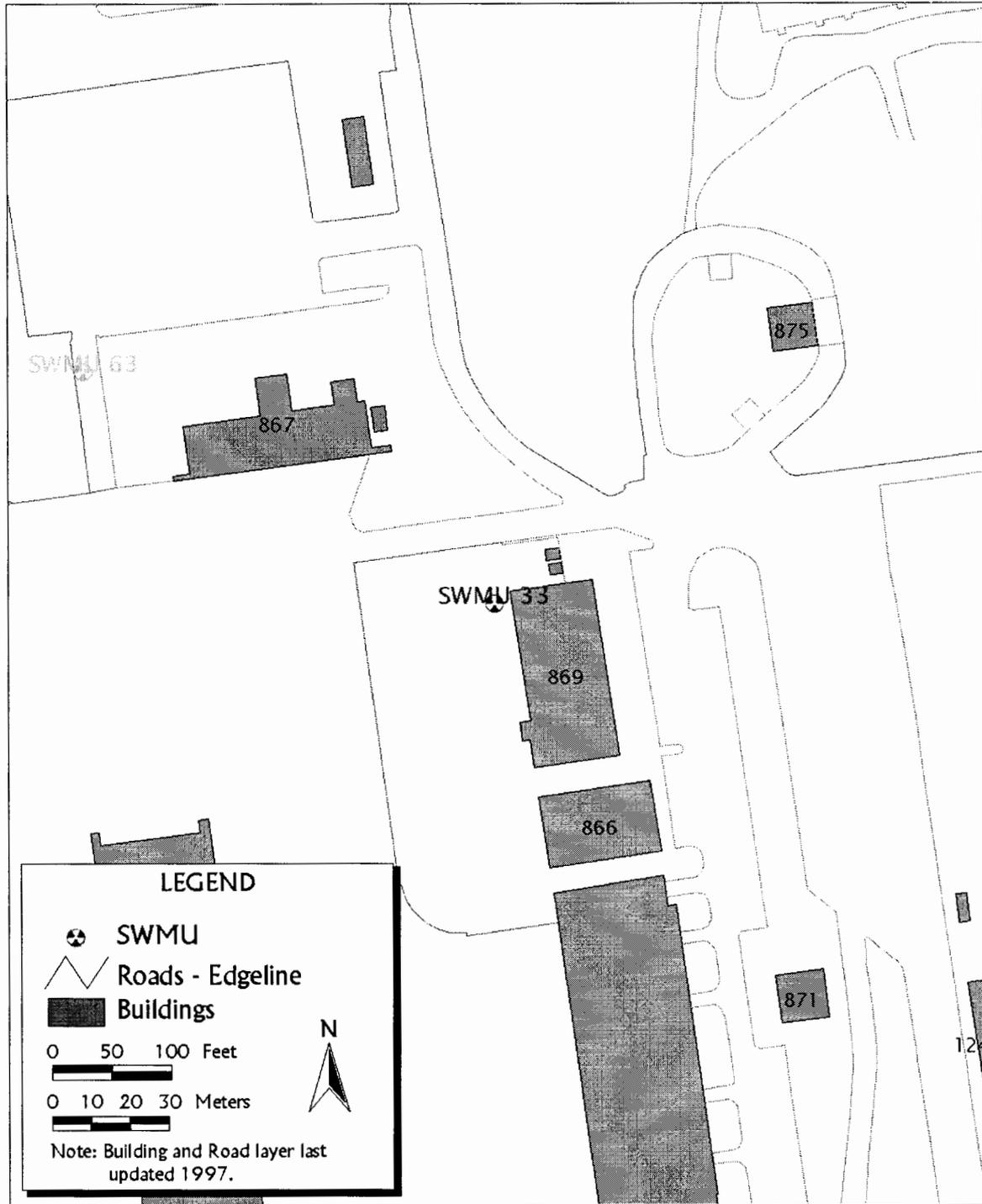
It was determined that a site investigation was not necessary at SWMU 33.

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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 33 - Building 869 Oil/Water Separator

Figure 29

SWMU 34--Building 902 Oil/Water Separator (O/WS)**Location**

SWMU 34 is adjacent to SWMU 35--Building 903 O/WS. For a further description of the site, refer to Figure 30.

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 RCRA Facility Investigation 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.

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. Light Non-Aqueous Phase Liquid was not detected in any soil or groundwater samples.

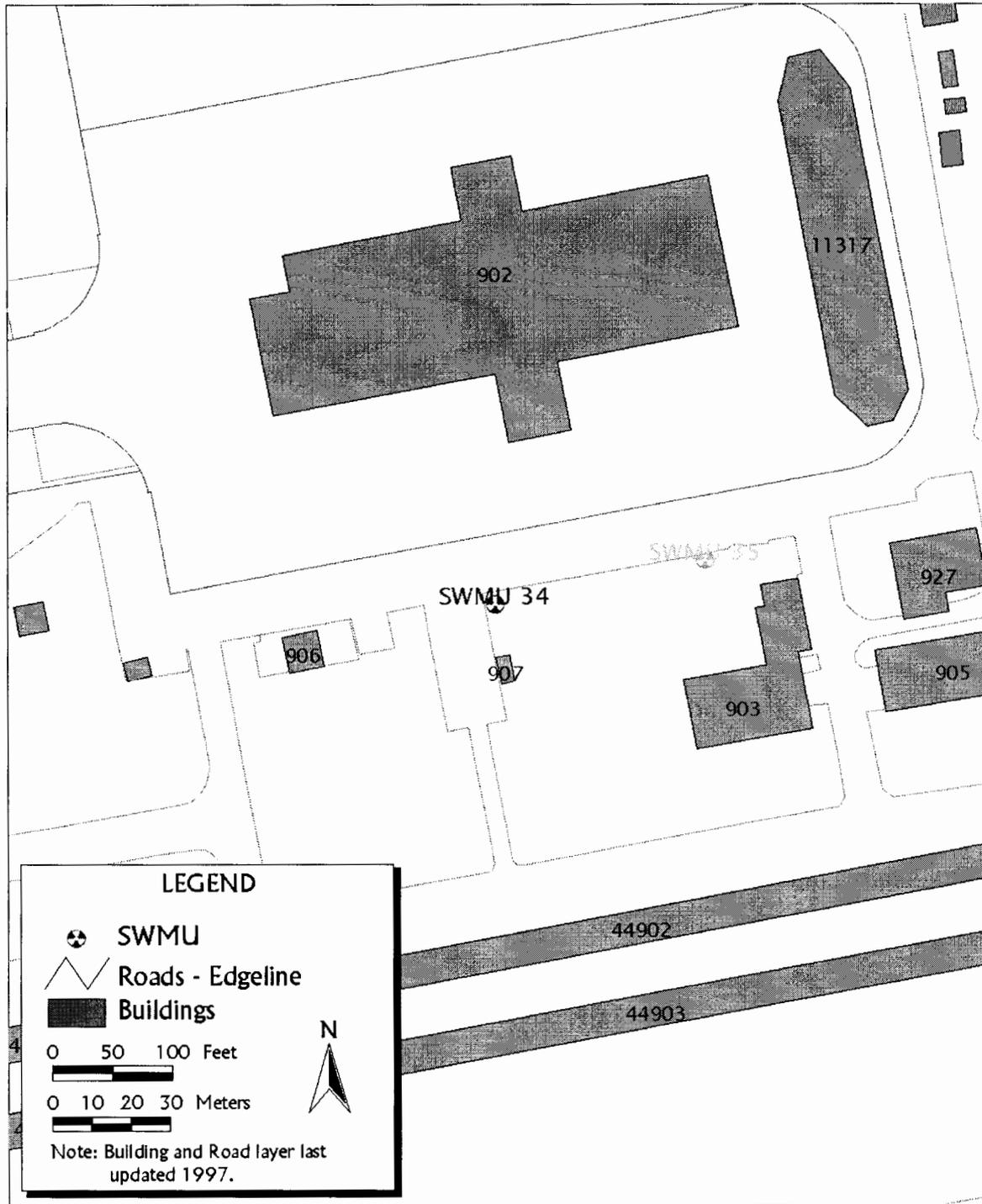
It was concluded that although a release had occurred at SWMU 34, the TRPH contaminated soil was confined to the 0 ft to 2 ft surface interval, and did not pose any threat to the underlying groundwater.

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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 34 - Building 902 Oil/Water Separator

Figure 30

SWMU 35--Building 903 Oil/Water Separator (O/WS)

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 31.

History

The period of operation for this site was 1986 to 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 Remedial Investigation 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.

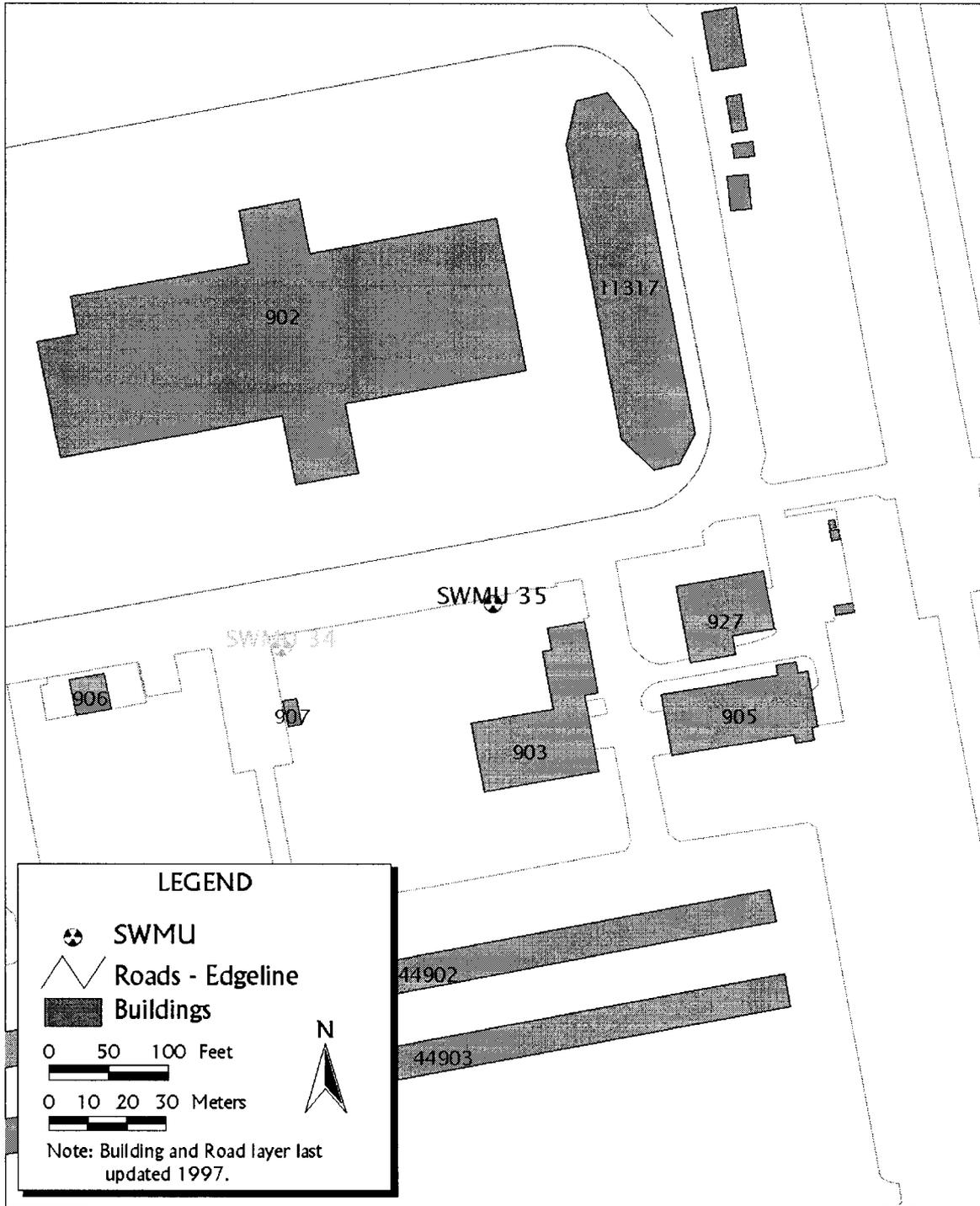
In July 1997, a waste oil tank related to SWMU 35 was removed. The WOT was removed, decontaminated, and transported off-site for recycling by Basin Pipe and Metal. Based on the results of the Phase I Remedial Investigation, it was not necessary to remove any soil from the site. Five closure samples were 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.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 35 - Building 903 Oil/Water Separator

Figure 31

SWMU 36--Building 1001 Oil/Water Separator (O/WS)**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 32.

History

The period of operation for this site was from 1982 to 1997. Building 1001 floor cleaning washwater was the source of waste for this site. SWMU 36, Building 1001 O/WS, received rinse water and waste oil from Building 1001. Waste oil skimmed from the O/WS was transferred by gravity flow to SWMU 126 waste oil tank, via a subsurface pipe, and the water was 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 Remedial Investigation 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 the 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.

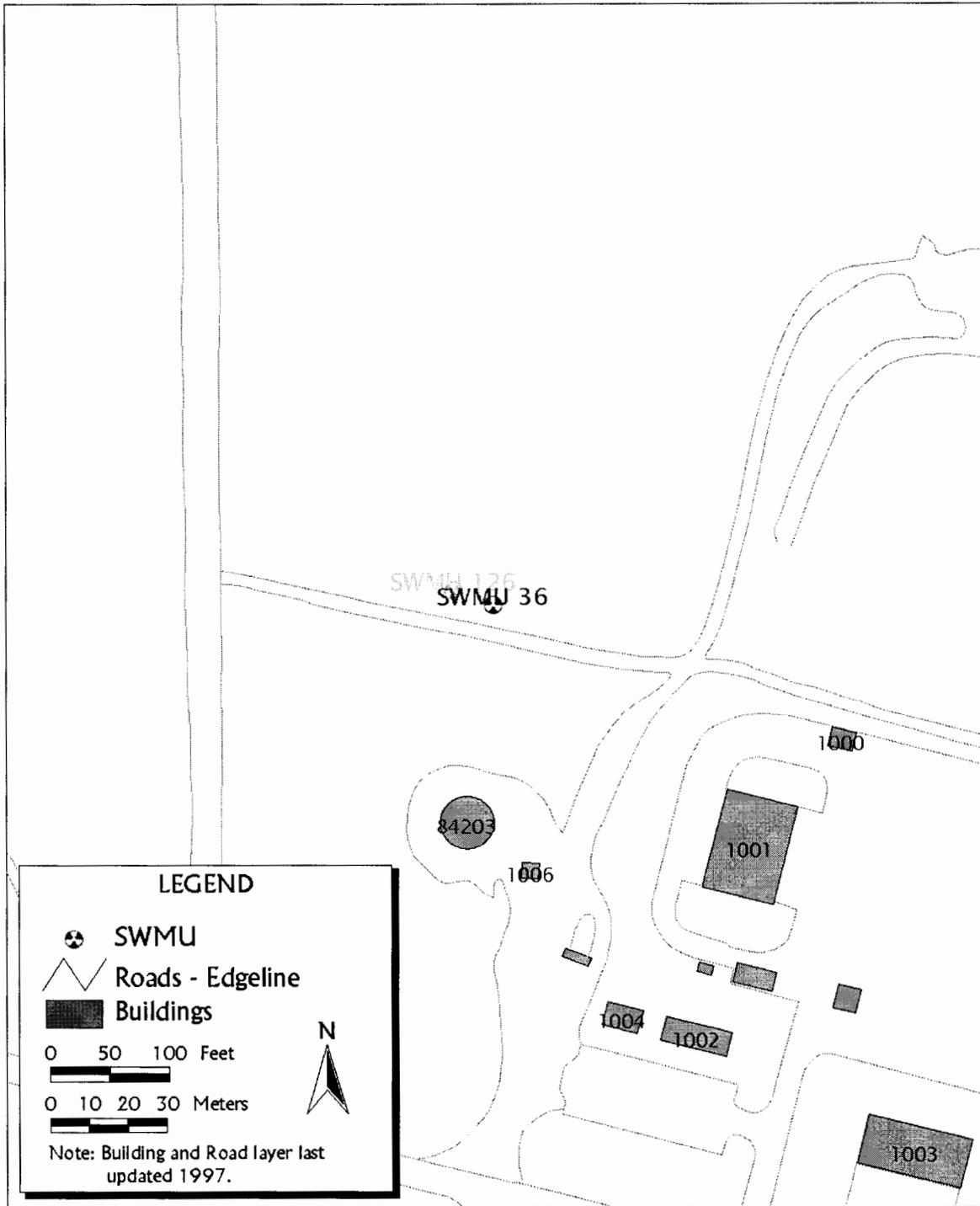
All closure samples indicated TRPH concentrations less than 1,000 mg/kg.

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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 36 - Building 1001 Oil/Water Separator

Figure 32

SWMU 37--Building 1080 Oil/Water Separator (O/WS)**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 33.

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 of 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 RCRA Facility Investigation 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 Remedial Investigation that a release had occurred from SWMU 37 and a Phase II Remedial Investigation 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 Remedial Investigation 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 37 - Building 1080 Oil/Water Separator

Figure 33

SWMU 38--Building 1080A Oil/Water Separator (O/WS)**Location**

SWMU 38 is adjacent to SWMU 37--Building 1080 O/WS. SWMU 38, Building 1080A O/WS, services aerospace ground equipment maintenance operations and is located 25 ft northwest of the building. For further details, refer to Figure 34.

History

The period of operation for this site was from 1981 to 1991. Building 1080A equipment shop operations were the source of waste. The total capacity of the unit was 1,400 gallons, with an oil capacity of 350 gallons. The unit 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 soil around the unit was 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 was used for aerospace ground equipment 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 RCRA Facility Investigation 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 Remedial Investigation 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 Risk-Based Concentrations. Groundwater samples were not collected at this site.

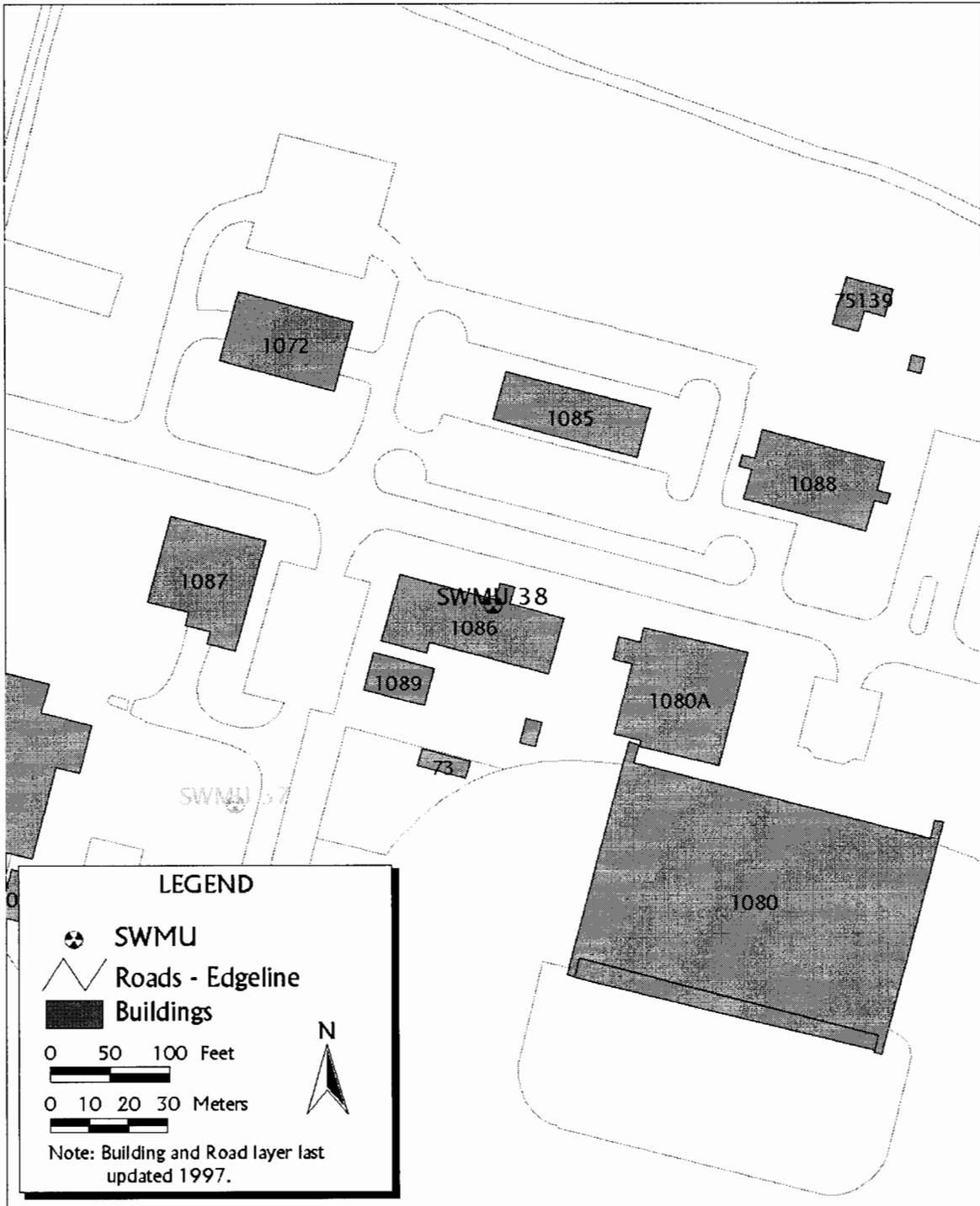
Based on the results of the investigations, it was concluded that a surface release had occurred at SWMU 38. While TRPH concentrations were found in soil that exceeded the 100 mg/kg release criterion, no sample was found to exceed the 1,000 mg/kg cleanup criterion. Although a few SVOCs exceeded the risk-based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

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 38 - Building 1080A Oil/Water Separator

Figure 34

SWMU 40--Building 1166 Oil/Water Separator (O/WS)**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 35.

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 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 via a subsurface pipe. The water remaining in the separator was then discharged to the unlined drainage pit through a subsurface pipe. The O/WS was constructed of steel, and had 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 RCRA Facility Investigation did not indicate any other releases.

Evaluation of Relevant Information

During a Phase I Remedial Investigation 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, the adjacent SWMU 128 WOT was removed and an attempt to locate the O/WS at SWMU 40 was unsuccessful.

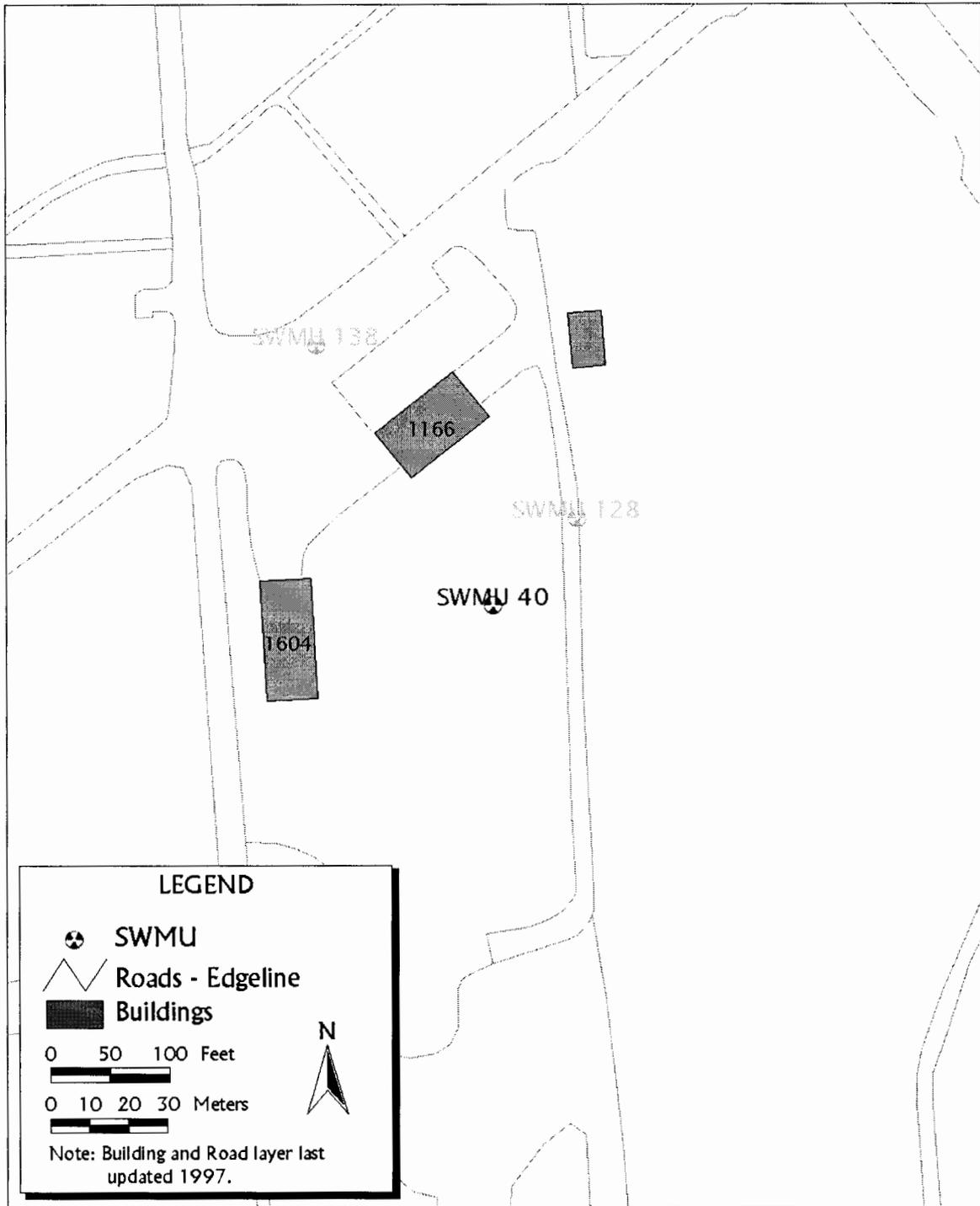
Five closure samples were collected from the excavation at this site to represent both SWMUs 128 and 40. Analytical results, which represent in-place soil conditions upon completion of excavation, were less than 1,000 mg/kg for all closure samples. No contamination was detected using field-screening 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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 40 - Building 1166 Oil/Water Separator

Figure 35

SWMU 41--Building 1266 Oil/Water Separator (O/WS)**Location**

SWMU 41 is adjacent to SWMU 38--Building 1080A O/WS. It was located 50 ft west of Building 1266. For further details, refer to Figure 36.

History

The period of operation for SWMU 41 was from 1987 to 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 RCRA Facility Investigation 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 indicated 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.

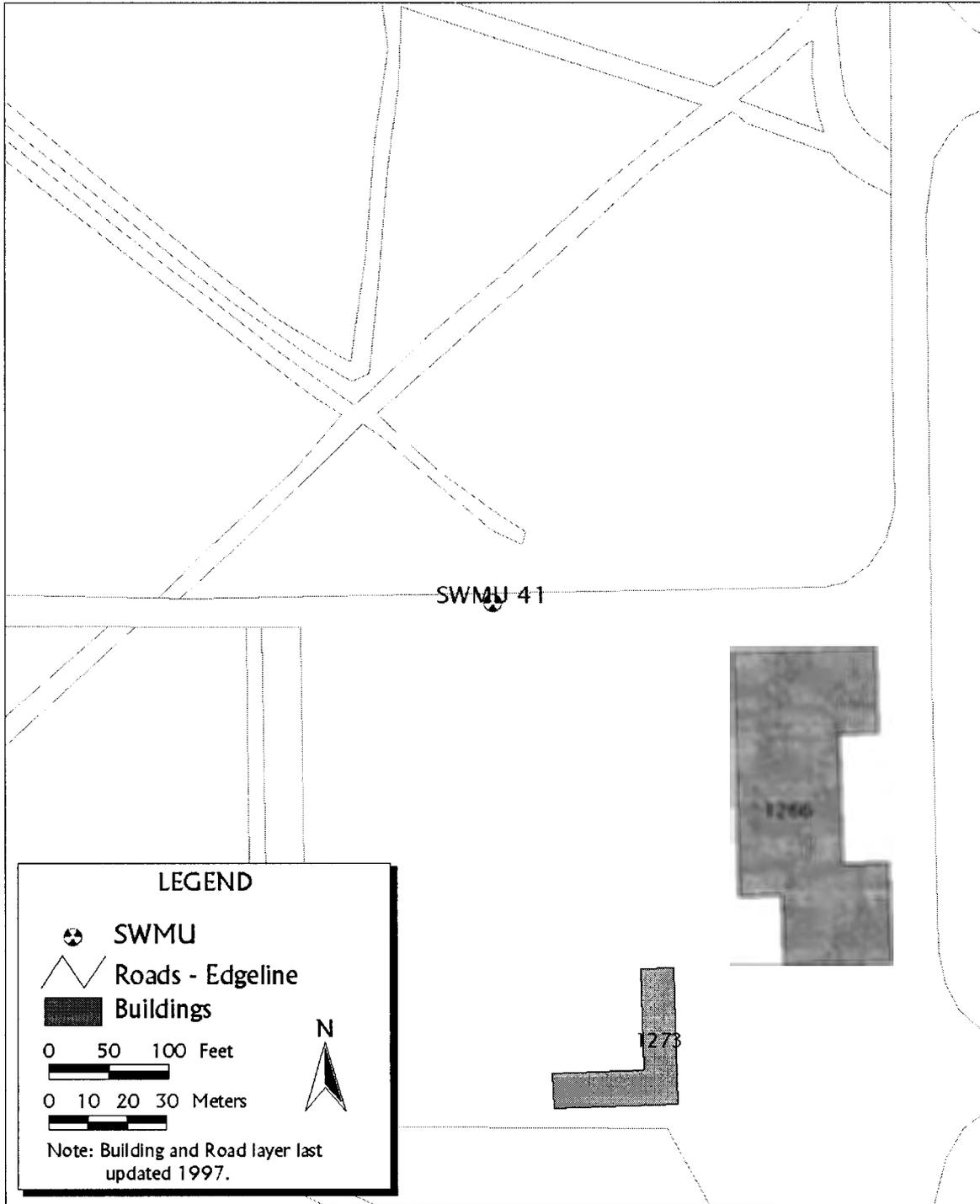
Based on the results of the investigations, it was concluded that a surface release had occurred at SWMU 41. Conditional NFA was recommended, with the requirement that vadose zone soil in excess of 1,000 mg/kg TRPH be remediated. By July 1997, 10 cubic yards of contaminated soil had been excavated. Five 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 41 - Building 1266 Oil/Water Separator

Figure 36

SWMU 42--Building 1 Waste Accumulation Area**Location**

There are no SWMUs adjacent to SWMU 42. SWMU 42 (SS-09) is the Waste Petroleum, Oils, and Lubricants Drum Storage/Spill Area site located west of Building 195 in the main Base area. Groundwater occurs from 5 to 40 ft bgl, and the regional groundwater flow direction is controlled by southwest-trending arroyos. For a further description of the area, refer to Figure 37.

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 records 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. With the exception of chloride and sulfate, water quality parameters were detected at concentrations below the established background levels for Holloman AFB.

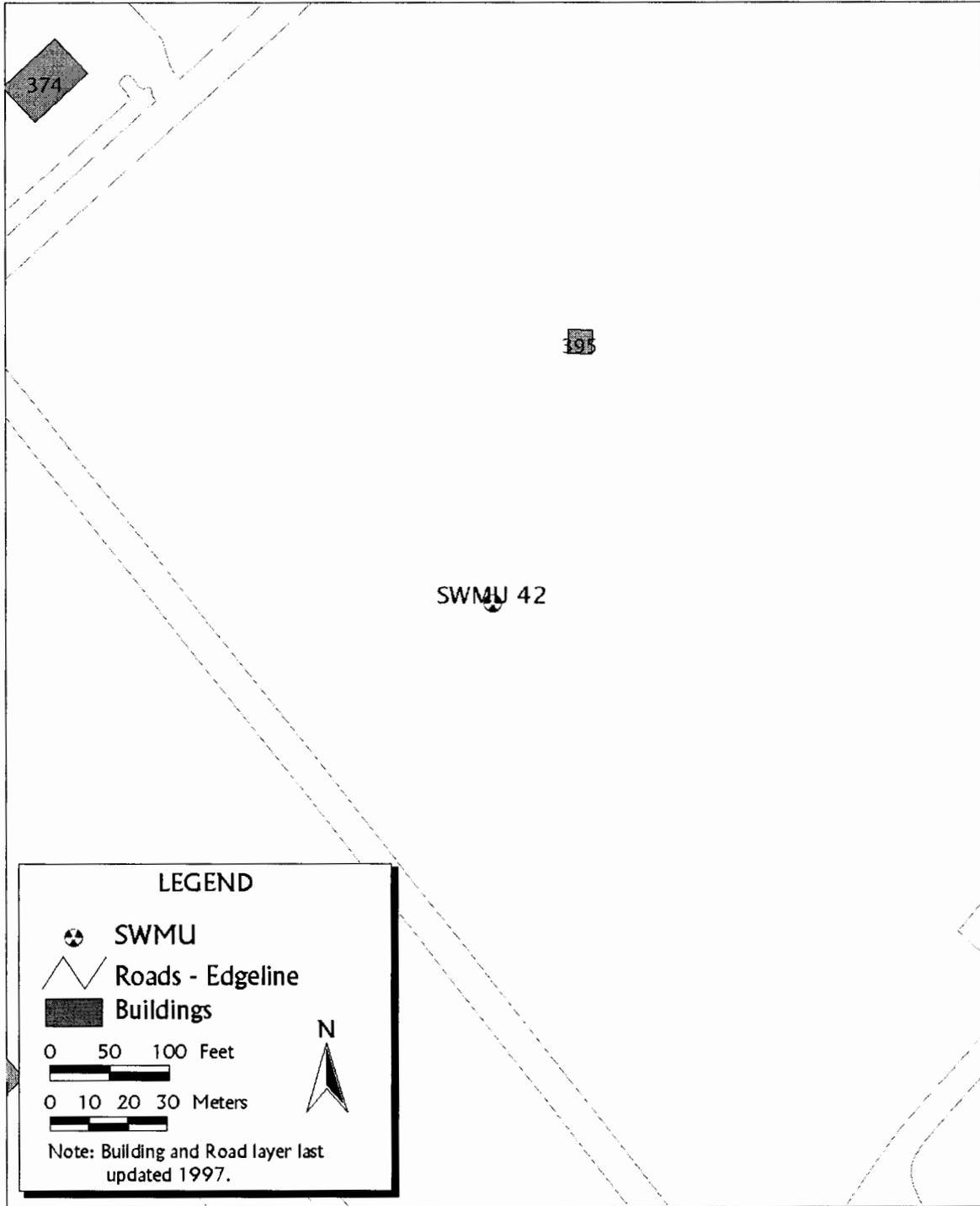
A risk assessment performed in 1992 determined that the site's current level of use presents an acceptable health risk. However, if the area's usage changes in the future, a reevaluation of the risks would be necessary. No remedial action has taken place at SWMU 42.

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.

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites



SWMU 42 - Building 1 Waste Accumulation Area

Figure 37

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 38.

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 to 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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I

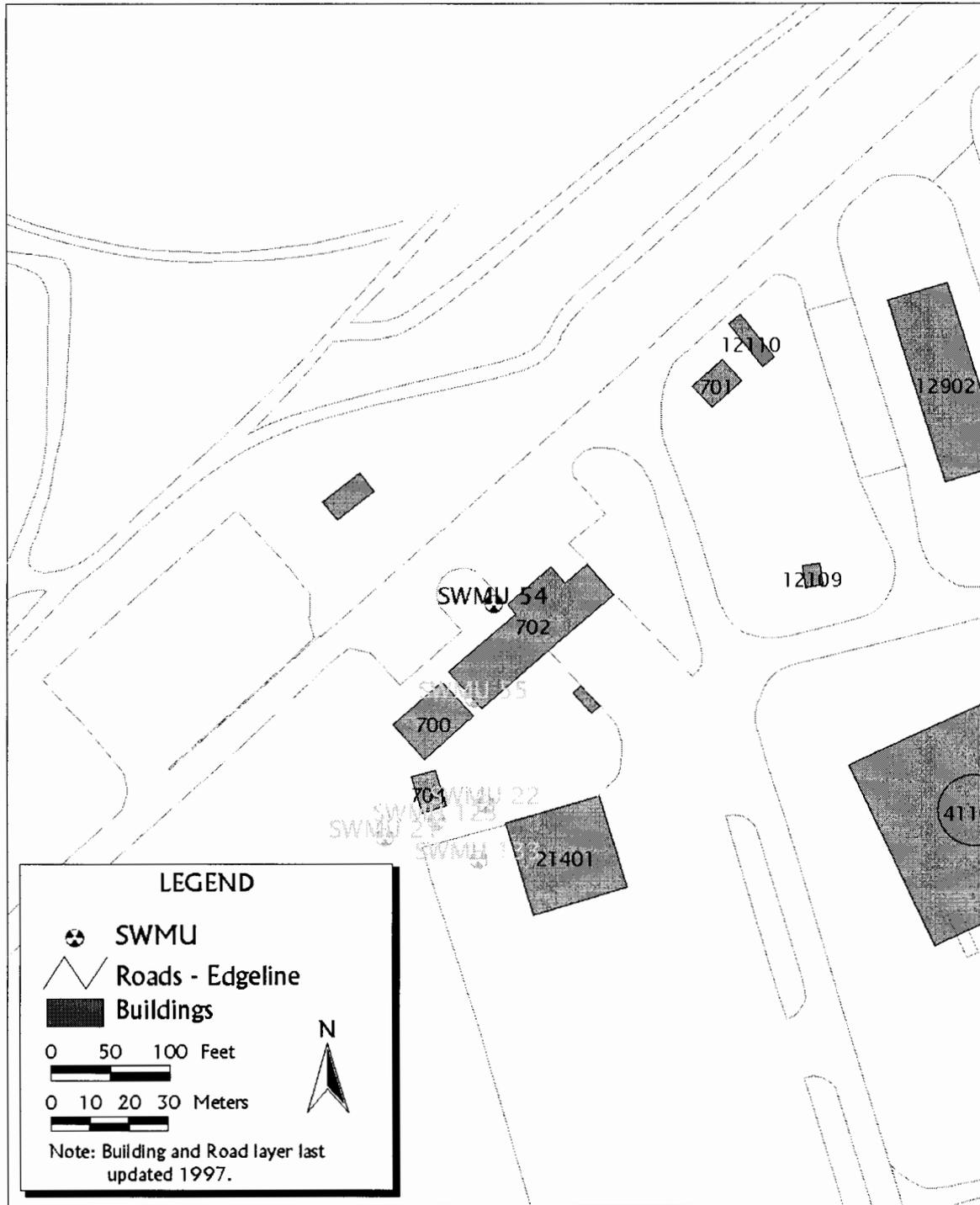


Figure 38

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 39.

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.

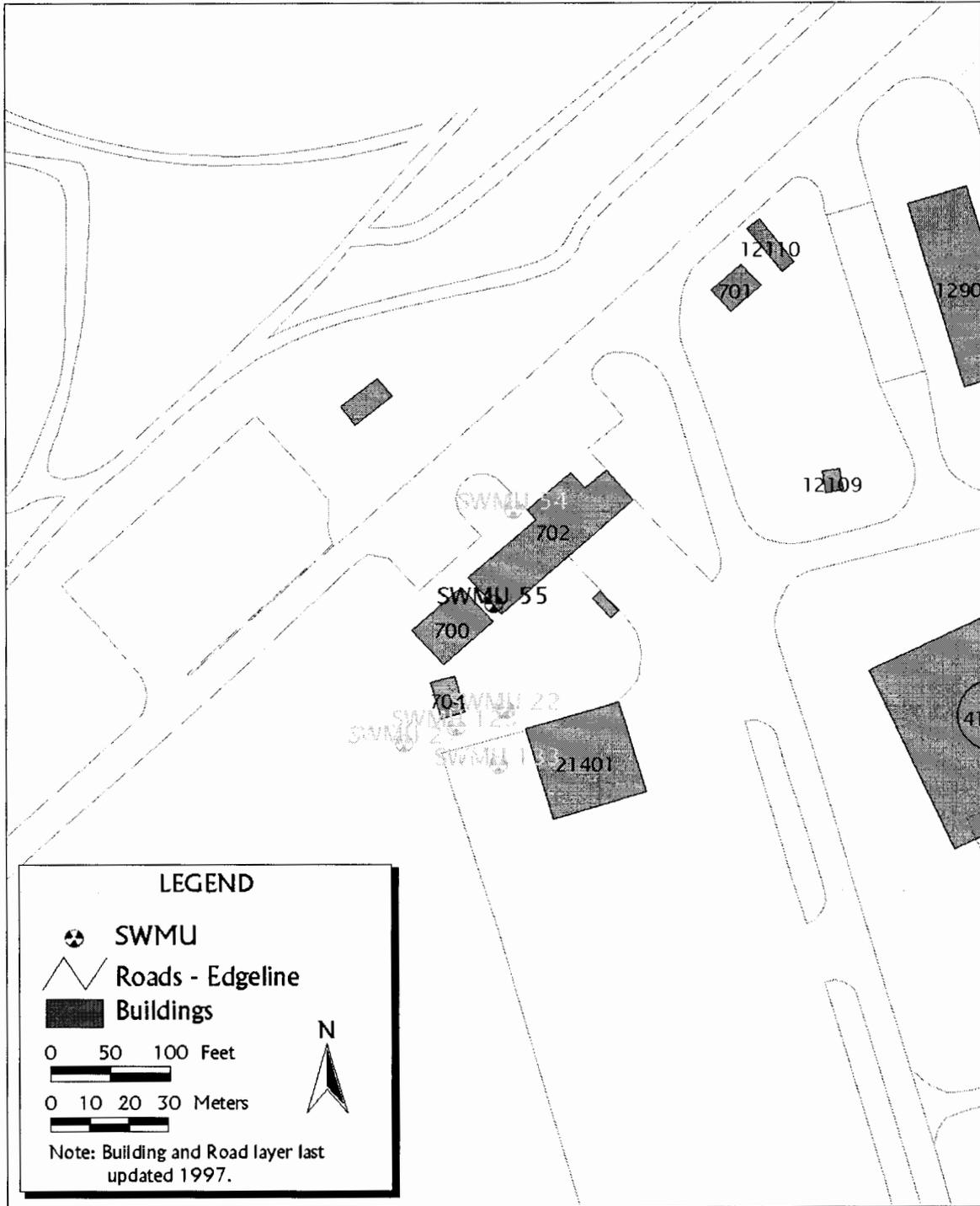
2-Hexanone, 4-methyl-2 pentanone, acetone, and methyl ethyl ketone were detected in one sample, although similar concentrations were found in the method blank associated with the sample. Acetone was detected in several samples at concentrations higher than the method blank. All VOCs were detected at 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 risk assessment 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report -- Table 2 Solid Waste Management Units, Volume I



SWMU 55 - Building 702A Waste Accumulation Area

Figure 39

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 40.

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.

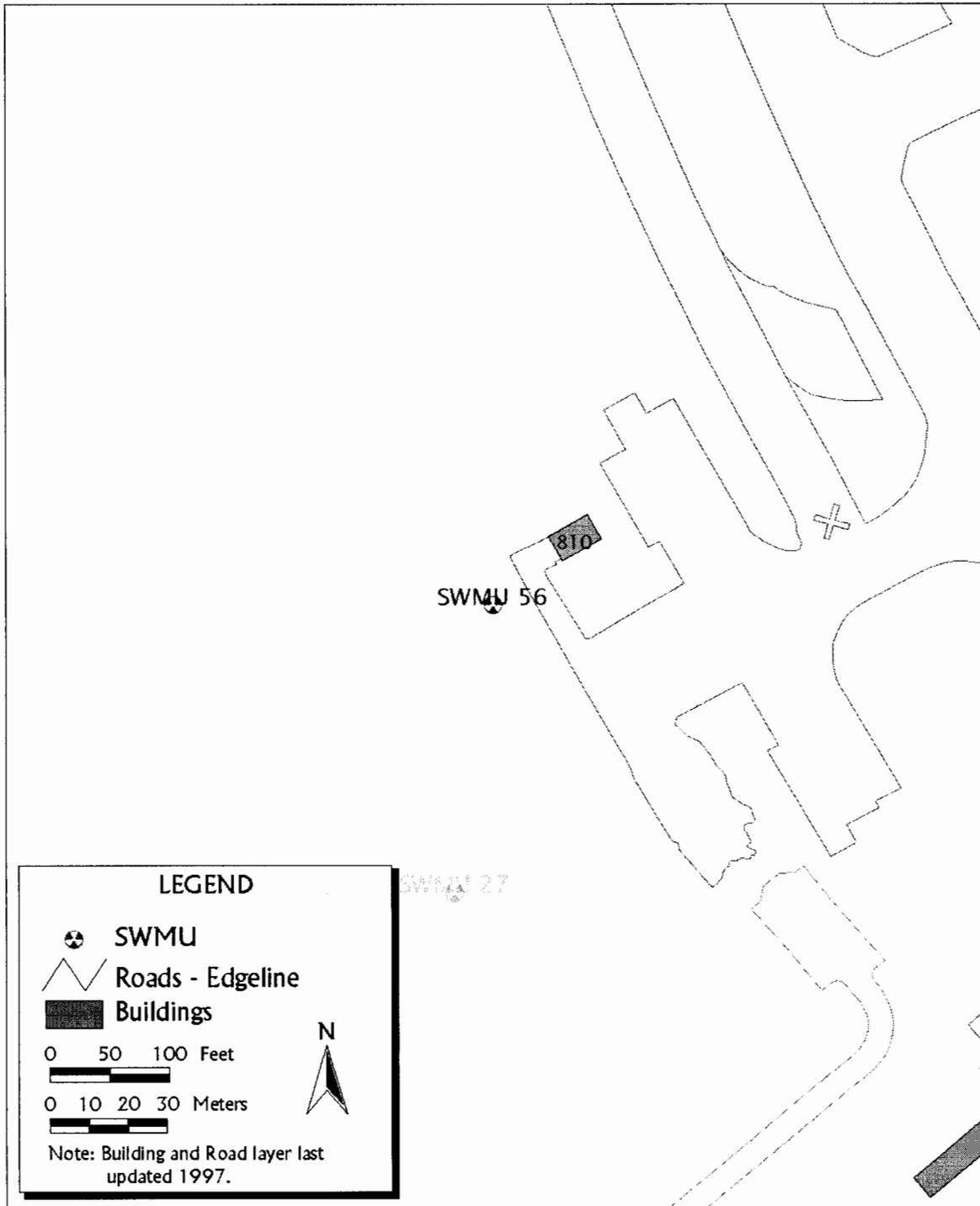
A risk assessment for SWMU 56 was conducted, and it was determined that the site did not pose a significant risk to human health or the environment. The concentrations of all detected constituents were below both the risk-based trigger criteria and the New Mexico TRPH cleanup standard.

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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 56 - Building 807 Waste Accumulation Area

Figure 40

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 41.

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 site investigation 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.

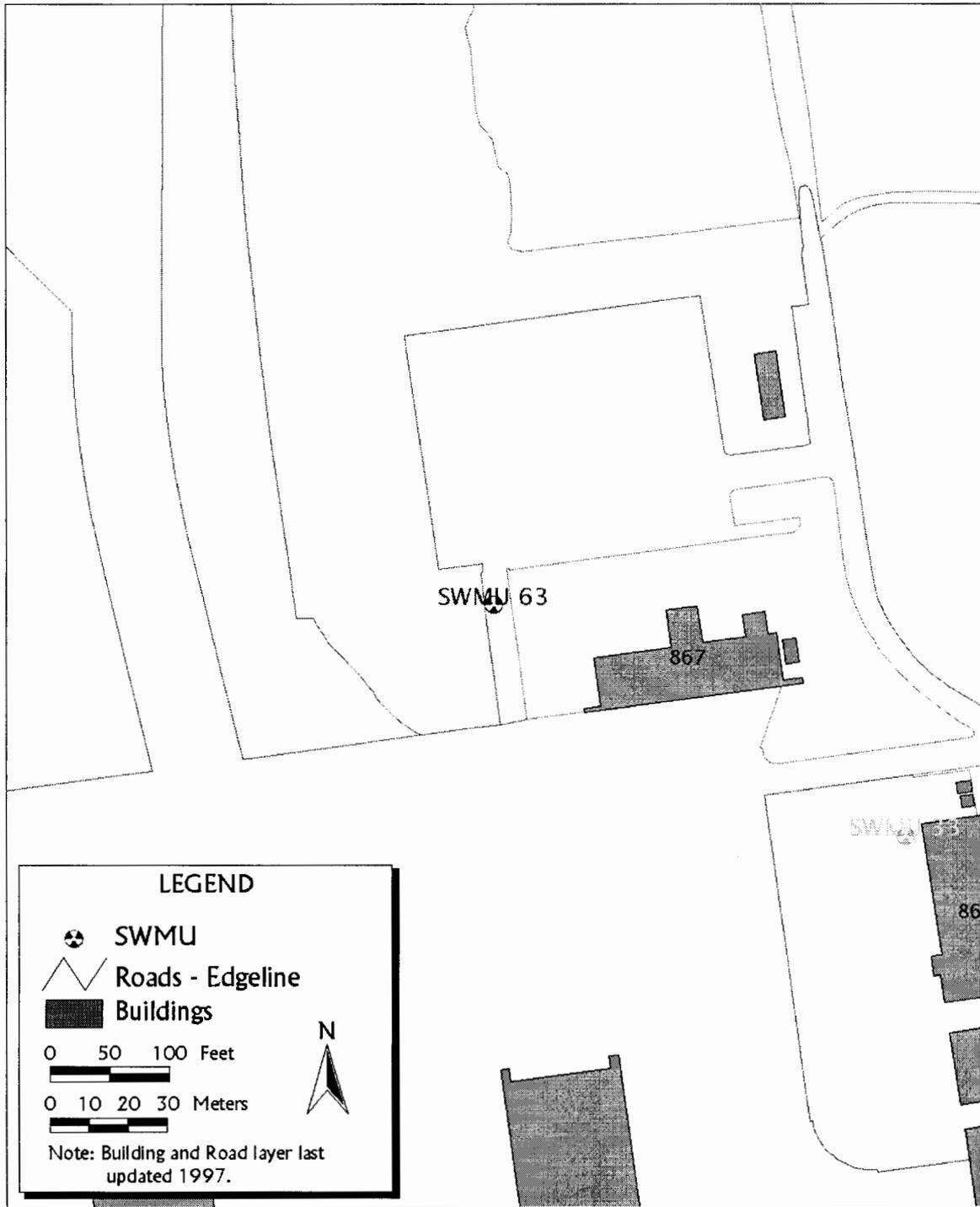
A quantitative risk assessment was conducted for SWMU 63 to determine the need for further investigation at the site based on potential risk to human health or the environment. Contamination was determined to have little impact to local wildlife or human activities. Because all detected constituents 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 63 - Building 867 Waste Accumulation Area

Figure 41

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 42.

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-680 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 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 Remedial Investigation 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 risk assessment 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 71 - Building 1178A Waste Accumulation Area

Figure 42

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 43.

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 Remedial Investigation 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.

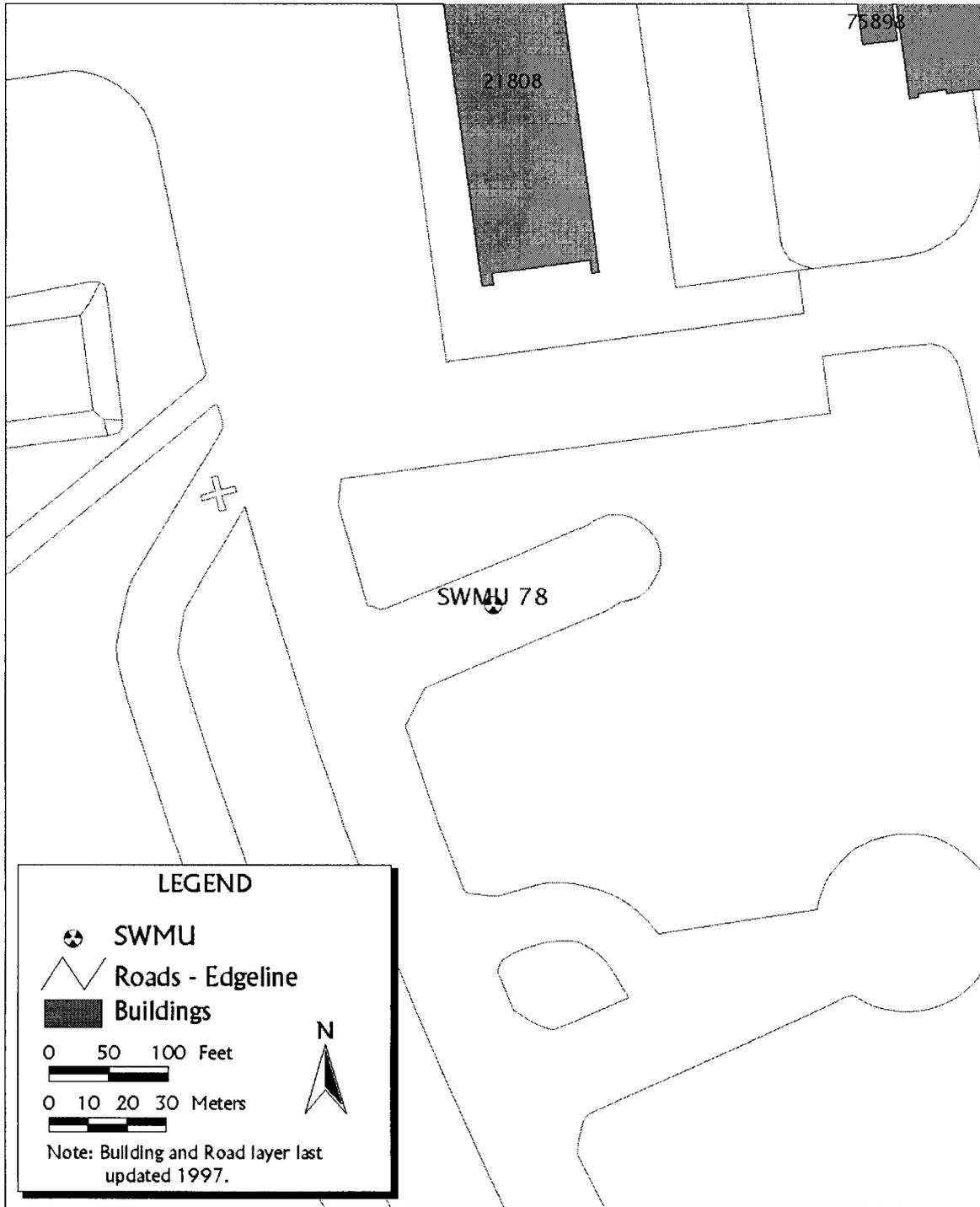
A qualitative risk assessment was conducted for SWMU 78 to determine the need for further investigation based on potential risk to human health or the environment. It was determined that the SWMU is unlikely to pose a risk to wildlife or the environment due to the low levels of detected constituents. 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 78 - Trim Pad 3 Waste Accumulation Area

Figure 43

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 44.

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 Remedial Investigation 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 chemicals of potential concern through the risk-based screening process.

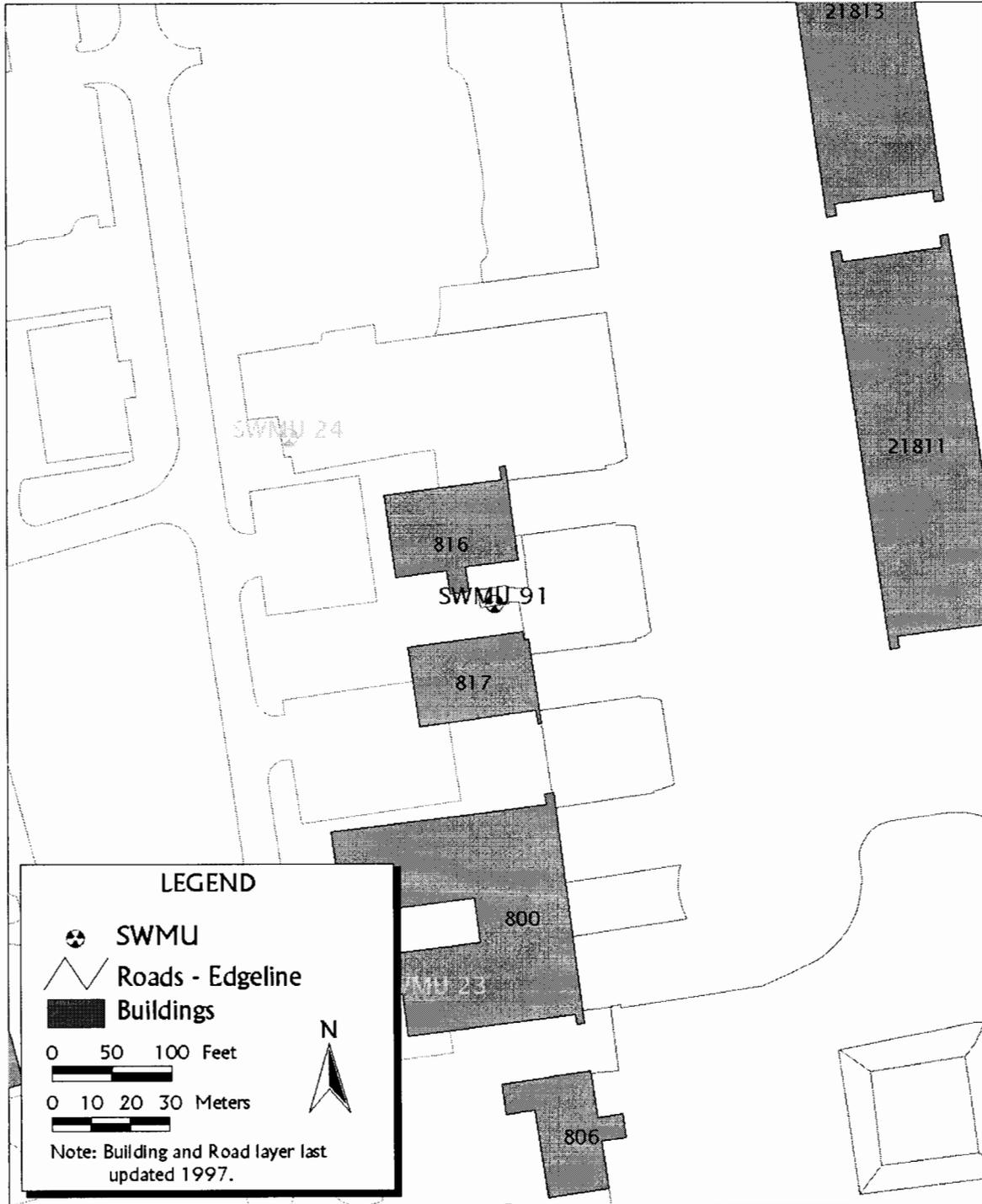
A qualitative risk assessment was conducted for SWMU 91 to determine the need for further investigation based on potential risk to human health and the environment. It was determined that wildlife were not expected to be at risk from SWMU 91 activities. Because concentrations of detected constituents 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 91 - Building 816 Wash Rack

Figure 44

SWMU 102--Acid Trailer Burial Site

Location

SWMU 102 is adjacent to SWMU 38--Building 1080A 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 45.

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 store propellants, oxidizers, and other fuel components was the source of waste. An acid trailer, suspected to contain explosives (picric 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 Remedial Investigation 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 at the site. The site was investigated under Phase I of the IRP in 1991. During the investigation, an electromagnetic survey determined two locations of the buried waste. On the basis 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, 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 Remedial Investigation 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).

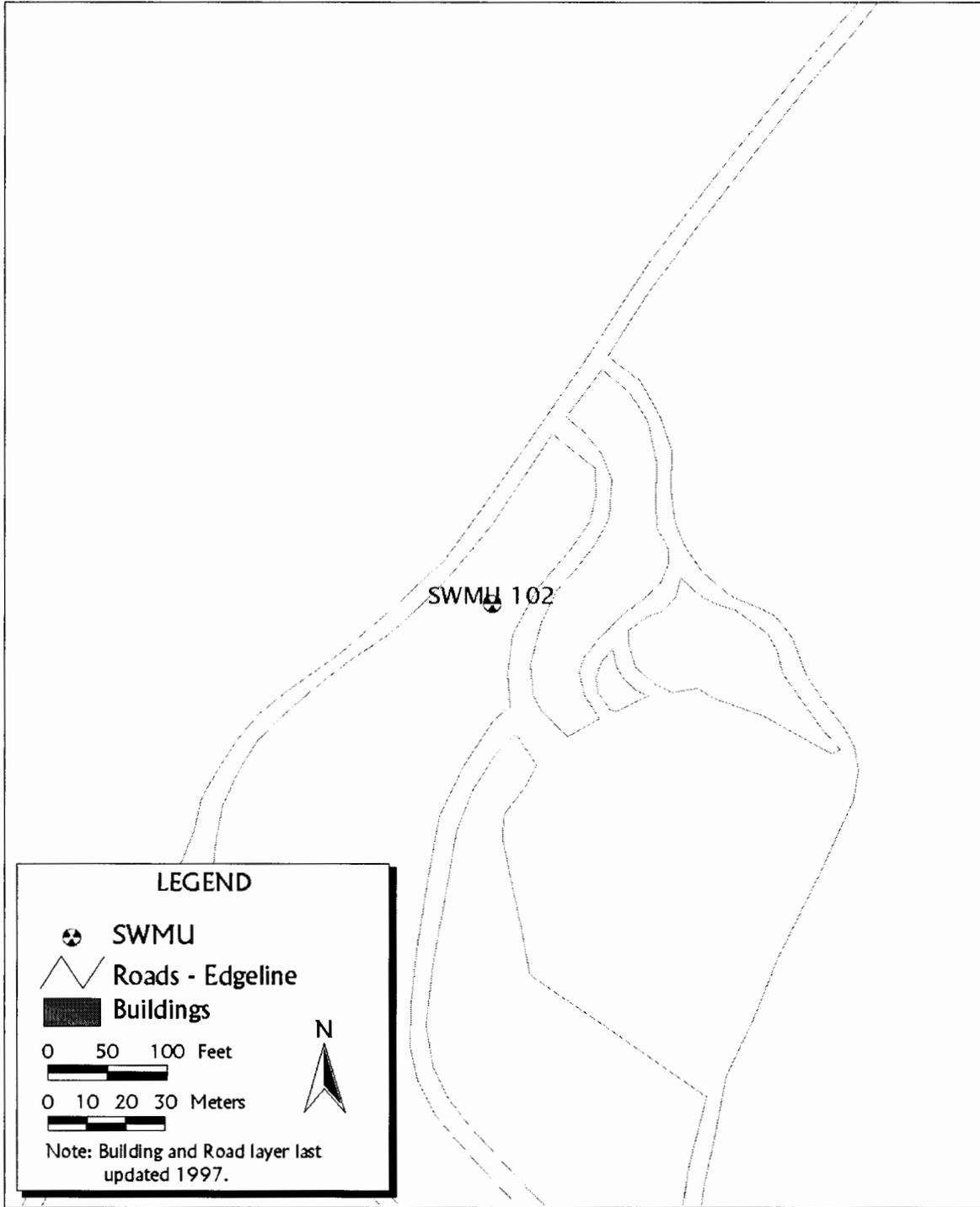
The Phase I Remedial Investigation, risk assessment, and Phase II RCRA Facility Investigation indicate that the voluntary remedial action taken by Holloman is sufficient to preclude further action.

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 to human health or the environment.

References

June 1995, Draft Final Phase II RCRA Facility Investigation Report – Table 1 Solid Waste Management Units, Volume I



SWMU 102 - Acid Trailer Burial Site

Figure 45

SWMU 107--Main Base Substation PCB Disposal Area**Location**

SWMU 107 is adjacent to SWMU 38--Building 1080A O/WS. SWMU 107 (IRP Site OT-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 46.

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 records 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, it was determined that conditional NFA was warranted, with the requirement that soils exceeding TPH concentrations of 1,000 mg/kg be remediated.

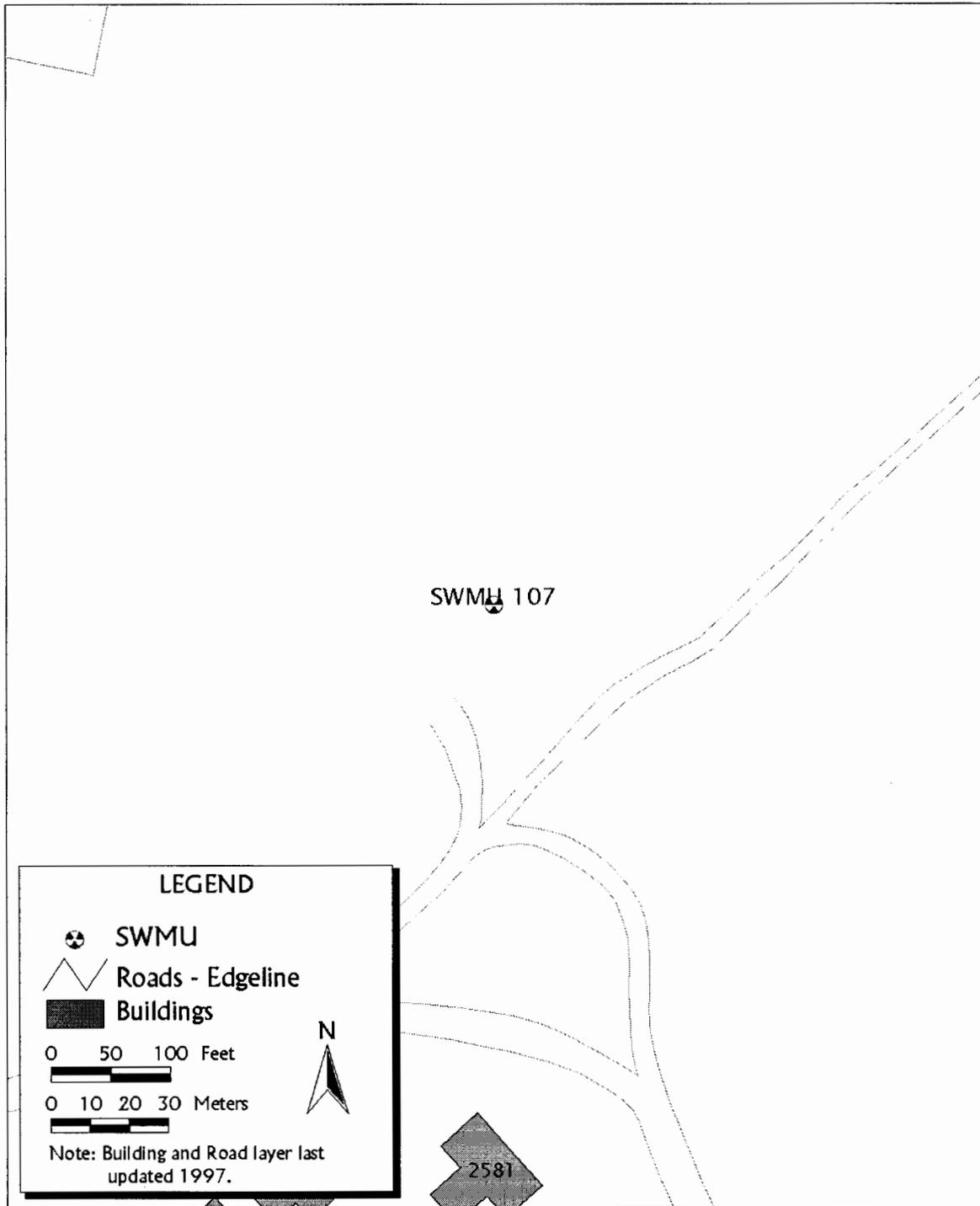
In August 1995, soil excavation activities began at OT-11. Approximately 180 cubic yards of TPH and PCB-contaminated soil was excavated and removed. Five closure samples were collected and analyzed for PCB and TPH. TPH concentrations ranged from 85 mg/kg to 350 mg/kg, and no PCBs were detected. One soil stockpile sample was collected and analyzed for TPH, Toxicity Characteristic Leaching Procedure, 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 (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 to human health or the environment.

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 107 - Main Base Substation PCB Disposal Area

Figure 46

SWMU 119--Building 121 Waste Oil Tank (WOT)**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 47.

History

The period of operation for this site was from 1984 to 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 was conducted in 1994, in which 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 chemicals of potential concern above trigger criteria in any sample. Although SWMU 119 was recommended for NFA, the WOT was removed by 1997 as part of the Base-wide Petroleum, Oils, and Lubricants 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.

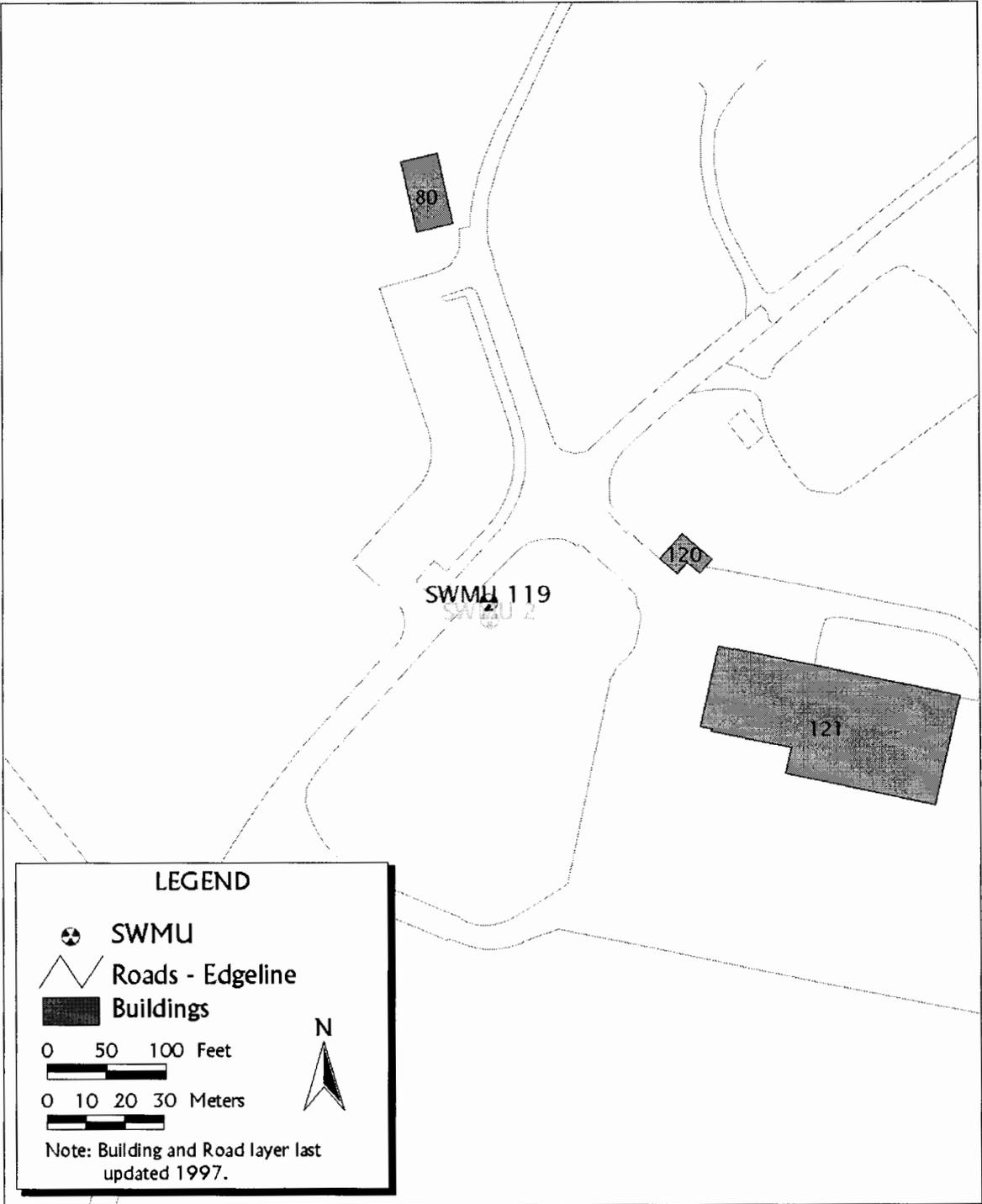
Five closure soil samples were collected at each SWMU after restoration activities were completed. Analytical results were less than Base cleanup criteria for all closure samples. Two soil stockpile samples were collected for SWMU 119 and analyzed for TRPH, VOCs, and SVOCs. Analytical results were less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

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 119 - Building 121 Waste Oil Tank

Figure 47

SWMU 120--Building 309 Waste Oil Tank (WOT)**Location**

This SWMU is adjacent to SWMU 15--Building 309 Oil/Water Separator. SWMU 120, Building 309 Waste Oil Tank, 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 and WOT. For a further description of the area, refer to Figure 48.

History

SWMU 120, Building 309 Waste Oil Tank 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 data from SWMU 15, the closest adjacent SWMU, is used to characterize the site.

Evaluation of Relevant Information

A Phase I Remedial Investigation 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 VOCs, TRPH, metals, and SVOCs in visibly contaminated soils. Methylene chloride was detected in two samples, but at concentrations significantly below trigger levels. Chromium was also detected above UTLs in three samples, but all were below background levels. No chemicals of potential concern were identified by the risk screening process.

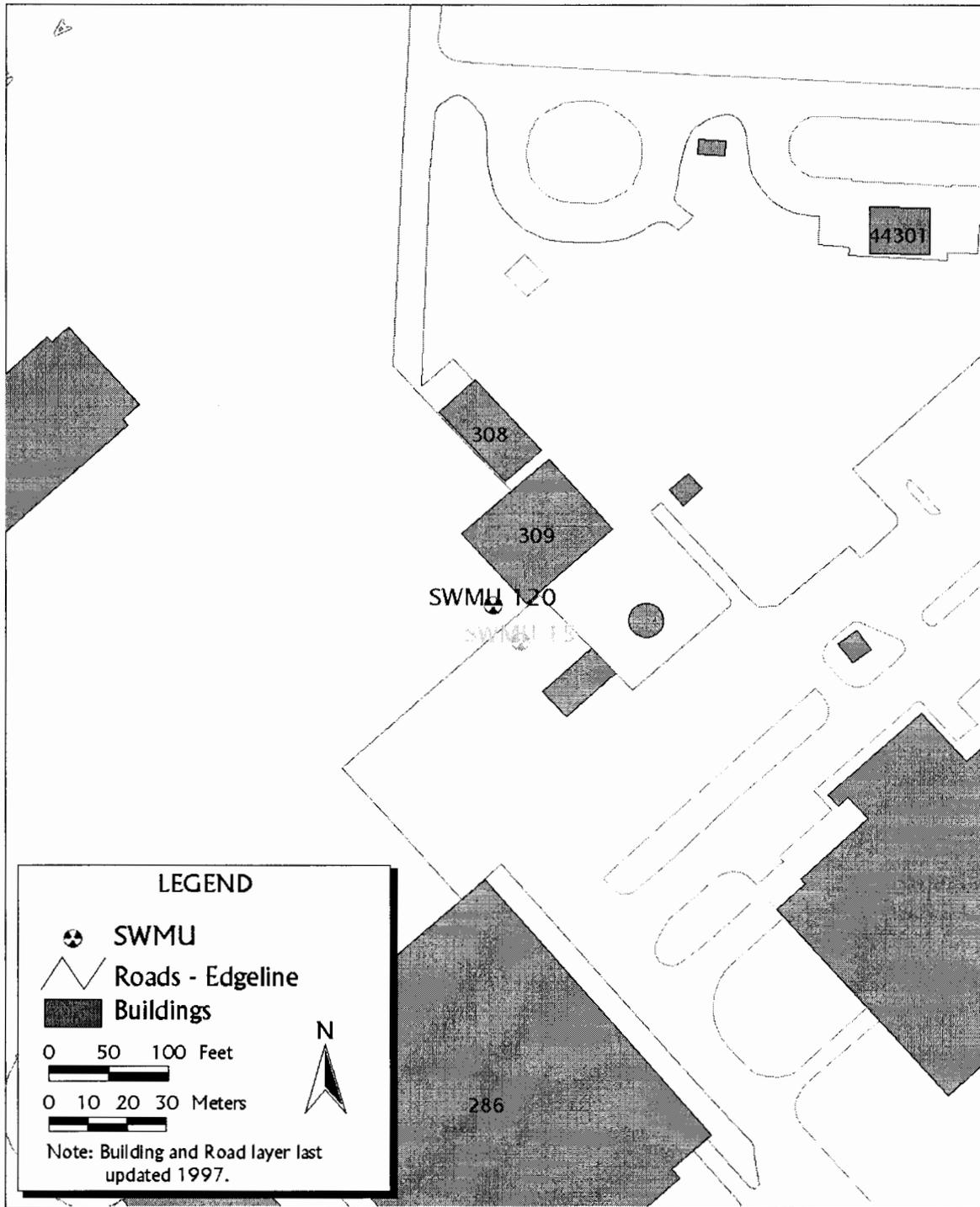
A qualitative risk assessment was conducted for SWMU 15. The results of the assessment concluded that a release was unlikely to have occurred at these sites. Since evidence of the existence of SWMU 120 was not confirmed and the concentrations of all detected contaminants at SWMU 15 were below trigger 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 120 - Building 309 Waste Oil Tank

Figure 48

SWMU 121--Building 316 Waste Oil Tank (WOT)**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 49.

History

The period of operation for this site is unknown. The tank was located below grade and was covered by gravel. The tank was removed in April 1996 as part of the Base-wide Petroleum, Oils, and Lubricants remediation program. Washwater containing hydraulic fluid from the Building 316 flight simulator was the source of waste for SWMU 121. Waste oil skimmed from water in the 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 the 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 chemicals of potential concern were identified by the risk screening process.

A qualitative risk assessment 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.

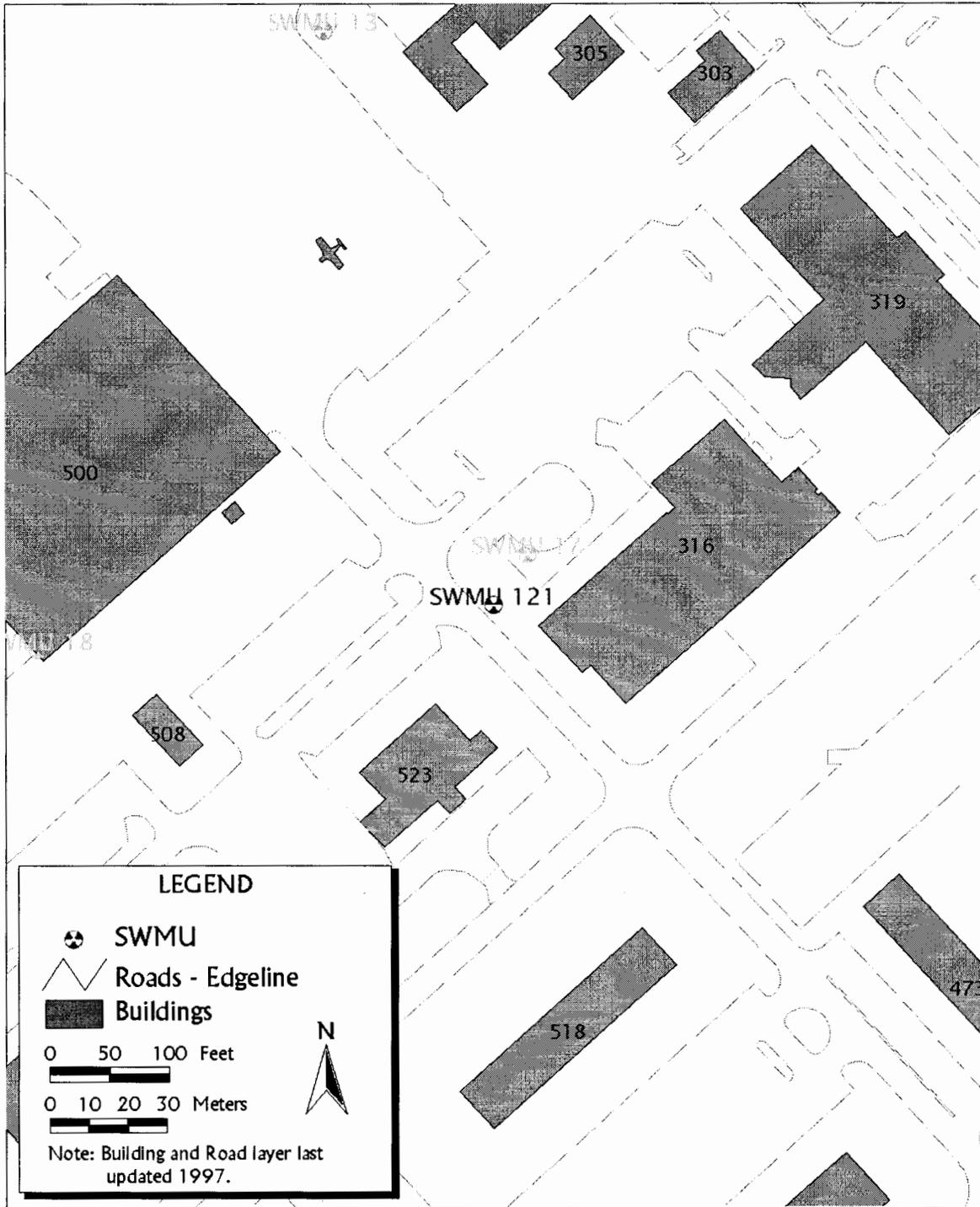
After the first phase, ten closure samples were collected and analyzed for TRPH; seven of the ten samples exceeded the TRPH cleanup standard of 1,000 mg/kg. Following the second phase, a second round of closure samples was collected and analyzed for TRPH; all samples were well below the cleanup standard (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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 121 - Building 316 Waste Oil Tank

Figure 49

SWMU 123--Building 704 Waste Oil Tank (WOT)**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 Petroleum, Oils, and Lubricants wash rack south of Building 703. For further description of the site, refer to Figure 50.

History

SWMU 123 was in service from approximately 1980 to 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 Remedial Investigation 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 had 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 NFA, with the condition that vadose zone soil extending under the Petroleum, Oils, and Lubricants wash rack is remediated below 1,000 mg/kg 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 to human health or the environment.

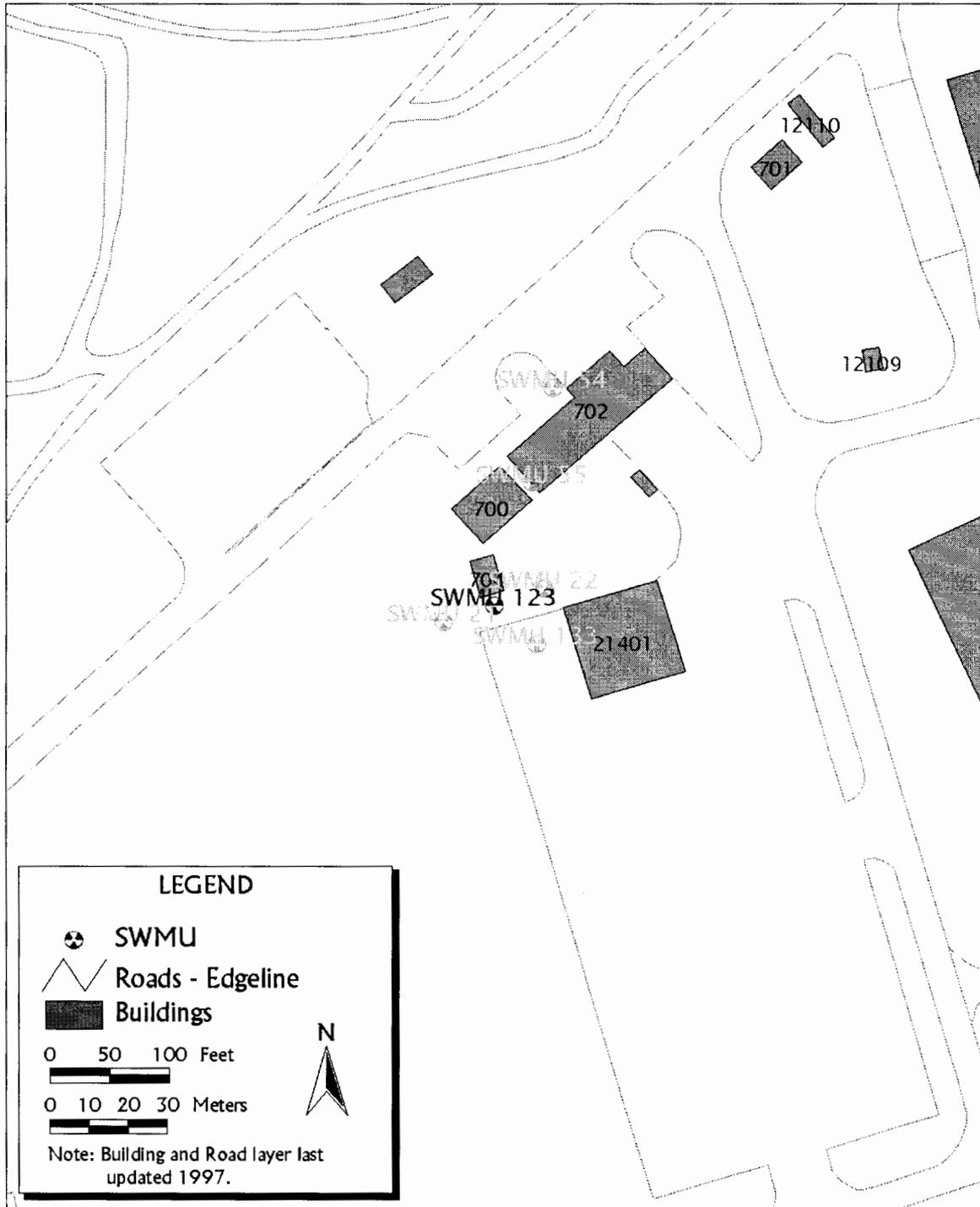
References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I

February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995

December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals

April 1999, Results of Additional Soil Sampling for Remediation of the POL-Contaminated SWMU 123, at Holloman AFB, New Mexico (letter report)



SWMU 123 - Building 704 Waste Oil Tank

Figure 50

SWMU 124--Building 752 Waste Oil Tank (WOT)**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 51.

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, 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 (trichloroethylene 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 was not ignitable below 140 °C, but that it was hazardous for trichloroethylene.

Results of a quantitative risk assessment 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.

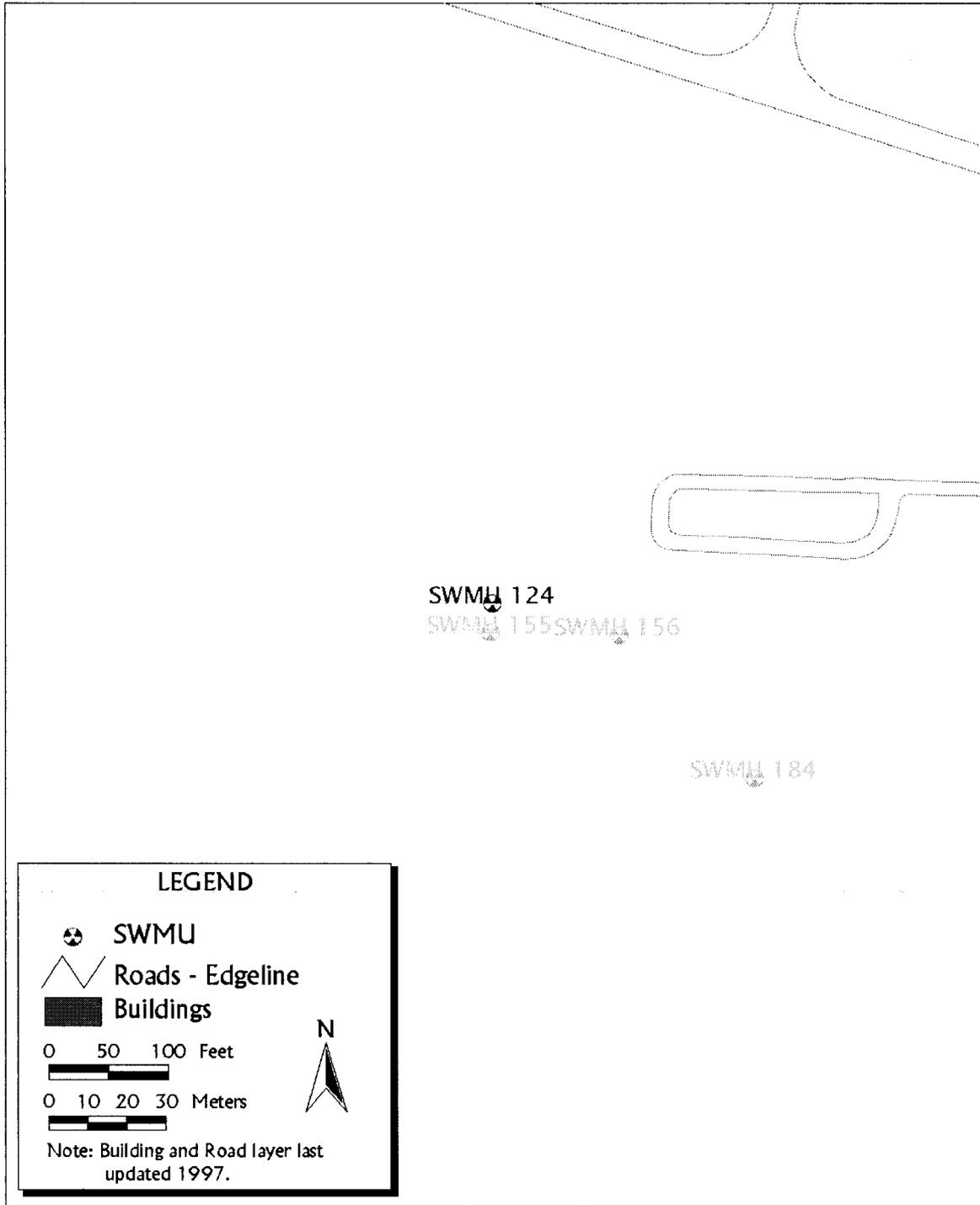
The waste oil tank and its contents have been removed and disposed of properly.

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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 124 - Building 752 Waste Oil Tank

Figure 51

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 52.

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 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 Remedial Investigation 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 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 risk assessment 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.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 125 - Building 868 Fire Water Tank

Figure 52

SWMU 126--Building 1001 Waste Oil Tank (WOT)**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 53.

History

The period that this site was used was from 1982 to 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 had occurred. Soil in the other three boreholes did not appear visually contaminated.

Evaluation of Relevant Information

During a Phase I Remedial Investigation 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 risk assessment 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 Petroleum, Oils, and Lubricants 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.

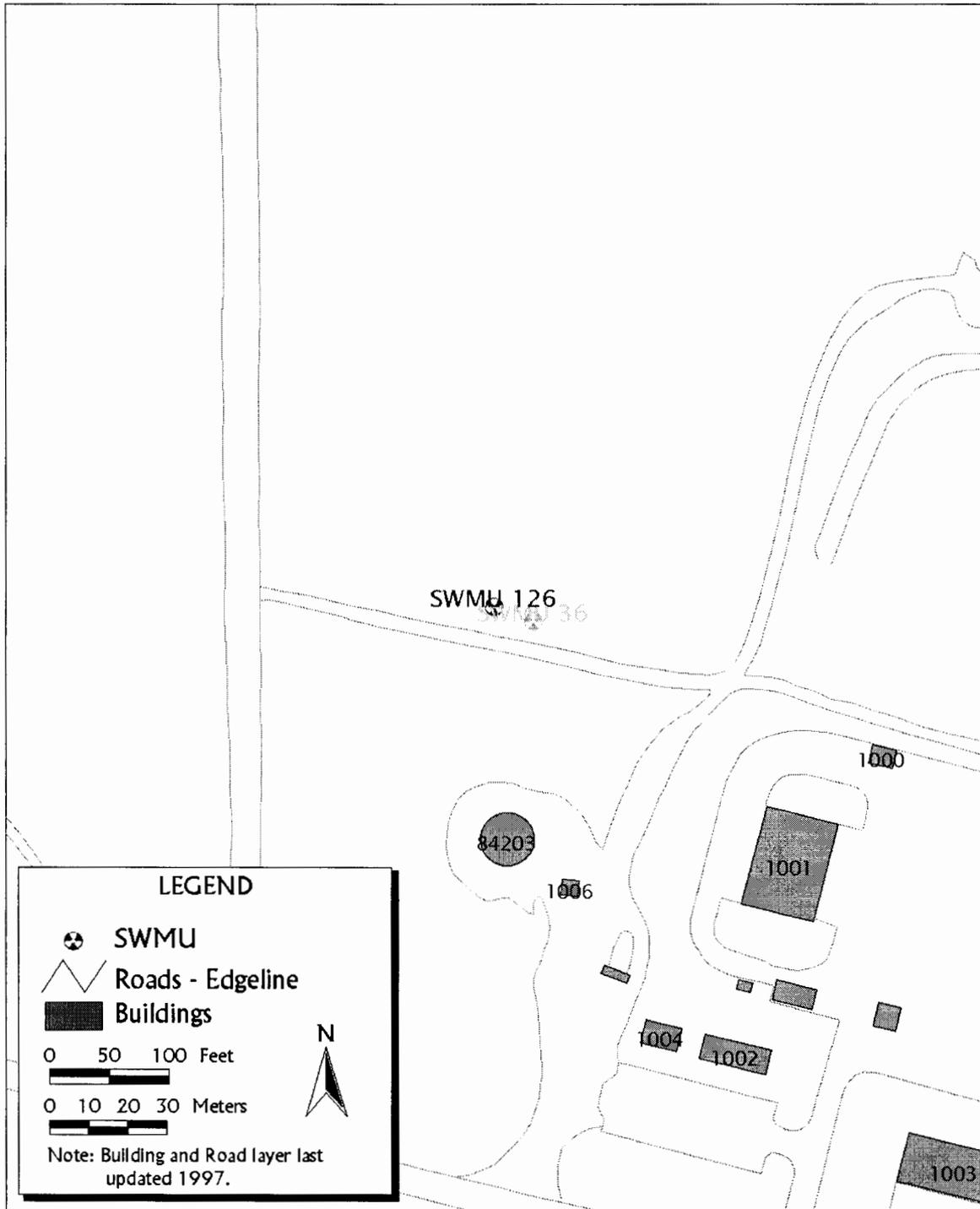
Five closure soil samples were collected from the excavation site. All samples, which represent soil conditions upon completion of excavation, were beneath 1,000 mg/kg. One soil stockpile sample was collected and analyzed for TRPH, BTEX, and lead. The analytical results indicated TRPH concentrations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

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU 126 - Building 1001 Waste Oil Tank

Figure 53

SWMU 128--Building 1166 Waste Oil Tank (WOT)**SWMU 138--Building 1166 Oil/Water Separator (O/WS) 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 54/55.

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 had occurred from SWMU 128. A records search conducted in 1992 and visual inspection of the site during the RCRA Facility Investigation did not indicate any other releases.

Evaluation of Relevant Information

During a Phase I Remedial Investigation 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).

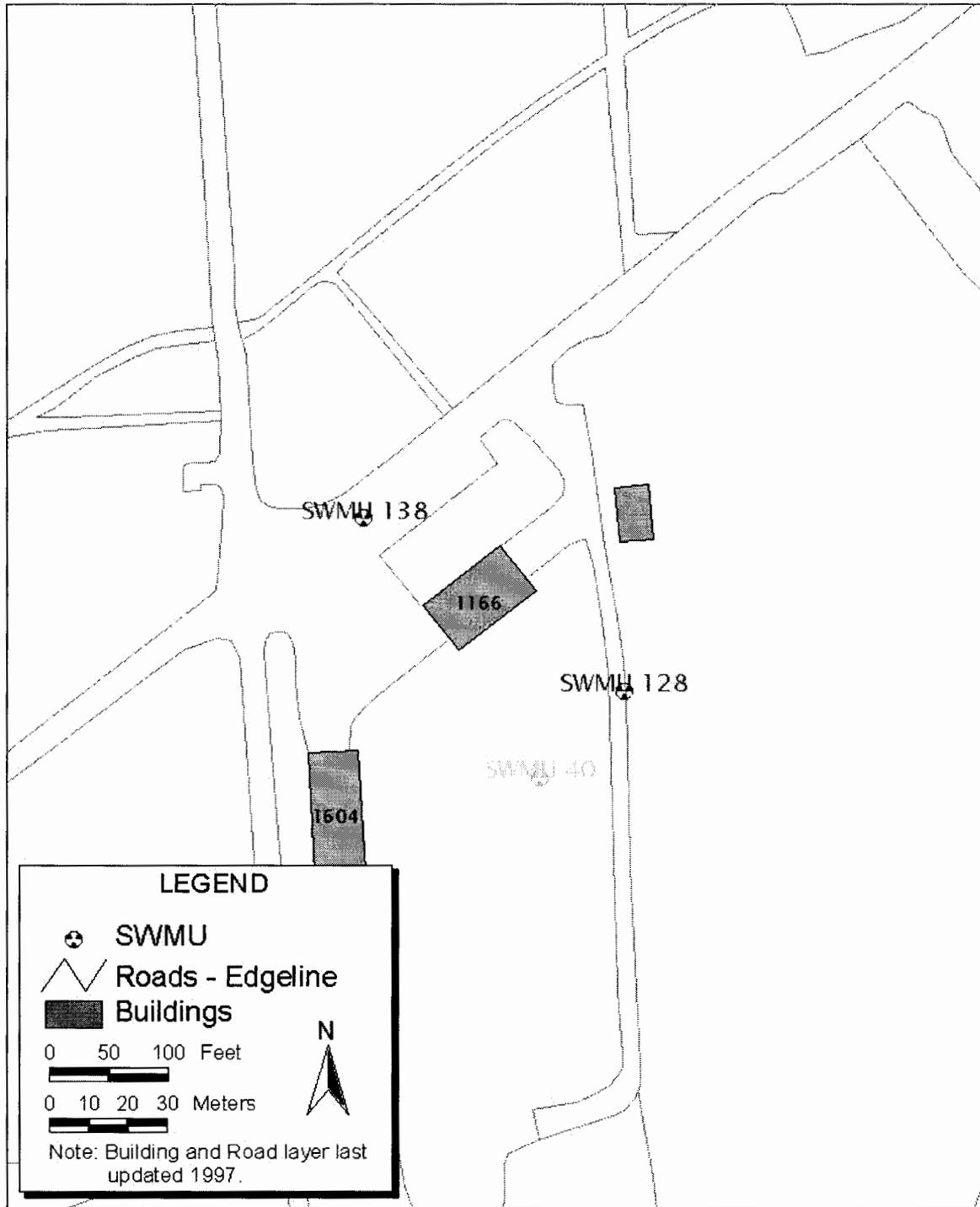
In 1995, SWMU 138 was remediated as part of the Phase I Remediation of Petroleum, Oils, and Lubricants Contaminated Sites. TRPH concentrations in excess of 1,000 mg/kg were not detected at this site. SWMU 128, the waste oil tank, was excavated, removed, and destroyed off-site by Basin Pipe and metal. 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 SWMUs have been characterized and/or remediated, and available data indicate that the potential risk does not pose a threat to human health or the environment.

References

- October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I
- July 1997, Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals
- February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995



SWMU 128 & 138- Building 1166 WOT and OWS

Figure 54/55

SWMU 129--Buildings 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 56.

History

The estimated period of operation of this site was from 1952 until 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 Remedial Investigation completed in 1992 indicated that petroleum contamination was present at the site. However, a Phase II Remedial Investigation in 1994 determined that while a small amount of TRPH was present in soils, groundwater contamination was not present.

Evaluation of Relevant Information

A records search in 1983 indicated the need for remedial investigation, and a Phase I Remedial Investigation began in 1991. Five groundwater-monitoring wells were monitored for VOCs, TRPH, total metals, Total Dissolved Solids, 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.

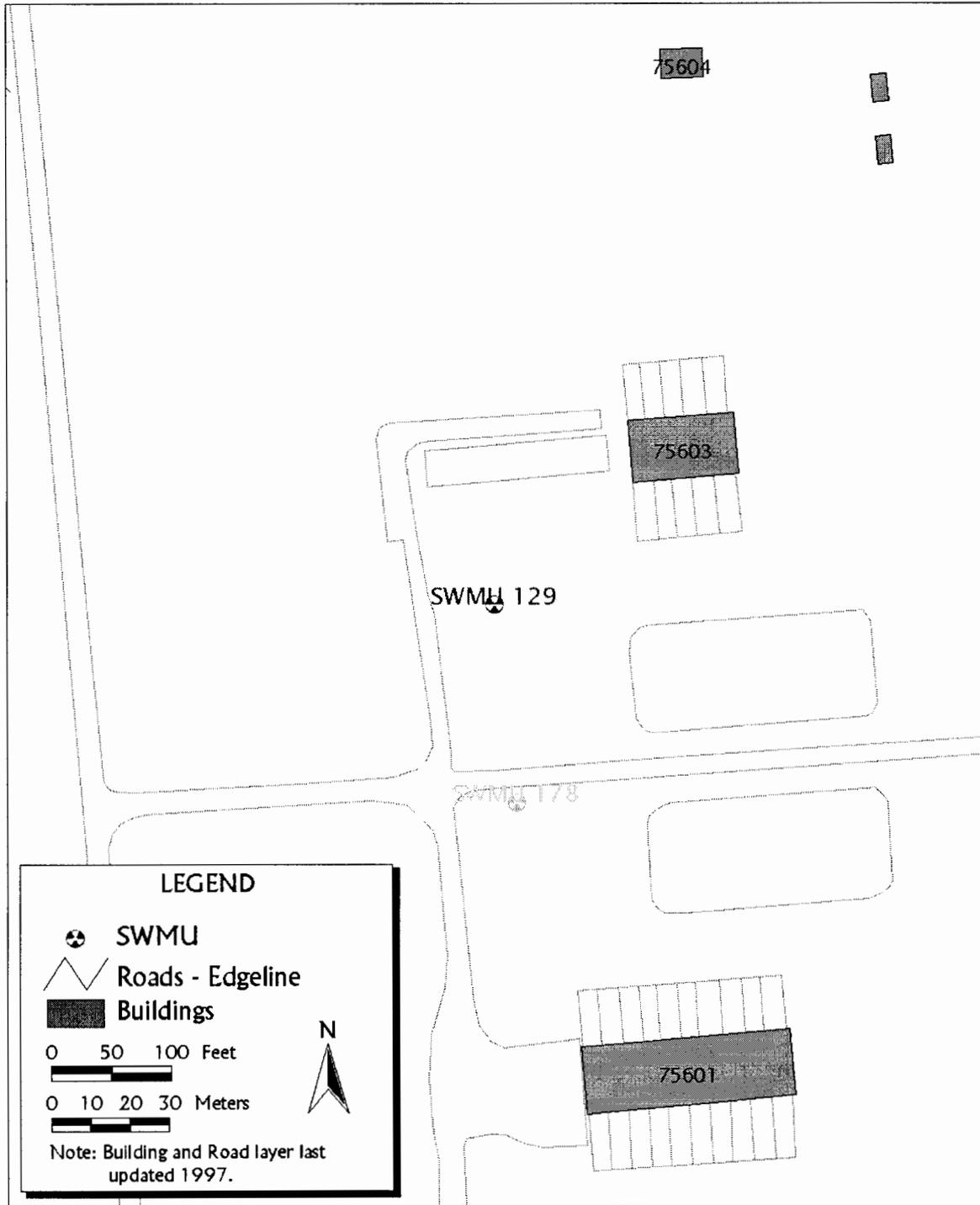
A risk assessment conducted in 1994 indicated that the site did not pose unacceptable risk to human health, although a small area of TRPH-contaminated soil was present. Holloman AFB removed the TRPH-contaminated soil during a voluntary remedial action in 1995. The excavation was performed in accordance 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 to human health or the environment.

References

February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995



SWMU 129 - Buildings 1191 and 1192 Spill Tanks

Figure 56

SWMU 133--Building 703 Washrack Discharge Pit**Location**

There are no SWMUs adjacent to SWMU 133. SWMU 133, the Building 703 Washrack Discharge Pit, is located within the Petroleum, Oils, and Lubricants Yard. For a further description of the area, refer to Figure 57.

History

Prior to 1980, washwater from the washrack area was allowed to flow into a nearby drainage ditch. After Oil/Water Separators were installed in 1980, water from the separators was discharged to the drainage ditch as well. Furthermore, a suspected malfunctioning Oil/Water Separator allowed petroleum hydrocarbons to be discharged directly into the ditch.

Evaluation of Relevant Information

Between 1983 and 1995, several investigations were conducted in and around SWMU 133 to provide insight into the nature and extent of possible contaminants.

Field observations noted that there was no free-phase Non-Aqueous Phase Liquid at SWMU 133. It was concluded that since the removal of the original contaminant source (malfunctioning Oil/Water Separator), there had been no additional groundwater contamination at SWMU 133.

Results of a remedial investigation completed in 1989 indicated the presence of TRPH (specifically JP-4) in soils underlying SWMU 133. A removal action was completed in September 1991 which included the excavation of approximately 8,000 cubic yards of TRPH-contaminated soil. However, TRPH-contaminated soil in a 30 ft by 60 ft by 8 ft area directly adjacent to the Petroleum, Oils, and Lubricants Yard fence line was left in place. A RCRA Facility Investigation was performed in late 1991 to investigate the extent of this residual contamination. Soil samples were collected and analyzed for TRPH; contamination exceeding 1,000 mg/kg was found in two boreholes (SD47-SB2 and SD47-SB3). Rather than excavate this soil, a bioventing feasibility test was conducted during April 1995. It was determined that the potential for TRPH-degradation through bioventing was sufficient to proceed. Monitoring point clusters, injection wells, and background wells were installed to monitor the system's efficiency. The effectiveness of the system was monitored by noting the oxygen utilization rate in the soil. When the oxygen utilization rate of SWMU 133 approached that of an uncontaminated site, samples were collected for analysis. In 1997, analysis confirmed the TRPH and benzene concentrations were below detection methods at SWMU 133.

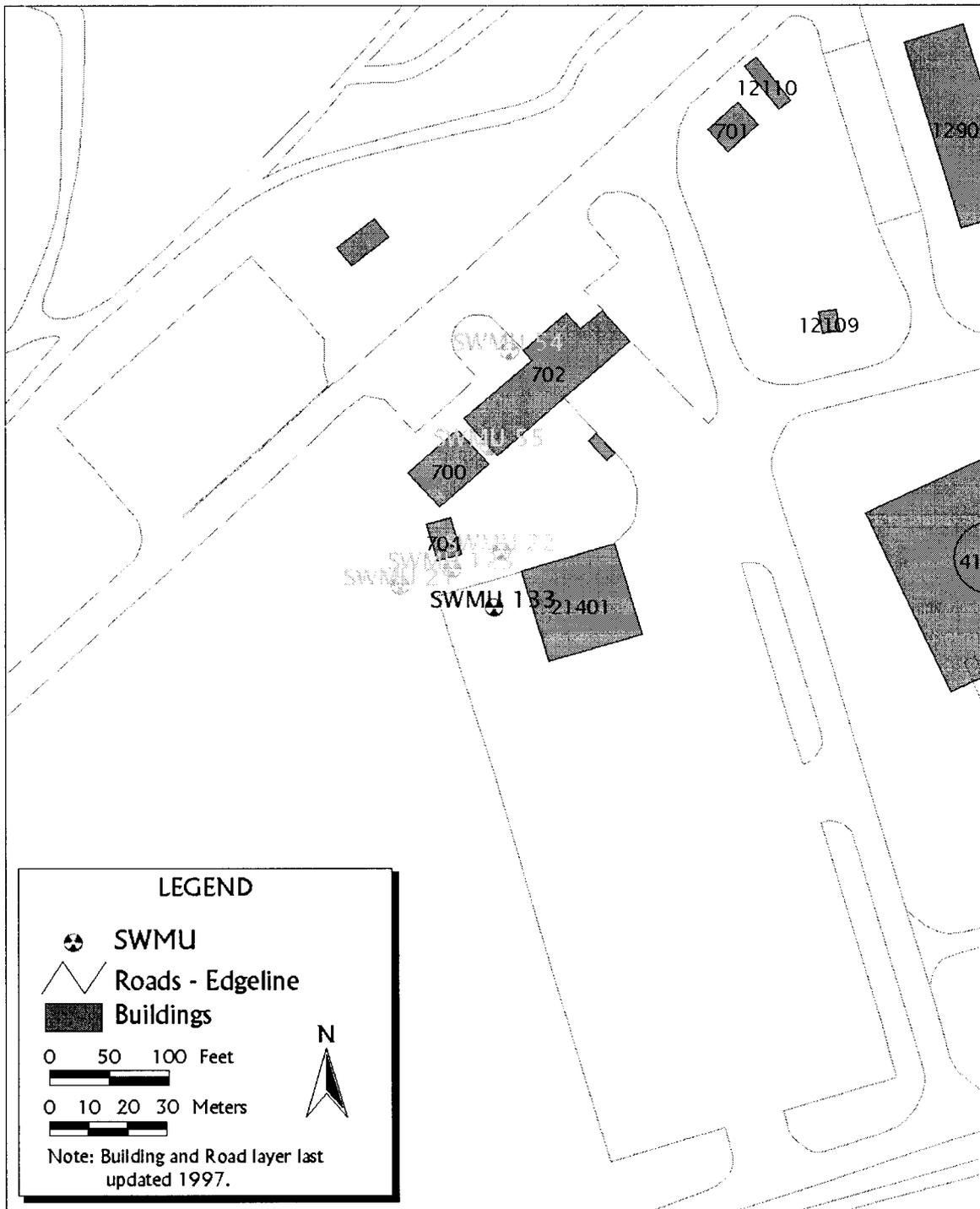
The levels of BTEX and methyl-tert-butyl ether at SWMU 133 are below the detection limit in the confirmatory sampling of the subsurface soils. The detection limits for this sampling were 0.005 mg/kg for benzene, toluene and ethylbenzene, 0.035 mg/kg for methyl-tert-butyl ether, and 0.015 mg/kg for xylene. These detection limits are below the EPA Region 6 Human Health Medium-Specific Screening Levels, so any residual contamination that may exist at levels below the detection limit at SWMU 133 does not represent an excess risk to human health. Confirmatory samples showed TPH concentrations at this site were below the detection limit (detection limit equals 10 mg/kg) at one portion of the site, with two detections < 100 mg/kg at another portion of the site. Since these levels meet the Oil Conservation Division guidelines and are found 8-9 ft down in the soil, they do not represent an excess risk to human health at this SWMU.

Basis for Determination

Due to the nature of this site as well as the location and levels of contamination, the Hazardous Waste Bureau feels that ecological risk from residual contamination should not be a problem at this site.

References

March 1998, Final Characterization Summary and No Further Action (NFA) Documentation for Installation Restoration Program Sites SS2/5 POL Yard (AOC-T), SD-47 POL Washrack Area (SWMU 133), and SS-60 Building 828 (SWMU 230)
March 2000, Request for Supplemental Information (RSI) on AOC-T, SWMUs 133 and 230
Characterization Report dated March 1998



SWMU 133 - Building 703 Washrack Discharge Pit

Figure 57

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 58.

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 records search. A subsequent Phase I Remedial Investigation indicated that while low levels of BTEX were detected in the groundwater, it was doubtful that a release had occurred.

Evaluation of Relevant Information

During the Phase I Remedial Investigation, six groundwater monitoring wells (MW-24-01 through MW-24-06) were installed and sampled for VOCs, TRPH, total metals, anions, and Total Dissolved Solids. 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 RCRA Facility Investigation, 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.

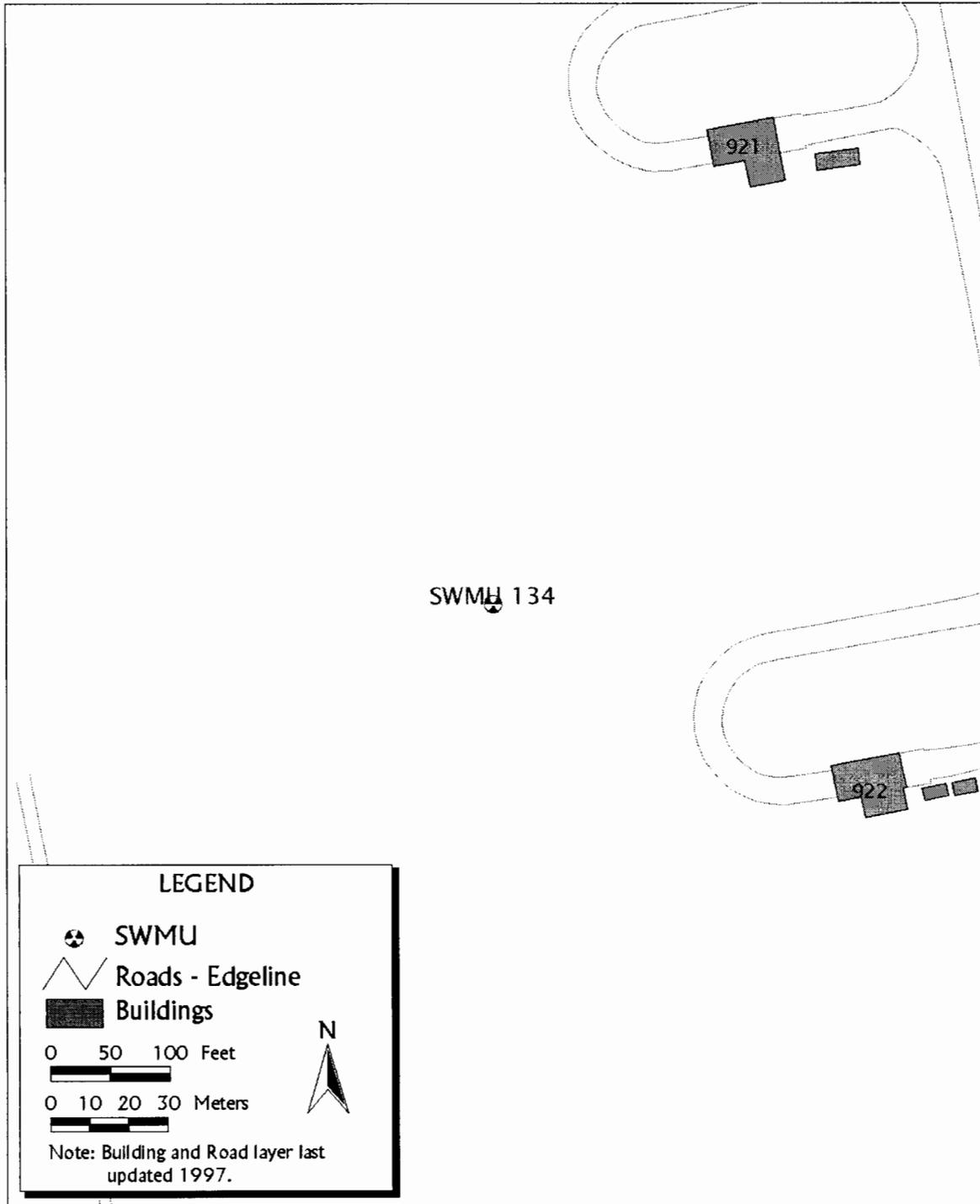
A risk assessment in 1992 investigated the possibility of residents being exposed to contaminated groundwater via an off-Base agricultural well. Groundwater modeling indicated that none of the contaminants originating from SWMU 134 would reach the well, thereby presenting almost no risk to human health.

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.

References

June 1995, Draft Final Phase II RCRA Facility Investigation Report – Table 1 Solid Waste Management Units, Volume I



SWMU 134 - Buildings 920-924 Drainage Ditch

Figure 58

SWMU 155--Sludge Drying Beds

Location

SWMU 155 is adjacent to SWMU 124--Building 752 Waste Oil Tank and SWMU 156--Imhoff Tanks. SWMU 155, the Sludge Drying Beds, was 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 59.

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 Remedial Investigation 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 risk assessment 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.

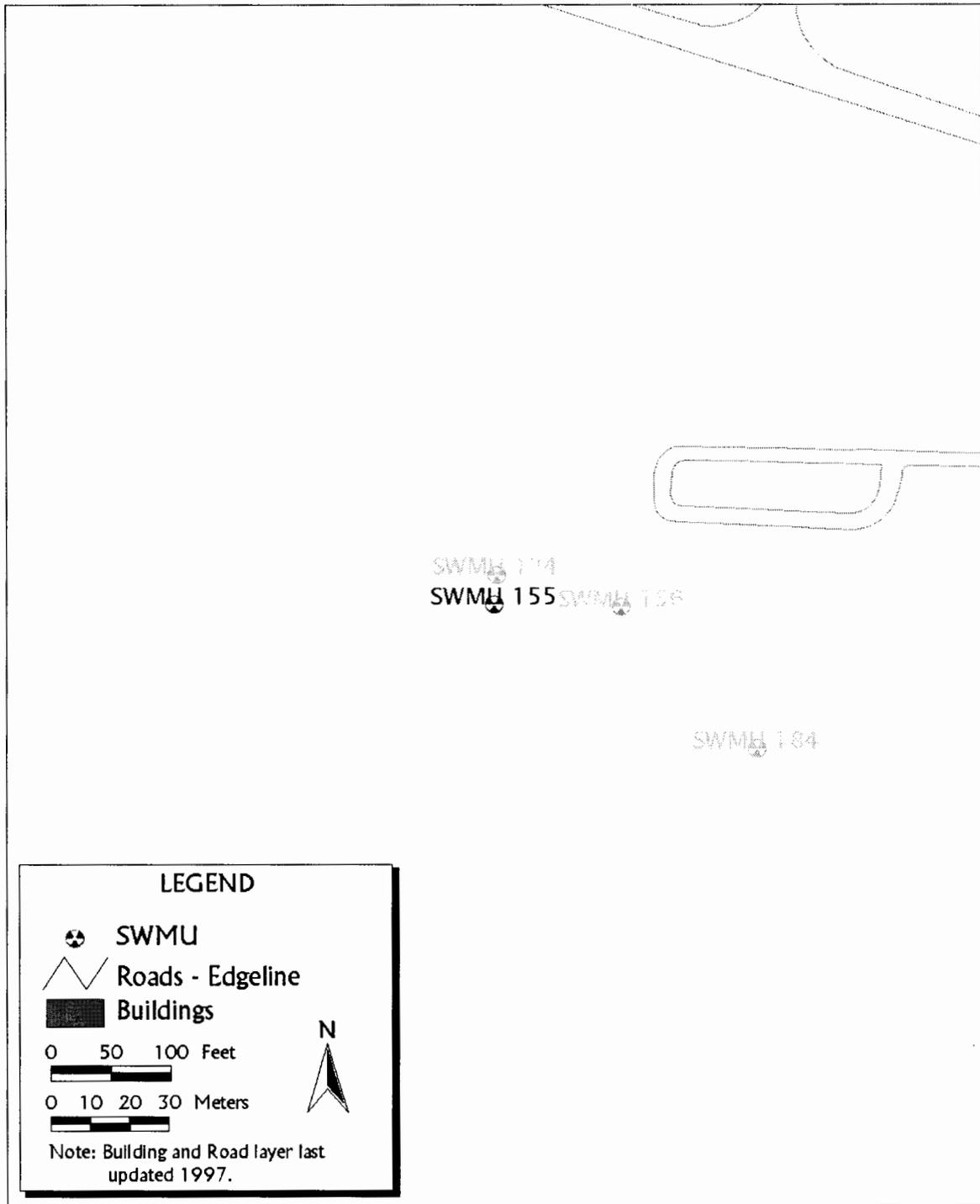
Based on the results of the remedial investigation, it appeared that a release had occurred at SWMU 155. However, only beryllium exceeded trigger criteria, and natural levels around the SWMU are higher than those detected; therefore, it is unlikely to pose a risk to human health or the environment.

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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 155 - Sludge Drying Beds

Figure 59

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 60.

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 to 1982. Sewage from the Base was the source of waste. 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 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, semivolatile, 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.

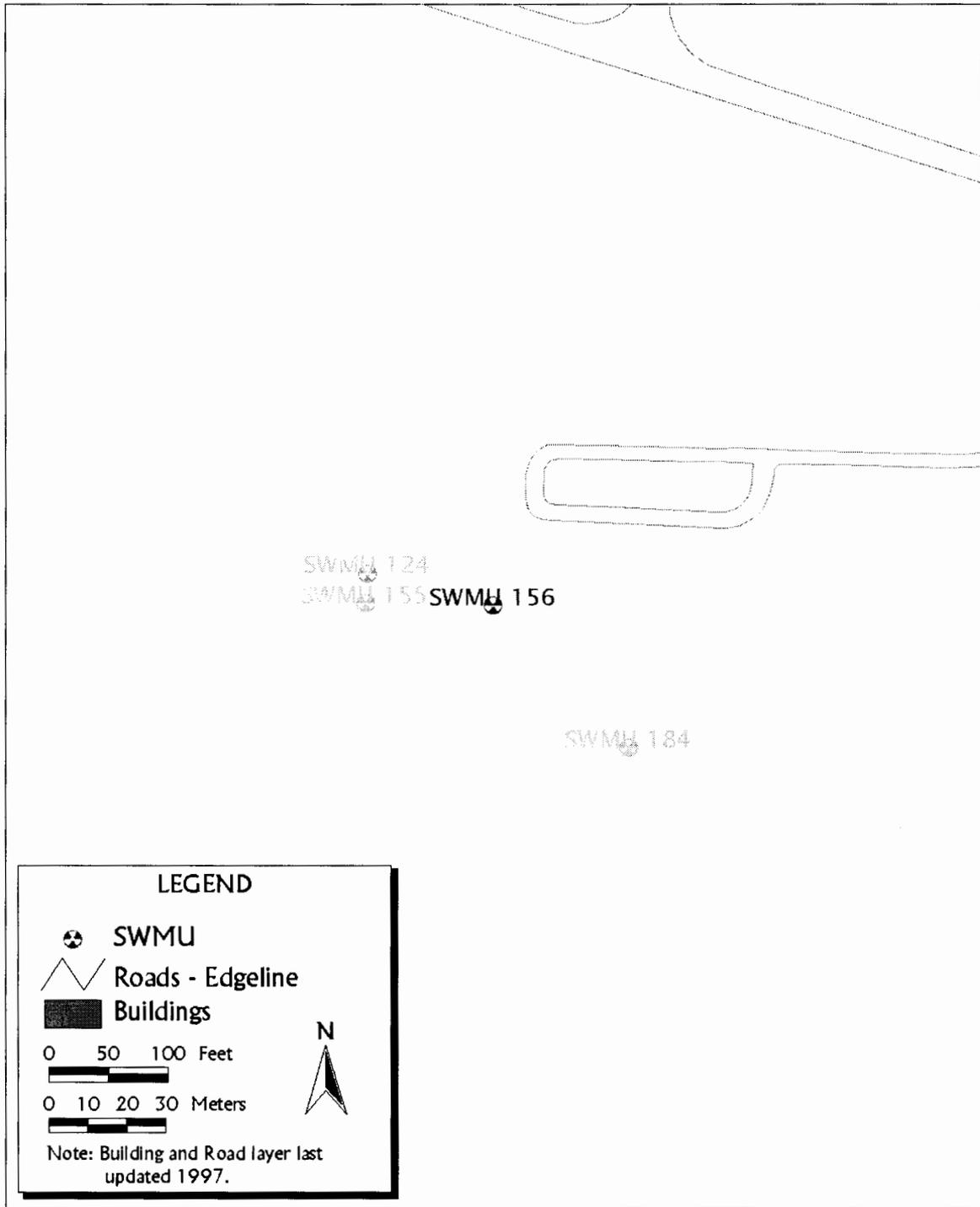
Metals, several of which include chromium, vanadium, and zinc were detected at concentrations above background UTLs. However, none of the concentrations of metals, except beryllium, exceeded trigger criteria. Beryllium was detected at a maximum concentration of 1.87 mg/kg in borehole 56-B04 from 40 ft to 42 ft bgl (the trigger criteria for beryllium is 0.16 mg/kg). A quantitative risk assessment 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 III 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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 156 - Imhoff Tanks

Figure 60

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 61.

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. 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.

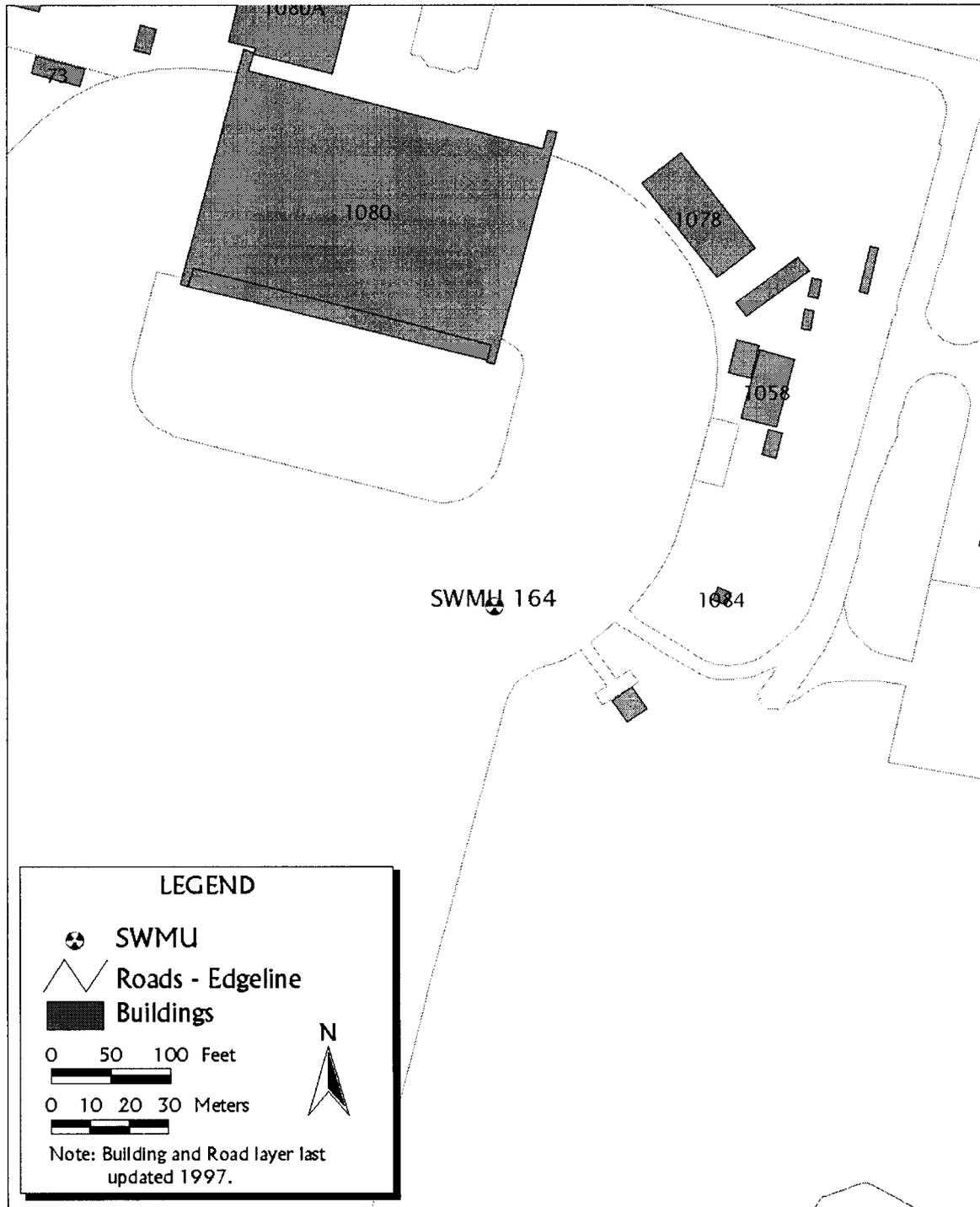
A qualitative risk assessment was conducted as part of the site investigation, and concluded that there is some evidence of a limited release from SWMU 164. The elevated levels of ethylbenzene, toluene, and xylenes in the surface soil at 164-A06 were probably the result of the November 1992 fuel spill. All of the remaining detected constituents at this location and in other sampling locations at the SWMU were below risk-based trigger criteria. The risk assessment 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 to human health or the environment.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 164 - Building 1080 Pond

Figure 61

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. 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 62.

History

SWMU 171 was used from 1945 to 1991. The source of waste was from training exercises at the Fire Training Area, which included the use of waste oils, solvents, and fuels. From 1945 to 1979, approximately 1,800 to 2,700 gallons of waste fuels, oils, and some solvents were delivered to the Fire Training Area 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

SWMU 171 (IRP 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, 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 to SWMU 171 (SWMUs 39, 127, and 135). In 1994, a Phase II investigation was initiated to address concerns at SWMU 171. Fifty-three soil gas samples were collected from various locations near SWMUs 170, 171, and the JP-4 tank area. The sample points were installed with a Direct-Push Technology 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.

Two of the ten boreholes were installed at SWMU 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.

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.

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.

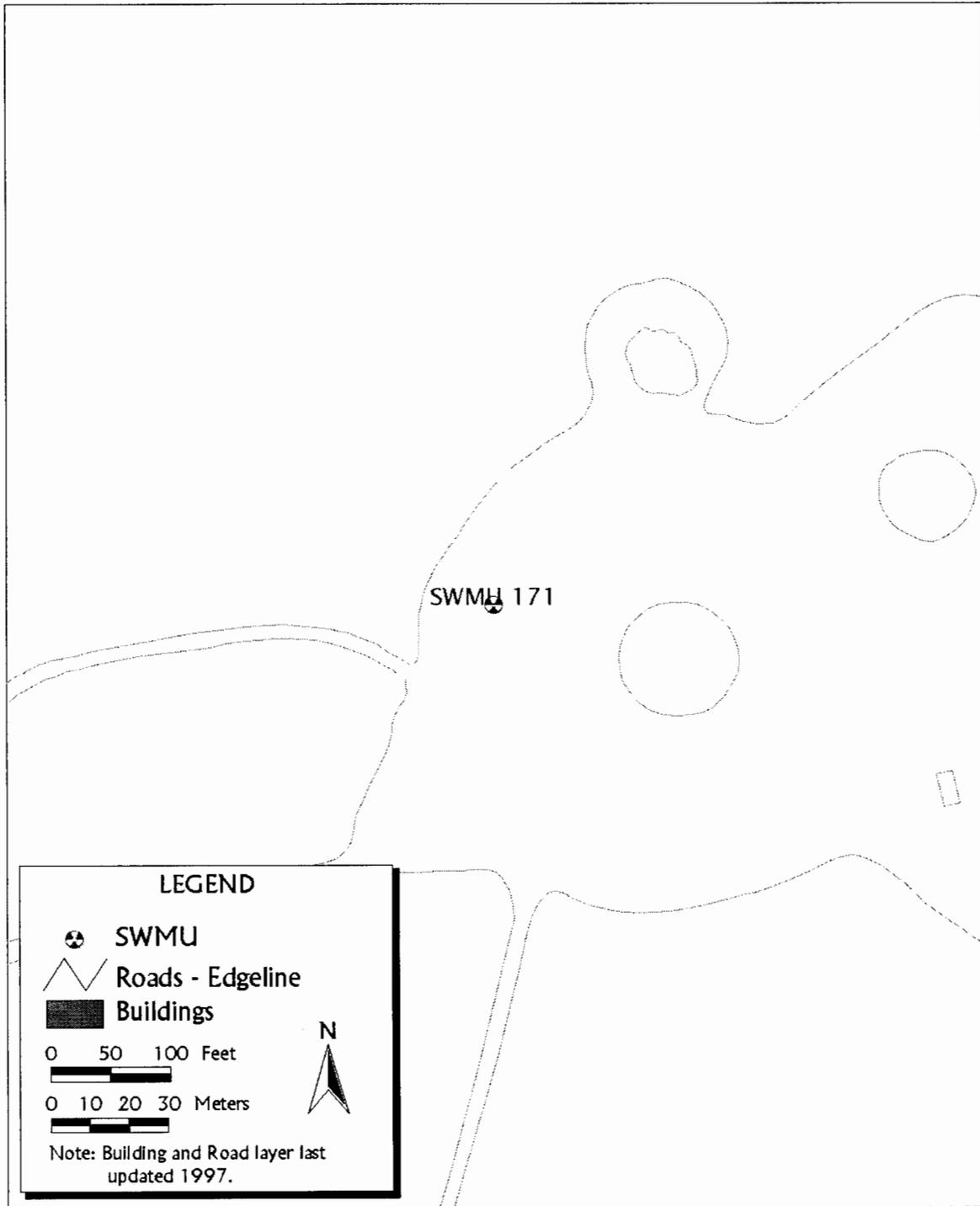
It was decided that the extent of the contamination was limited to the shallow soils near SWMU 170 and the JP-4 tank, which is undergoing bioremediation.

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.

References

June 1995, Draft Final Phase II RCRA Facility Investigation Report – Table 1 Solid Waste Management Units, Volume I



SWMU 171 - Fire Department Training Area 2

Figure 62

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 63.

History

The time frame for operation of this site was 1952 to 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, Inhibited Red Fuming Nitric Acid, Inhibited White Fuming Nitric Acid, 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 Remedial Investigation completed in 1992 indicated that petroleum contamination was present in the soil and groundwater beneath the site. A Phase II Remedial Investigation 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 records search in 1983 indicated the need for remedial investigation, and a Phase I Remedial Investigation was launched in 1991. Five groundwater-monitoring wells were installed and monitored for VOCs, TRPH, total metals, Total Dissolved Solids, 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 investigation.

While no visibly contaminated soil was observed, a total of 59 soil samples were collected during Phase II investigation. 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.

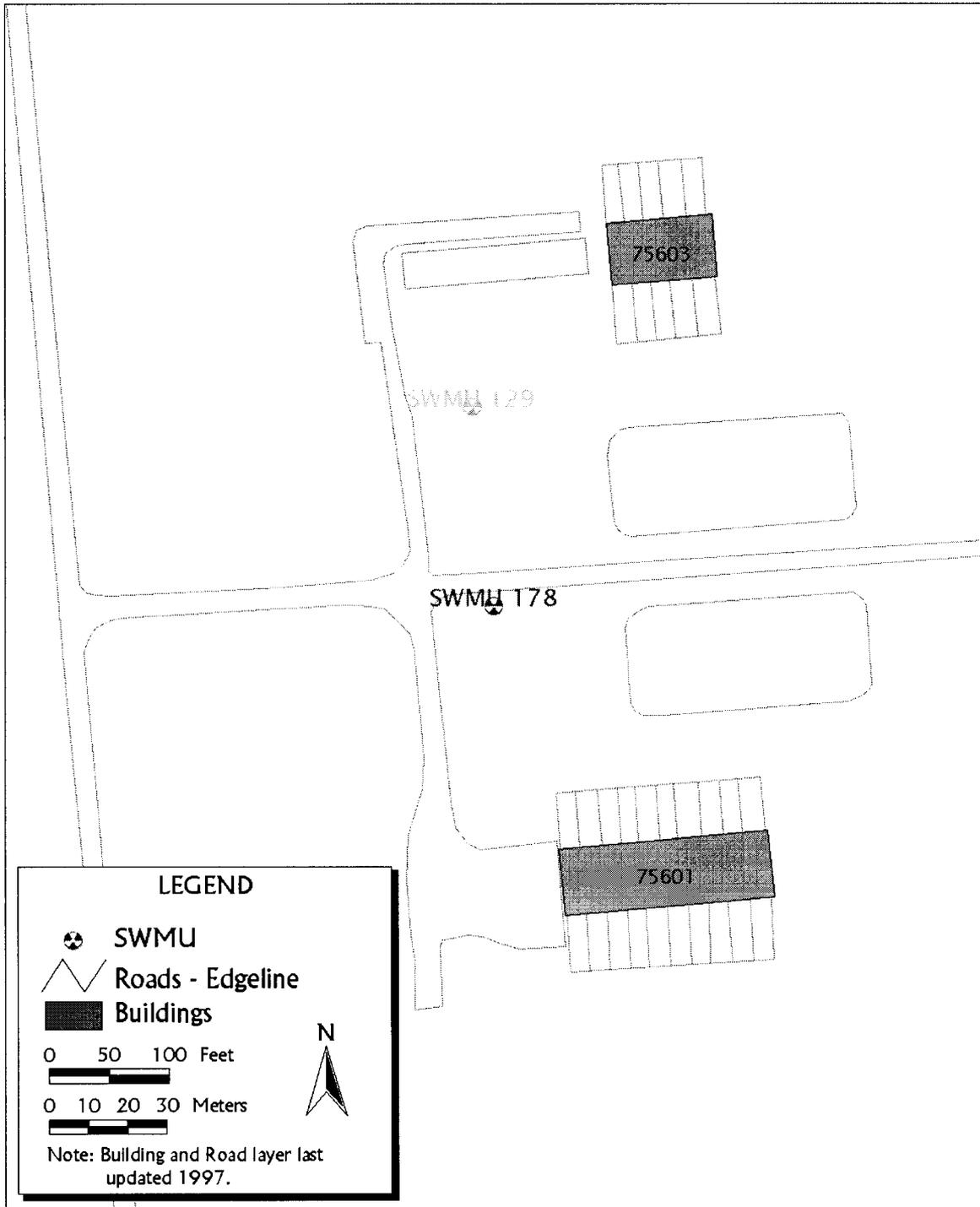
A risk assessment conducted in 1994 indicated that the site did not pose an unacceptable risk to human health, although a small area of TRPH-contaminated soil (less than 1 cubic yard) was present. Holloman removed the TRPH-contaminated soil during a voluntary remedial action in 1994.

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 to human health or the environment.

References

February 1996, Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995



SWMU 178 - Building 1191 Fuel Runoff Pits

Figure 63

SWMU 184--Wastewater Recirculation Line

Location

SWMU 183--Air Base Sewer System is adjacent to SWMU 184. SWMU 184, the Wastewater Recirculation Line, is located immediately to the east of sewage treatment ponds B and F. The wastewater recirculation line runs between Pond F and the splitter box located near Pond B. The splitter box divides the flow between Ponds A and B. The purpose of the recirculation line is to increase the biological oxygen demand content in sewage Ponds A and B. The age, construction, and integrity of the line are unknown. For a further description of the area, refer to Figure 64.

History

The period of operation for SWMU 184 was from 1942 to approximately 1996. The source of waste was from Sewage Pond F.

Evaluation of Relevant Information

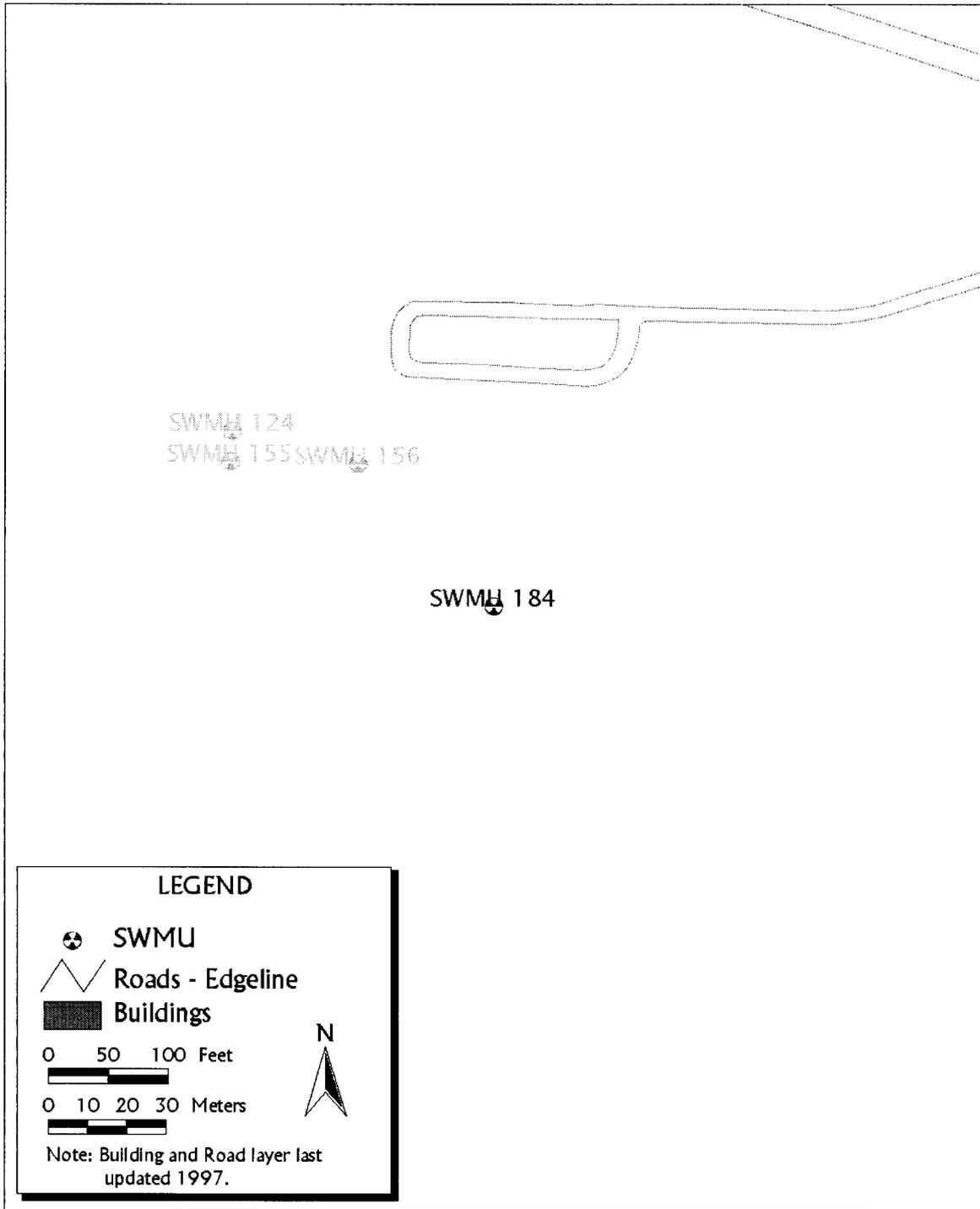
While in operation, wastewater containing sanitary wastes, dissolved hydrocarbons, solvents, industrial cleaners, paint stripper, methanol, acetone, formaldehyde, and a variety of listed wastes were processed by the wastewater treatment system. However, only de minimus quantities of these wastes were discharged to the wastewater recirculation line via the Base sewer system (SWMU 183) and the wastewater treatment lagoons (Ponds A-G). There is no record of a release at the site.

Basis for Determination

Due to the nature of this site as well as the location and levels of contamination, the Hazardous Waste Bureau feels that ecological risk from residual contamination should not be a problem at this site.

References

October 1994, Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I



SWMU 184 - Wastewater Recirculation Line

Figure 64

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

There are no SWMUs adjacent to SWMU 192. SWMU 192 (IRP Site OT-41), the Coco Block House Disposal Well, is located in the northernmost section of Holloman AFB. For a further description of the area, refer to Figure 65.

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 indicated 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 records search in 1983 identified OT-41 as a possible contaminant source, and in 1991 a Remedial Investigation 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 were collected and analyzed for VOCs, total metals, anions, and Total Dissolved Solids. 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.

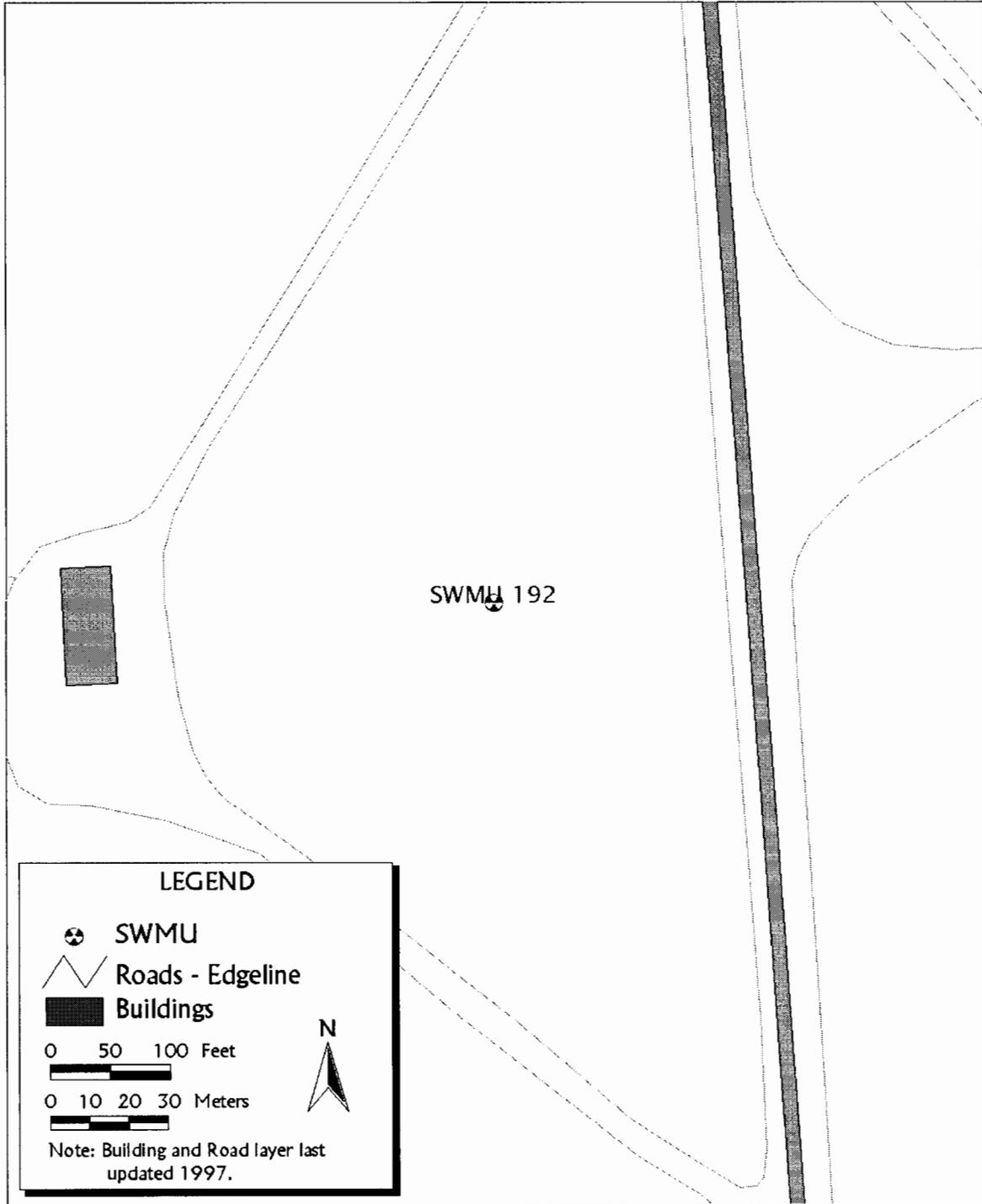
A risk assessment performed for this site determined that there were no existing or future potential risks to human receptors.

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 to human health or the environment.

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites



SWMU 192 - Coco Block House Disposal Well

Figure 65

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 66.

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 Total Dissolved Solids. All water-quality parameters were detected below statistical background levels for Holloman AFB.

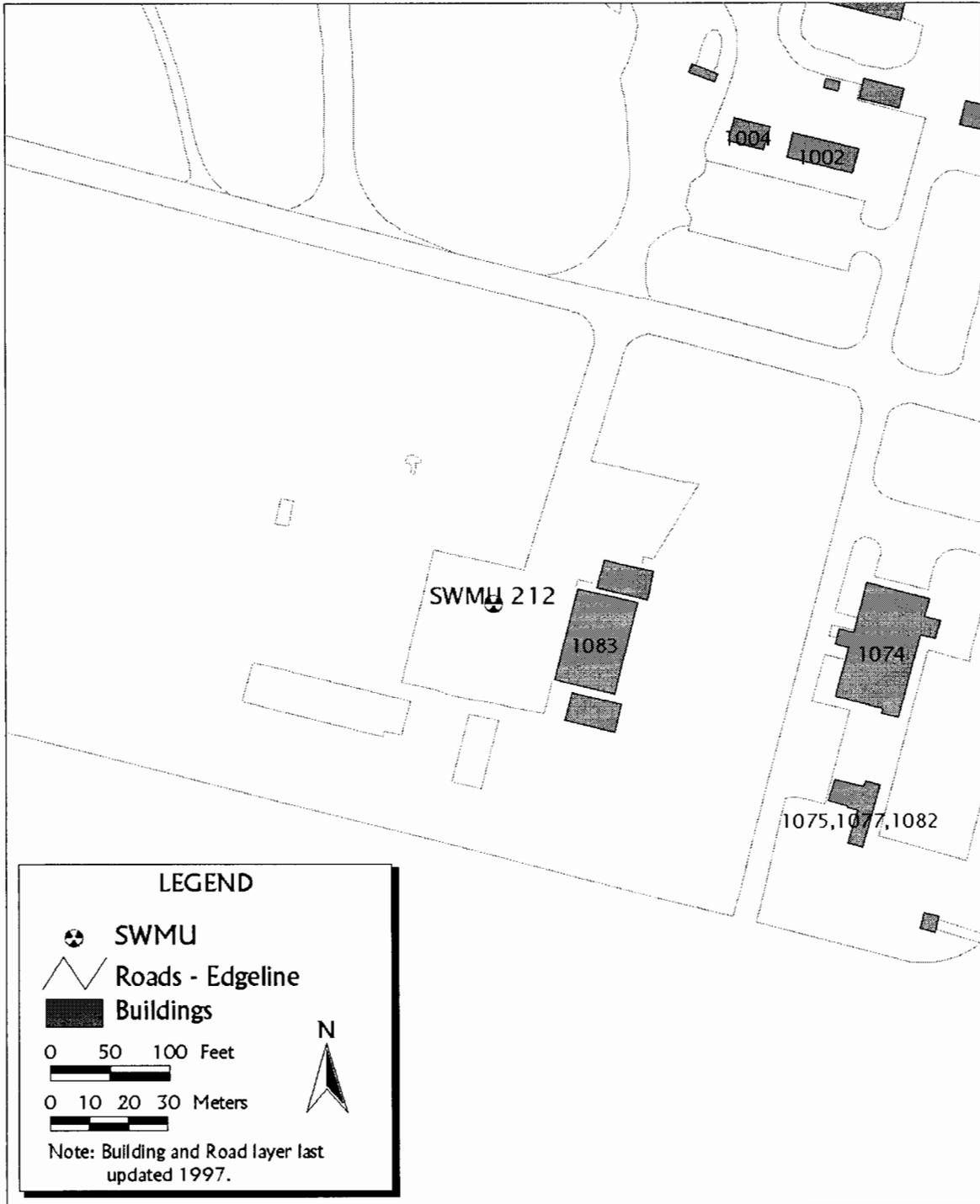
A risk assessment investigated the possibility of human exposure to contaminants originating from SD-28. The exposure evaluation for this site determined that there are no existing or potential human receptors for this site.

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.

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites



SWMU 212 - Former North Area Wash Rack

Figure 66

SWMU 230--Building 828 Fuel Spill Site

Location

SWMU 29--Building 827 Oil/Water Separator and SWMU 93--Building 827 Washrack are adjacent to SWMU 230. SWMU 230--Building 828 Fuel Spill Site is located next to Buildings 821 and 827. Building 828 operates as part of the aerospace ground equipment maintenance facility. Buildings 827 and 828 are within a fenced compound which houses a fuel pump island and three abandoned underground fuel storage tanks. At the northwest corner of the compound are three 6,000 gallon aboveground storage tanks, which have replaced the underground storage tanks. West of Building 828 is a concrete pad washrack, which connects to an Oil/Water Separator directly to the south. Most of the area is covered by asphalt pavement. For a further description of the area, refer to Figure 67.

History

In October 1991, a loss of approximately 4,700 gallons of unleaded gasoline was discovered, and was attributed to underground piping leaks. Previous leaks of unleaded gasoline and JP-4 were noted in 1991, although the amount of fuel spilled is unknown.

Evaluation of Relevant Information

A records search was conducted in 1983, and no sites at SWMU 230 were identified as possible sources of hazardous waste. In 1993, SWMU 230 was investigated in two phases; Phase I occurred in June 1993 and Phase II was completed in July 1993.

During Phase I, soil samples were collected from 20 soil boreholes and seven monitoring well borings throughout the site. Generally, three samples were collected from each borehole, while one sample was collected from each monitoring well boring. During Phase II, samples were obtained from the same sources; however, two samples were collected from each borehole or monitoring well. Soil samples were analyzed for VOCs, TRPH, and metals. VOCs were reported in 13 of 20 soil boreholes and three of seven monitoring wells. Reported quantities of benzene ranged from 11 $\mu\text{g}/\text{kg}$ (230-SB1 and 230-SB14) to 1,100,000 $\mu\text{g}/\text{kg}$ (230-SB8). TRPH was reported in 13 of 20 soil borings and three of seven monitoring wells. Reported values ranged from 10 mg/kg (230-SB2 and 230-MW2) to 9,840 mg/kg (230-SB8). A variety of metals were also detected in soil samples.

Groundwater samples were collected from six monitoring wells during both phases of the investigation. Samples were analyzed for VOCs, metals, and water-quality parameters. VOCs were detected in samples from five of six monitoring wells. Reported quantities of benzene ranged from 6 $\mu\text{g}/\text{L}$ (230-MW4) to 15,000 $\mu\text{g}/\text{L}$ (230-MW3). Reported quantities of toluene ranged from 1 $\mu\text{g}/\text{L}$ (230-MW1) to 22,000 $\mu\text{g}/\text{L}$ (230-MW3). A variety of metals were detected in groundwater samples. Light Non-Aqueous Phase Liquid was detected in a sample collected from monitoring well 230-MW5, and was identified as gasoline fuel.

Conclusions drawn from the remedial investigation indicated that the primary source of contamination at this SWMU resulted from the unleaded gasoline spill in 1991. It was also determined that leakage from underground storage tanks contributed to soil and groundwater contamination. Soil contamination due to fuel-related constituents was generally detected in subsurface soils. Contamination in the unsaturated zone is restricted to the zone of soil just above the water table (Light Non-Aqueous Phase Liquid surface). Groundwater contamination consists of floating Non-Aqueous Phase Liquid, identified as gasoline, on the water table and dissolved-phase fuel-related contamination. The Non-Aqueous Phase Liquid plume is estimated to be about 80 ft by 120 ft in area with greatest thickness at the 1991 leak location.

Based on the conclusions of the RCRA Facility Investigation, the following recommendations were made for SWMU 230: (1) Corrective action should be initiated regarding the floating Light Non-Aqueous Phase Liquid per NMED requirements; (2) Based on the assumptions utilized in the risk assessments, remediation of 8020 VOCs, metals, and TPH in surface soils, subsurface soils, and groundwater is not required for protection of human health under current and foreseeable future use conditions of the site. However,

concentrations of benzene and TPH in soil exceed the NMED cleanup criteria established for Holloman AFB. Those concentrations are 25 mg/kg and 1,000 mg/kg for benzene and TPH, respectively. Therefore, unless NMED can amend these criteria, corrective action will need to be initiated regarding soils. Based on their site proximity, corrective action regarding the subsurface soils could be completed in conjunction with corrective action regarding the Non-Aqueous Phase Liquid; and (3) The results of biological analysis (microbial count) indicate that high concentrations of BTEX may have a toxic effect on the indigenous microbial population. Therefore, to promote in situ bioremediation of petroleum-contaminated soil, the addition of nonindigenous microorganisms may need further evaluation.

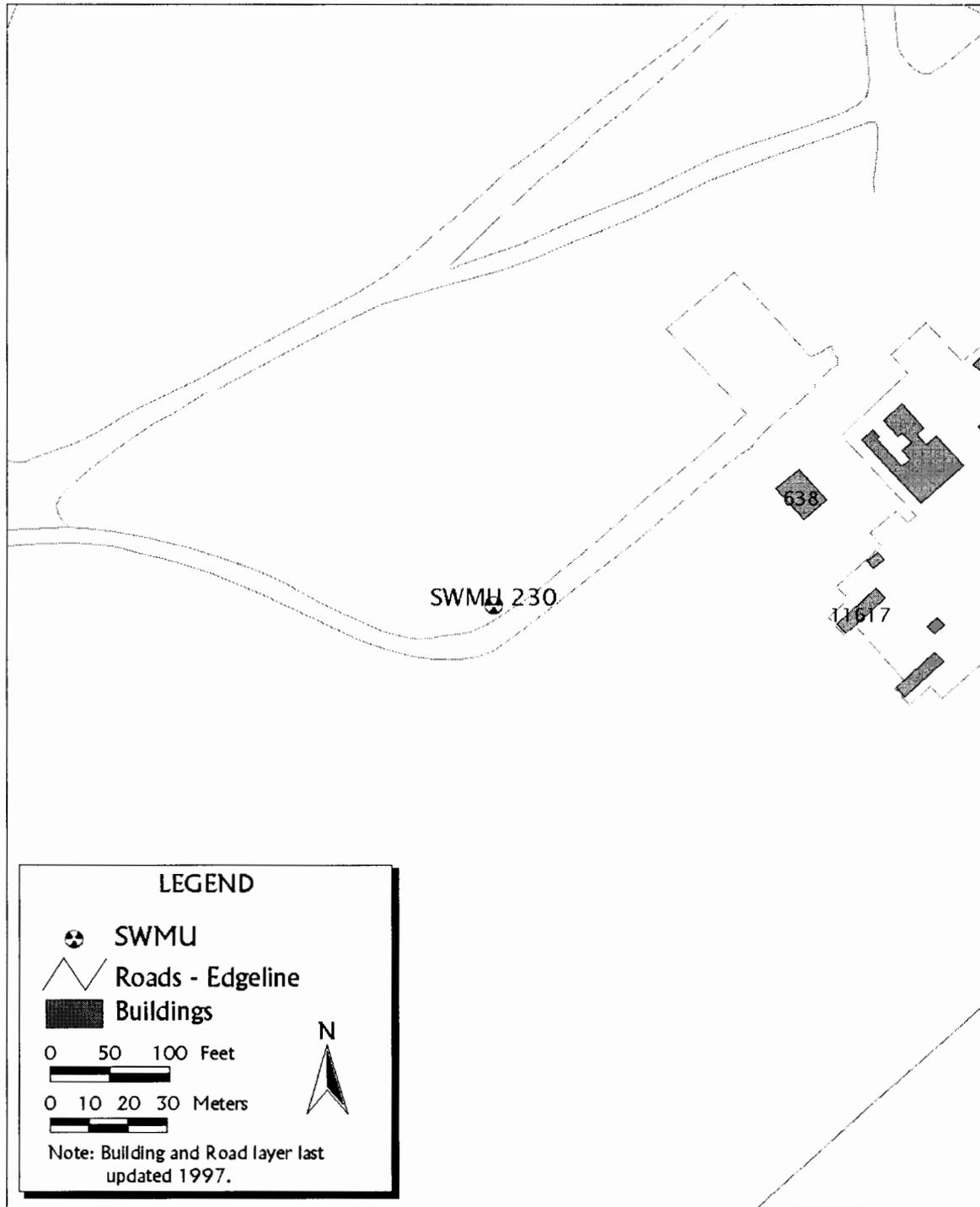
At SWMU 230 the confirmatory samples had detection limits of 0.005 mg/kg for benzene, toluene and ethylbenzene, 0.035 mg/kg for methyl-tert-butyl ether, and 0.015 mg/kg for xylene. Both surface samples showed non-detect results for all contaminants. Subsurface confirmatory samples were not taken at this site, which in 1997 had shown TPH > 100 mg/kg at 8-9 ft. The contamination at this site existed primarily at approximately 9 feet below ground surface, which is probably where the confirmatory samples should have been taken. The effluent from the SVE system doesn't show any more residual contamination leaving the site through the SVE system, but this doesn't guarantee that all subsurface soil is clean. Provided that the subsurface soil is not exposed (for example, through construction), the potential residual subsurface soil contamination at this site should not present an excess risk to human health.

Basis for Determination

Due to the nature of this site as well as the location and levels of contamination, the Hazardous Waste Bureau feels that ecological risk from residual contamination should not be a problem at this site.

References

March 1998, Final Characterization Summary and No Further Action (NFA) Documentation for Installation Restoration Program Sites SS2/5 POL Yard (AOC-T), SD-47 POL Washrack Area (SWMU 133), and SS-60 Building 828 (SWMU 230)
March 2000, Request for Supplemental Information (RSI) on AOC-T, SWMUs 133 and 230
Characterization Report dated March 1998



SWMU 230 - Building 828 Fuel Spill Site

Figure 67

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 indicated limited surface releases of unconventional fuels. The groundwater underlying SWMU 231 has not been affected.

Evaluation of Relevant Information

A Preliminary Assessment/Site Investigation was conducted under the IRP for SWMU 231 in 1993. During the Preliminary Assessment/Site Investigation, 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 Remedial Investigation began in 1993. Two electromagnetic 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 Remedial Investigation 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 Remedial Investigation: 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, were measured above background UTLs (ranging up to 0.62 mg/kg) 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.

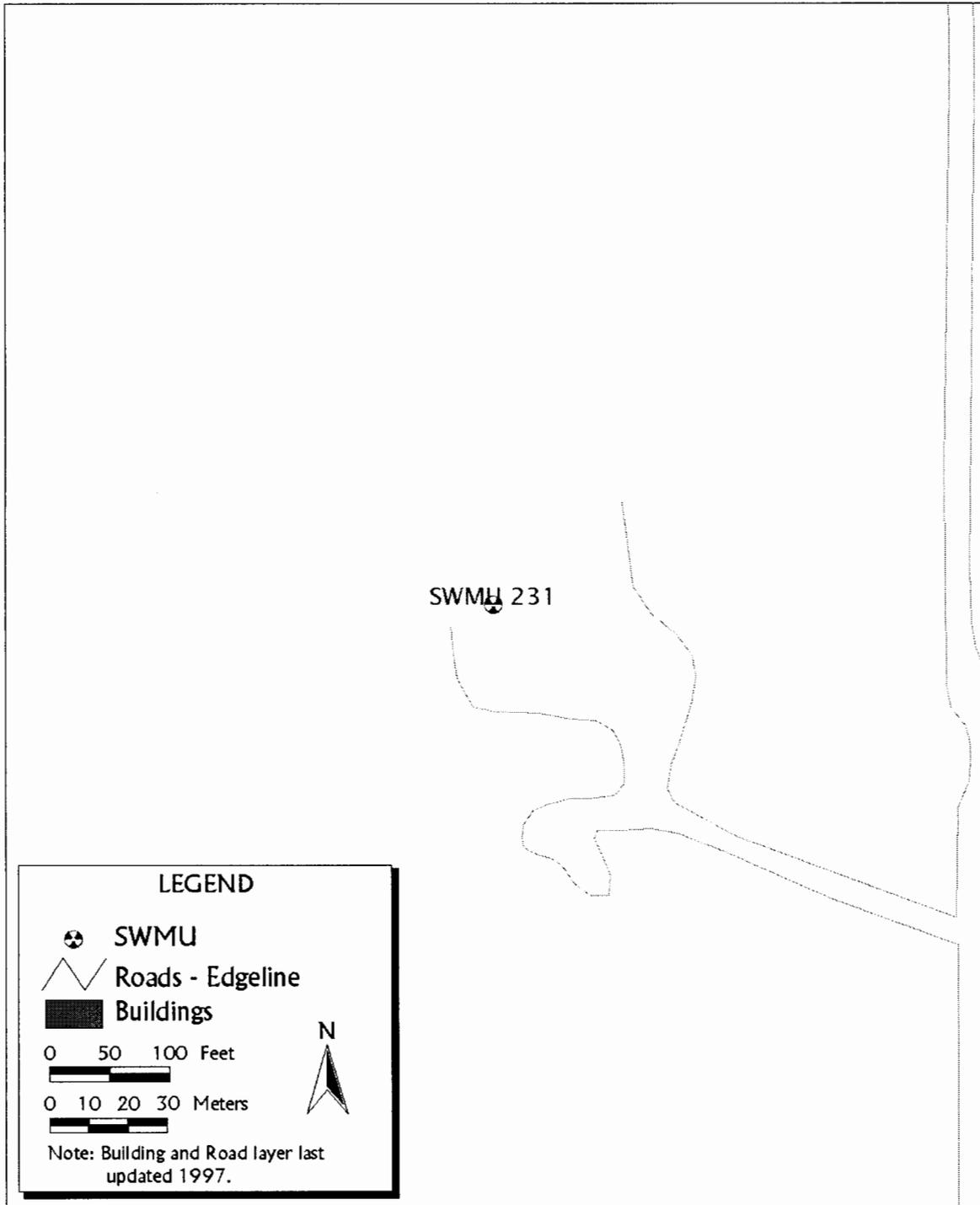
Based on the results of the investigation, it was concluded that the extent of the unconventional fuels related contamination was limited to two areas: 1) a discontinuous, shallow (<2 ft) purple-stained area near the incinerator, and 2) the soils within and directly below Waste Area D. Groundwater data 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 to human health or the environment.

References

July 1995, Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I



SWMU 231 - Incinerator Landfill

Figure 68

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 69.

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, Unsymmetrical Dimethylhydrazine, aniline, Inhibited Red Fuming Nitric Acid, Inhibited White Fuming Nitric Acid, liquid oxygen, 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 Total Dissolved Solids. All water-quality parameters were detected below statistical background levels for Holloman AFB.

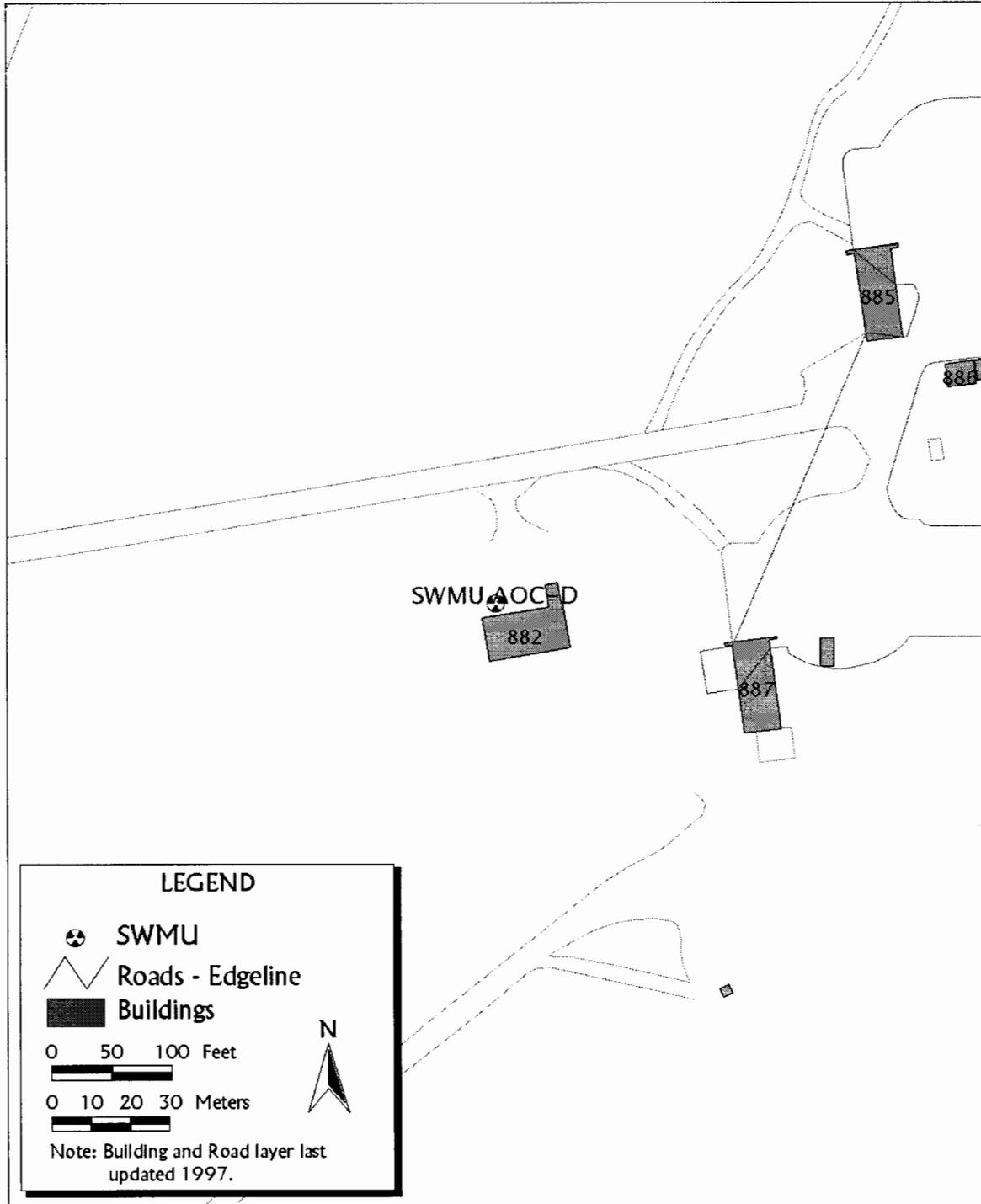
A risk assessment investigated the possibility of human exposure to contaminants in the groundwater. The assessment concluded that the site did not pose an unacceptable risk to human health; and, no remedial action was recommended.

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 to human health or the environment.

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites



SWMU AOC-D - Building 882 Spills

Figure 69

AOC-G--Atlas Substation PCB Spill**Location**

There are no SWMUs adjacent to AOC-G. AOC-G (IRP Site DP-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 70.

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.

A risk assessment 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.

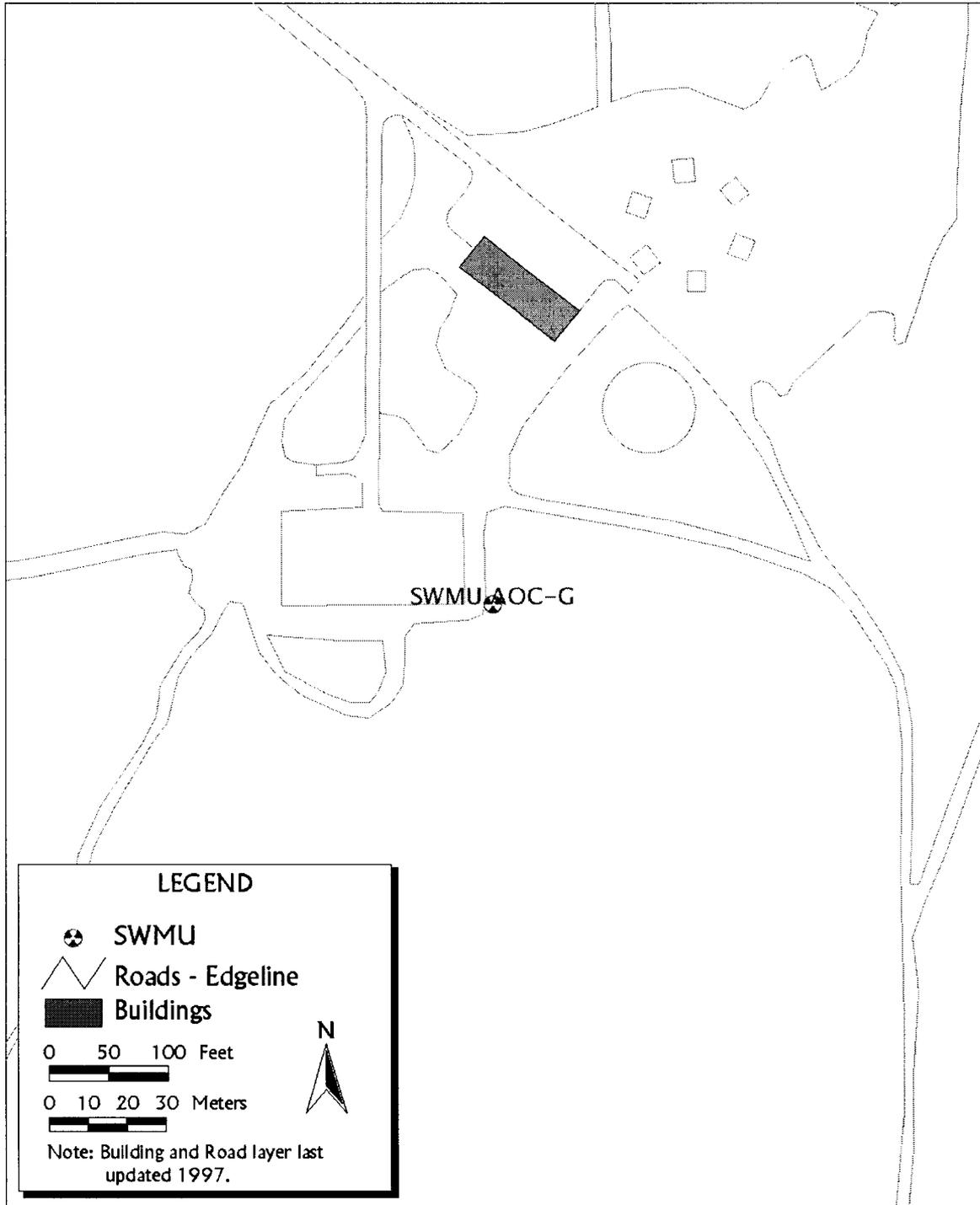
By December 1997, a total of 112.6 cubic yards of TRPH-contaminated soil had been excavated and removed from site AOC-G. The excavation was completed in two phases, and four of five initial closure samples indicated TRPH levels less than 1,000 mg/kg. Final closure samples collected after the second phase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

References

October 1992, Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites
December 1997, Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals



SWMU AOC-G - Atlas Substation PCB Spill

Figure 70

J. SUPPORTING DOCUMENTATION

- Radian, October 1992, Administrative Record No. 468, *Remedial Investigation (RI) Report, Volume I – Text and Plates, Investigation, Study, and Recommendations for 29 Waste Sites.*
- Radian, October 1994, Administrative Record No. 810, *Draft Final Phase I RCRA Facility Investigation Report – Table 2 Solid Waste Management Units, Volume I.*
- Foster Wheeler/Radian, June 1995, Administrative Record No. 899, *Draft Final Phase II RCRA Facility Investigation Report – Table 1 Solid Waste Management Units, Volume I.*
- Foster Wheeler/Radian, July 1995, Administrative Record No. 909, *Draft Final RFI Report – Table 3 RCRA Facility Investigation, Volume I.*
- Foster Wheeler/Groundwater Technology, February 1996, Administrative Record No. 1011, *Draft Final Closure Report for Remediation of POL-Contaminated Sites and Oil/Water Separator Removals, Holloman Air Force Base, New Mexico, July – November 1995.*
- Foster Wheeler, July 1997, Administrative Record No. 1056, *Final Closure Report for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals.*
- Foster Wheeler, December 1997, Administrative Record No. 1093, *Final Closure Report Addendum for Phase II Remediation of POL-Contaminated Sites and Oil/Water Separator and Waste Oil Tank Removals.*
- Foster Wheeler, March 1998, Administrative Record No. 1103, *Final Characterization Summary and No Further Action (NFA) Documentation for Installation Restoration Program Sites SS2/5 POL Yard (AOC-T), SD-47 POL Washrack Area (SWMU 133), and SS-60 Building 828 (SWMU 230).*
- Foster Wheeler, April 1999, Administrative Record No. TBD, *Results of Additional Soil Sampling for Remediation of the POL-Contaminated SWMU 123, at Holloman AFB, New Mexico (letter report).*
- Foster Wheeler/Holloman AFB, March 2000, Administrative Record No. TBD, *Request for Supplemental Information (RSI) on AOC-T, SWMUs 133 and 230 Characterization Report dated March 1998.*