



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

ENTERED

JUN 20 2008

MEMORANDUM FOR NEW MEXICO ENVIRONMENT DEPARTMENT

Attn: Mr. James Bearzi
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Santa Fe NM 87105-6303



FROM: 49 CES/CD
550 Tabosa Ave
Holloman AFB NM 88330-8458

Subject: Formal Request for a Class 3 Permit Modification of Holloman Air Force Base (AFB)
RCRA Permit No. NM6572124422

1. In accordance with 40 CFR §270.42(c) as incorporated by the New Mexico (NM) Hazardous Waste Management Regulations, 20.4.1.900 NMAC, Holloman AFB (HAFB) is requesting a Class 3 permit modification of the HAFB Resource Conservation and Recovery Act (RCRA) Permit No. NM6572124422. Specifically, HAFB is requesting No Further Action (NFA)/corrective action complete status for five Solid Waste Management Units (SWMUs) and three areas of concern (AOCs), and the transfer of the eight sites from permit Appendix 4.A Table A (SWMUs/AOCs Requiring Corrective Action) to Appendix 4.A Table B (SWMUs/AOCs Not Requiring Corrective Action). The eight RCRA sites, along with corresponding AF Environmental Restoration Program (ERP) designations, associated with this Class 3 permit modification request are:

- SWMU 105 (ERP designation LF-19) – Golf Course Landfill;
- SWMU 108 (ERP designation LF-23) – Mobile Support Squadron (MOBSS) Landfill;
- SWMU 115 (ERP designation LF-22) – West Area Landfill No. 1;
- SWMU 116 (ERP designation LF-21) – West Area Landfill No. 2;
- SWMU 130 (ERP designation SS-46) – Taxiway 3 Tank 28 JP-4 Underground Waste Tank;
- AOC P (ERP designation OT-44) – Building 301 Fuel Tank Leaks;
- AOC S (ERP designation SS-46) – Leaking UST; and
- AOC N (ERP designation SS-48) – Military Gas Station.

Since the late 1980s to early 1990s, HAFB has been investigating and remediating, when needed, the eight RCRA sites listed above. A summary of the investigations conducted and associated analytical results are provided for NM Environment Department (NMED) review in the Fact Sheet/Statement of Basis at Atch 1. Based upon the data collected, HAFB requested NFA/corrective action complete status for SWMU 105 under NMED Criterion 3 and SWMUs 108, 115, 116, and 130, and AOCs N, P, and S under NMED Criterion 5. The NMED reviewed the various investigation reports associated with these RCRA sites and has concurred with the conclusions of these reports that the eight sites are suitable for NFA/corrective action complete status. This modification is needed to transfer the eight sites from permit Appendix 4.A Table A to permit Appendix 4.A Table B.

In accordance with 40 CFR §270.42(c)(2), HAFB has submitted notice of this modification request to all persons on the current HAFB mailing list as maintained by NMED, and to all appropriate units of State and local government as specified in 40 CFR §124.10(c)(ix). HAFB has also published this notice in the *Alamogordo Daily News* on 20 June 2008, and submitting this letter within seven days of this modification request as specified in 40 CFR §270.42(c)(2). Evidence of this mailing and publication is at Atch 2 of this letter. The notice and mailing provided the information specified in 40 CFR §270.42(c)(2)(i) through 40 CFR §270.42(c)(2)(vi), as evidenced by Attachment A.

Consistent with the notice and in accordance with 40 CFR §270.42(c)(3), HAFB has placed a copy of the permit modification request and attached Fact Sheet/Statement of Basis for review/copying at the following location during the public comment period:

Alamogordo Public Library

920 Oregon Avenue

Alamogordo, NM 88330

Telephone: (575) 439-4140

Summer Hours: Monday-Thursday, 10:00 am – 8:00 pm, Friday 10:00 am – 5:00 pm, Saturday 11:00 am – 5:00 pm, and Sunday 1:00 pm – 5:00 pm.

<http://ci.alamogordo.nm.us/coa/communityservices/library.htm>

The 60-day comment period required by 40 CFR §270.42(c)(5) began with publication of the notice (20 June) and will extend through 5:00 PM on 19 August 2008. Consistent with the notice and pursuant to 40 CFR §270.42(c)(4), a public meeting is scheduled for 8 July 2008 at the Sgt Willie Estrada Civic Center in Alamogordo, NM. This date is within the timeframe specified in 40 CFR §270.42(c)(4).

2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

3. If you have any questions, please feel free to contact Mr. David Scruggs at (575) 572-5395.



A. DAVID BUDAK
Deputy Base Civil Engineer

Attachments:

1. Permit Modification Fact Sheet/Statement of Basis
2. Publication Notice from the *Alamogordo Daily News*, 20 June 2008

cc: (See next page)

cc: (w/Atchs)

Mr. Davis Strasser
Hazardous Waste Bureau
5500 San Antonio Dr. NE
Albuquerque NM 87109

Mr. Will Moats
Hazardous Waste Bureau
5500 San Antonio Dr. NE
Albuquerque NM 87109

Mr. Bob Sturdivant
USEPA, region 6 (6PD-F)
1445 Ross Ave., Ste 12
Dallas TX 75202-2733

Mr. John Kieling, Program Manager
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe NM 87505

Holloman Air Force Base (HAFB) hereby notifies the public that it is initiating a Class 3 Modification to its Hazardous and Solid Waste Amendments Module of the Resource Conservation and Recovery Act (RCRA) Permit # NM6572124422. The request is for the removal of five Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs) from Table A (active portion) of the permit to Table B (inactive portion) as approved for No Further Action.

For each SWMU or AOC, the rationale for no further action designation has been documented in a No Further Action (NFA) proposal termed a "Statement of Basis." The New Mexico Environment Department (NMED) is currently reviewing the NFA Statement of Basis.

HAFB requests that the eight (8) SWMUs/AOCs, identified in the table below, be designated as no further action approved (Corrective Action Complete) in the Tables under Appendix 4-A of the Corrective Action Permit Part 4.

Identification of SWMUs and AOCs Proposed for Designation as Corrective Action Complete (No Further Action Approved)

| SWMU/AOC No. | SWMU Title | ERP Site No. |
|--------------------|---|--------------|
| SWMU 105 | Golf Course Landfill | LF-19 |
| SWMU 116 | West Area Landfill No. 2 | LF-21 |
| SWMU 115 | West Area Landfill No. 1 | LF-22 |
| SWMU 108 | Mobile Support Squadron (MOBSS) Landfill | LF-23 |
| AOC P | Building 301 Fuel Tank Leaks | OT-44 |
| AOC S and SWMU 130 | Leaking UST and Taxiway 3 Tank 28 JP-4 Underground Waste Tank | SS-46 |
| AOC N | Military Gas Station | SS-48 |

AOC = Area of Concern.
ERP = Environmental Restoration Program
SWMU = Solid Waste Management Unit.

Comment Period. A 60-day public comment period has been initiated with the publication of this notice. Comments on this request for permit modification will be accepted through 19 August 2008. Comments should be directed to:

Mr. David Scruggs
Environmental Flight
49 CES/CEV
550 Taboša Avenue, Holloman AFB, NM 88330-8277

AND

John E. Kieling, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303
Ref: Holloman AFB- Permit Modification July 2008

Public Meeting. Each of the eight SWMUs/AOCs proposed for No Further Action will be presented in a poster format, and Holloman AFB staff will be available to answer questions. The meeting will be conducted as an open house, with posters available for individual review at any time throughout the two hour time period. The meeting will be held on 8 July 2008, from 6:00 to 8:00 pm at the Willie Estrada Civic Center, 800 East 1st Street, Alamogordo, NM 88330.

Holloman AFB Contact. Questions may be directed to Mr. David Scruggs, (575) 572-5395.

New Mexico Environment Department Contact. Questions may be directed to John Kieling, (505) 476-6035.

Public Inspection of Documents. A copy of the request for permit modification and supporting documentation is available for public inspection at the Alamogordo Public Library, 920 Oregon Avenue, Alamogordo, NM 88330.

Compliance History. The permittee's compliance history during the life of the permit being modified is available from the NMED contact person.

LIBRARY COPY

**FACT SHEET/STATEMENT OF BASIS
FOR APPROVAL
OF
NO FURTHER ACTION FOR
EIGHT SOLID WASTE MANAGEMENT UNITS
AND AREAS OF CONCERN
RCRA PERMIT No. NM6572124422
HOLLOMAN AIR FORCE BASE
NEW MEXICO**



**Air Force Center for Engineering and the Environment
Brooks City-Base, Texas**

June 2008



**FACT SHEET/STATEMENT OF BASIS FOR APPROVAL
OF
NO FURTHER ACTION FOR
EIGHT SOLID WASTE MANAGEMENT UNITS AND
AREAS OF CONCERN
RCRA PERMIT No. NM6572124422
HOLLOMAN AIR FORCE BASE
NEW MEXICO**

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June 2008

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**FACT SHEET/STATEMENT OF BASIS FOR APPROVAL
OF
NO FURTHER ACTION FOR
EIGHT SOLID WASTE MANAGEMENT UNITS AND
AREAS OF CONCERN**

RCRA PERMIT No. NM6572124422

**HOLLOMAN AIR FORCE BASE
NEW MEXICO**

June 2008

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LIST OF ACRONYMS, SYMBOLS, AND ABBREVIATIONS

| | |
|--------|---|
| µg/kg | micrograms per kilogram |
| µg/L | micrograms per liter |
| AFB | Air Force Base |
| AOC | area of concern |
| bgs | below ground surface |
| Bhate | Bhate Environmental Associates, Inc. |
| BN/AE | base, neutral, and acid extractable |
| BRA | baseline risk assessment |
| BTEX | benzene, toluene, ethylbenzene, and total xylenes |
| COPC | chemical of potential concern |
| CRDL | contract required detection limit |
| DRO | diesel-range organic |
| EPA | United States Environmental Protection Agency |
| ERP | Environmental Restoration Program |
| GRO | gasoline-range organic |
| HGL | HydroGeoLogic, Inc. |
| HSWA | Hazardous and Solid Waste Amendments |
| IDL | Instrument Detection Limit |
| IRP | Installation Restoration Program |
| LTM | long term monitoring |
| MCL | maximum contaminant level |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per liter |
| MOBSS | Mobility Support Squadron |
| MTBE | methyl tertiary butyl ether |
| NAPL | non-aqueous phase liquid |
| NFA | no further action |
| NMED | New Mexico Environment Department |
| NMGWQ | New Mexico Groundwater Quality |
| NMRBDM | New Mexico Risk Based Decision Making |
| NOD | notice of deficiency |
| PCB | polychlorinated biphenyl |

LIST OF ACRONYMS, SYMBOLS, AND ABBREVIATIONS (continued)

| | |
|-----------------|--|
| Radian | Radian Corporation, Inc. |
| RBSL | risk-based screening level |
| RCRA | Resource Conservation and Recovery Act |
| RFA | RCRA Facility Assessment |
| RFI | RCRA Facility Investigation |
| RI | Remedial Investigation |
| SSL | Soil Screening Level |
| SWMU | solid waste management unit |
| TAL | target analyte list |
| TCE | trichloroethene |
| TDS | total dissolved solid |
| TOC | total organic carbon |
| TOX | total organic halide |
| TPH | total petroleum hydrocarbon |
| TRPH | total recoverable petroleum hydrocarbons |
| UST | underground storage tank |
| VOC | volatile organic compound |
| yd ³ | cubic yard(s) |

**FACT SHEET/STATEMENT OF BASIS FOR APPROVAL
OF NO FURTHER ACTION FOR EIGHT
SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
RCRA PERMIT NO. NM6572124422
HOLLOMAN AIR FORCE BASE
NEW MEXICO**

INTRODUCTION

Under authority of the New Mexico Hazardous Waste Act (Section 74-4-1 et seq., NMSA 1978, as amended, 1992) and the New Mexico Hazardous Waste Management Regulations [20.4.1 New Mexico Administrative Code (NMAC)], the New Mexico Environment Department (NMED) can approve or deny hazardous waste permits, closure plans, permit modifications, and amendments. A Class 3 permit modification request was submitted to NMED on June 23, 2008 by the U.S. Air Force for Holloman Air Force Base (AFB) Hazardous Waste Facility Resource Conservation and Recovery Act (RCRA) Permit No. NM6572124422 (Permit) pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (c)). If approved, the permit modification request would grant no further action (NFA) status for five Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs), and modify Part 4 of the Permit to move these SWMUs and AOCs from Appendix 4-A Table A (SWMUs Requiring Corrective Action) to Appendix 4-A Table B (Table B (SWMUs/AOCs Not Requiring Corrective Action)).

Investigation and remediation of SWMUs and AOCs at Holloman AFB is conducted under both the Air Force Environmental Restoration Program (ERP) and RCRA Corrective Action Program. The following sites, with SWMU/AOC designations and corresponding ERP Site designations, are the subject of this proposed permit modification:

| SWMU/AOC No. | SWMU Title | ERP Site No. |
|---------------------|---|---------------------|
| SWMU 105 | Golf Course Landfill | LF-19 |
| SWMU 116 | West Area Landfill No. 2 | LF-21 |
| SWMU 115 | West Area Landfill No. 1 | LF-22 |
| SWMU 108 | Mobility Support Squadron (MOBSS) Landfill | LF-23 |
| AOC P | Building 301 Fuel Tank Leaks | OT-44 |
| AOC S and SWMU 130 | Leaking Underground Storage Tank and Taxiway 3 Tank 28 JP-4 Underground Waste Tank | SS-46 |
| AOC N | Military Gas Station | SS-48 |

The Permittee's primary contact for this action is Ms. Debbie Hartell, 49 CES/CEV, 550 Tabosa Avenue, Holloman AFB, New Mexico, 88330.

A. FACILITY DESCRIPTION

Holloman AFB is situated in south-central New Mexico, in the northwest-central part of Otero County. The Base occupies about 50,000 acres in the northeast quarter of section Township 17 South, Range 8 East. Additional land extending northward is occupied by the White Sands Missile Range testing facilities. A facility location map is included as Figure A1. The locations of the subject sites are shown on Figure A2.

The Base is located about 75 miles northeast of El Paso, Texas, and about 7 miles west of Alamogordo, New Mexico. Alamogordo is the county seat of Otero County, and the only town of appreciable size within 30 to 50 miles of the Base. The population of Alamogordo was 23,535 in 1975, and has since grown to about 31,000. The economy of Alamogordo depends largely upon Holloman AFB and other military installations in the area. Approximately 5,500 people live at Holloman AFB.

Currently, Holloman AFB hosts the Air Combat Command 49th Fighter Wing, the mission of 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 the German Air Force Tornado Squadron, the 4th Space Surveillance Squadron, and Detachment 4 of the 55th Weather Squadron.

B. HISTORY OF ENVIRONMENTAL COMPLIANCE

Investigation and remediation of SWMUs and AOCs at Holloman AFB is conducted under both the Air Force ERP and the RCRA Corrective Action Program. The ERP, formerly called the Installation Restoration Program (IRP), was initiated in 1983 and the RCRA Facility Assessment (RFA) was conducted in 1987. A Hazardous and Solid Waste Amendments (HSWA) permit was issued to Holloman AFB in 1991 and became effective on September 25, 1991. In January 1996, NMED received authorization from the United States Environmental Protection Agency (EPA) for corrective action under the HSWA and became the administrative authority for this action. The HSWA portion of the RCRA permit identified sites at the Base requiring a Remedial Investigation (RI)/RCRA Facility Investigation (RFI). RFI activities were conducted in two phases. The Phase I RFI was conducted between 1987 and 1992; Phase II of the RFI was conducted between 1992 and 1995. A total of 236 potential SWMUs and 29 AOCs were investigated. Additionally, five remote sites such as radar sites, well fields, and reservoirs were investigated under the RFI. A total of 265 sites were identified and investigated during this process. At the completion of the RFI and RFA processes and through the use of decision documents, 119 SWMUs and AOCs remained on the RCRA permit.

In 1999, Holloman AFB submitted a request to remove 104 SWMUs and AOCs from the RCRA permit. In February 2000, NMED determined that 69 of the 104 SWMUs and AOCs were considered appropriate for removal. A detailed document describing conditions at these sites and the basis for removal was submitted to NMED in October 2000. In February 2001, NMED granted a Class III Permit Modification to remove 69 sites from the Base RCRA Permit. On November 29, 2005, an additional seven sites—six SWMUs and one AOC—were approved for NFA status and re-located from Appendix 4-A Table A to Appendix 4-A Table B.

Section H below briefly describes the location, history, evaluation of relevant information, and the basis for determination for each SWMU and AOC proposed for NFA. More detailed descriptions of the particulars for each SWMU and AOC can be found in the accompanying references constituting the Administrative Record.

This Statement of Basis describes the five SWMUs and three AOCs for which NMED concurred that NFA was required. In summary, if NMED approves the Permittee's request for a permit modification, these eight sites will be removed from Appendix 4-A Table A (SWMUs Requiring Corrective Action) to Appendix 4-A Table B (SWMUs/AOCs Not Requiring Corrective Action).

C. ADMINISTRATIVE RECORD

The Administrative Record for this proposed action consists of the Holloman AFB Permit Modification Request, this Fact Sheet/Statement of Basis, the Public Notice, the Draft Permit consisting of revised Tables 4-A and 4-B, and the referenced supporting documentation for each site. References for this Statement of Basis are listed in each site-specific section in Section H, below. The complete Administrative Record may be reviewed at the following location during the public comment period:

NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone: (505) 476-6000
Monday-Friday: 8:00 am – 5:00 pm

A copy of this Fact Sheet/Statement of Basis, the Public Notice, and the Draft Permit consisting of revised Tables 4-A and 4-B may be reviewed at the following location during the public comment period:

Alamogordo Public Library
920 Oregon Avenue
Alamogordo, New Mexico 88330
Telephone: (575) 439-4140
Summer Hours: Monday-Thursday, 10:00 am – 8:00 pm, Friday 10:00 am – 5:00 pm, Saturday 11:00 am – 5:00 pm, Sunday 1:00 pm – 5:00 pm.
<http://ci.alamogordo.nm.us/coa/communityservices/library.htm>

D. PUBLIC PARTICIPATION

Holloman AFB issued a public notice on June 20, 2008 to announce the beginning of a 60-day comment period on the Permit modification request that will end at August 19, 2008, 5:00 pm. Any person who wishes to comment on this action or request a public hearing should submit written or electronic mail (e-mail) comment(s) with the commenter's name and address to the address below. Only comments and/or requests received on or before August 19, 2008, 5:00 pm will be considered. A public meeting arranged by the Permittee will be held on July 8, 2008 in Alamogordo in accordance with NMAC 20.4.1.901 as part of the 60-day public comment period on the permit modification request required by the regulations at 40 CFR §270.42(c)(5).

John E. Kieling, Program Manager
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
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Telephone: (505) 476-6035
Fax: (505) 476-6030

Written comments must be based on the Administrative Record (for example, this Fact Sheet/Statement of Basis). Documents in the Administrative Record need not be re-submitted if expressly referenced by the commenter. Requests for a public hearing shall provide: (1) a clear and concise factual statement of the nature and scope of the interest of the person requesting the hearing; (2) the name and address of all persons whom the requestor represents; (3) a statement of any objections to the proposed action, including specific references; and (4) a statement of the issues that such persons proposes to raise for consideration at the hearing. Written comment and requests for Public Hearing must be filed with Mr. John Kieling at the address above on or before August 19, 2008, 5:00 pm. NMED will provide a 30-day notice of a public hearing, if scheduled.

E. 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 30 days after service of the decision, unless a later date is specified or review is requested in accordance with NMAC 20.4.1.901.

F. CONTACT PERSON FOR ADDITIONAL INFORMATION

For additional information, contact the following individual:

John E. Kieling, Program Manager
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
E-mail: john.kieling@state.nm.us
Telephone: (505) 476-6035
Fax: (505) 476-6030

G. NFA CRITERIA

The sites addressed herein have been under investigation since the early 1990s. Based on the information collected, NMED has concurred that the sites qualify for NFA. NFA requests were based on one of the five NMED NFA criteria presented below:

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

NFA Criterion 2: The SWMU/AOC has never been used for the management (i.e., generation, treatment, storage, and/or disposal) of RCRA solid waste or

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hazardous waste and/or constituents, or other hazardous substances controlled under the Comprehensive Environmental Response, Compensation, and Liability Act.

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 the NMED Petroleum Storage Tank, Solid Waste, or Groundwater Quality Bureaus).

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.

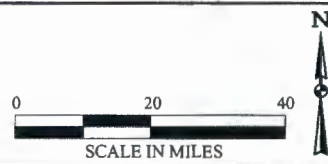
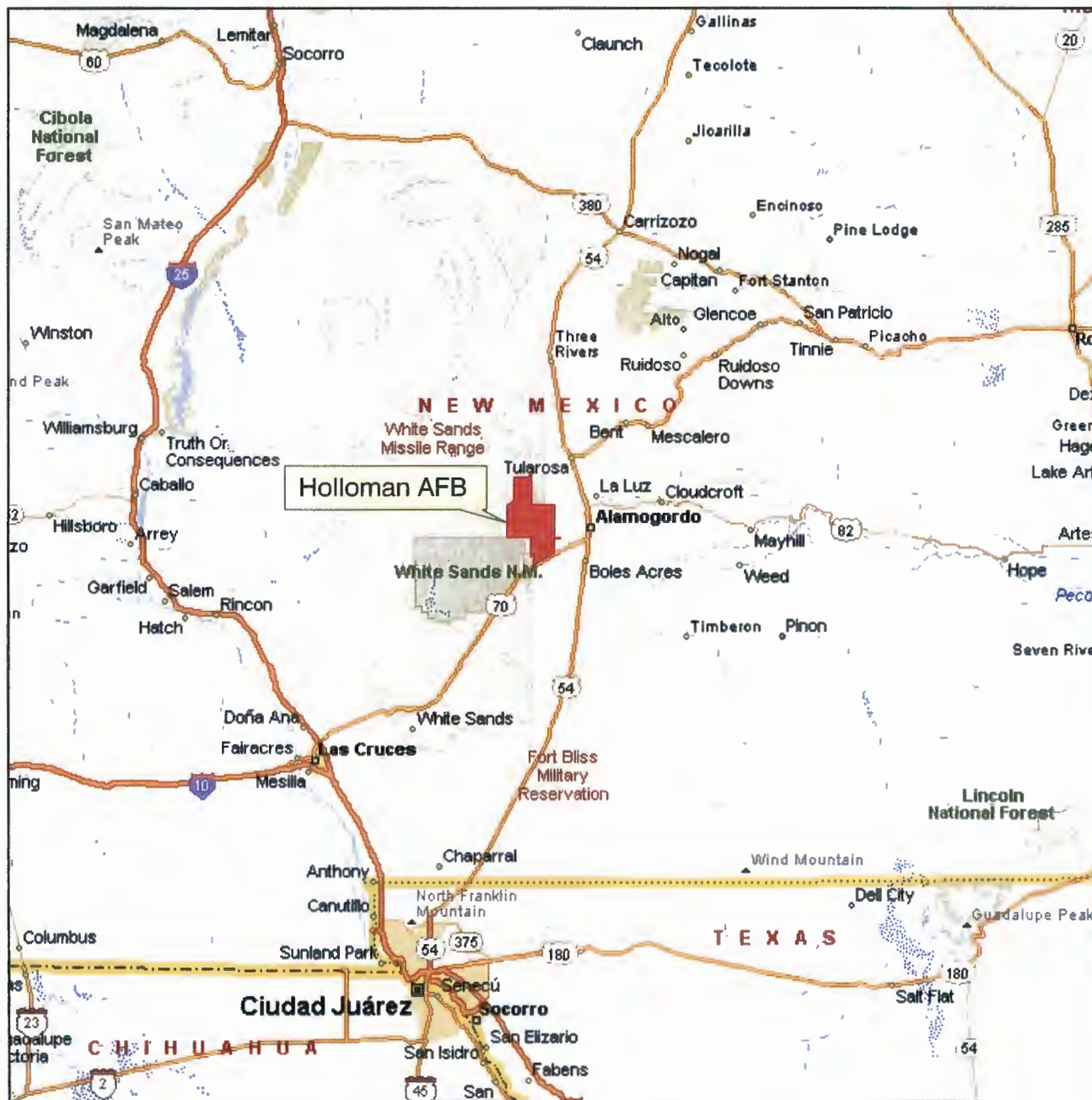
The NFA criteria for the subject sites are identified in the table below:

| SWMU/AOC No. | SWMU Title | ERP Site No. | NFA Criterion No. |
|---------------------|--|---------------------|--------------------------|
| SWMU 105 | Golf Course Landfill | LF-19 | 3 |
| SWMU 116 | West Area Landfill No. 2 | LF-21 | 5 |
| SWMU 115 | West Area Landfill No. 1 | LF-22 | 5 |
| SWMU 108 | MOBSS Landfill | LF-23 | 5 |
| AOC P | Building 301 Fuel Tank Leaks | OT-44 | 5 |
| AOC S and SWMU 130 | Leaking Underground Storage Tank and Taxiway 3 Tank 28 JP-4 Underground Waste Tank | SS-46 | 5 |
| AOC N | Military Gas Station | SS-48 | 5 |

- SWMU = solid waste management unit
- AOC = area of concern
- MOBSS = Mobility Support Squadron
- UST = underground storage tank
- ERP = Environmental Restoration Program
- NMED = New Mexico Environment Department
- RCRA = Resource Conservation and Recovery Act

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FIGURES

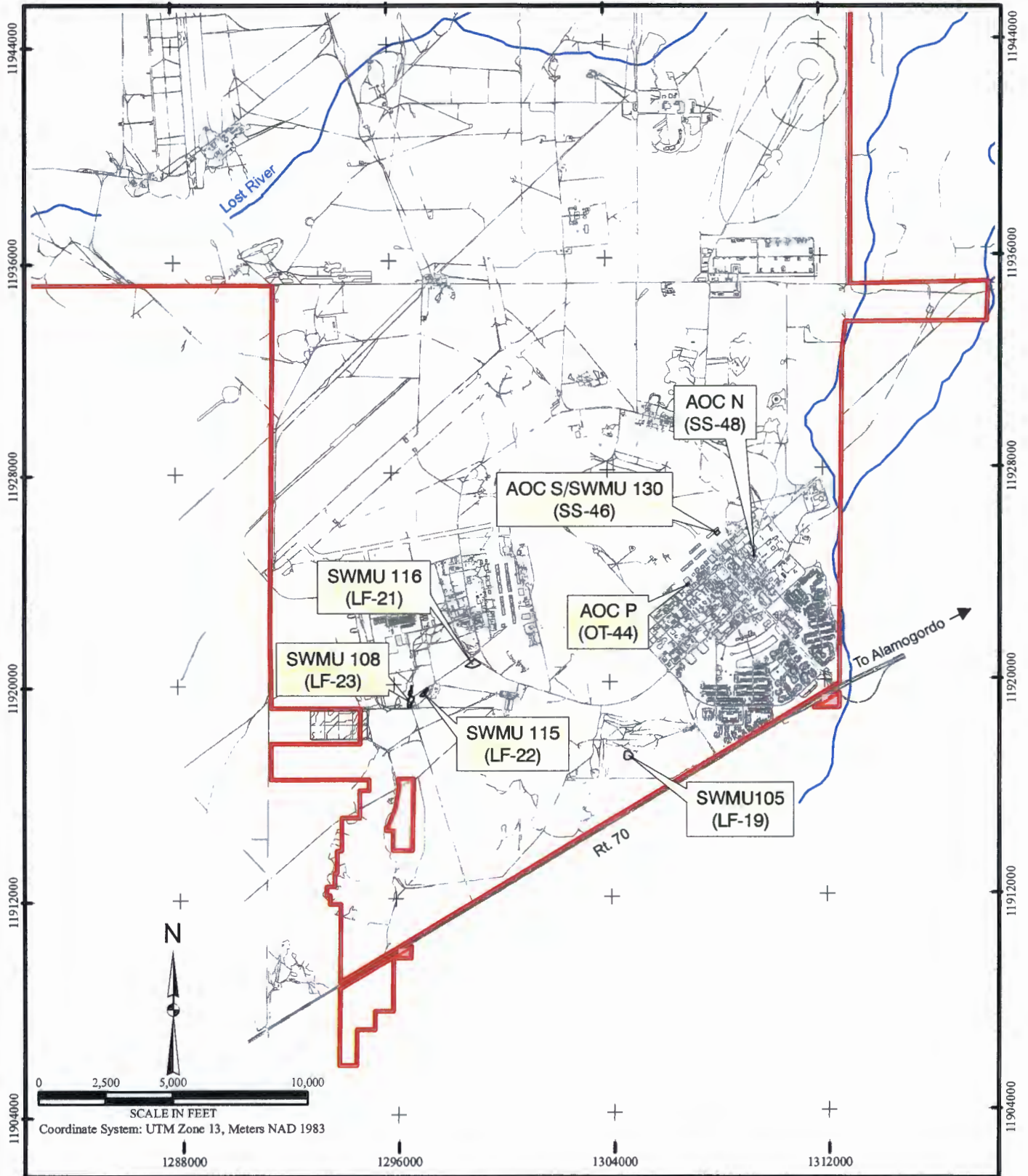


Filename: X:\AFC002\Holloman_AFB\Maps\
 \TO37\SOB_7_Sites\Site_location.cdr
 Project: TT3001.02.01
 Revised: 04/04/08 TB
 Source: MapPoint



Figure A.1
Facility Location Map
Holloman AFB

Holloman AFB Fact Sheet/Statement of Basis



Coordinate System: UTM Zone 13, Meters NAD 1983

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 Project: TT3001.02.01
 Revised: 04/04/08 TB
 Map Source: Holloman AFB



Legend

- Holloman AFB Boundary
- Building/Structure
- Operable Unit Boundary (Approx.)

Figure A.2
Site Location Map
Holloman AFB

H. DESCRIPTION OF SWMUS AND AOCs PROPOSED FOR NFA

H.1 LF-19 (SWMU 105), GOLF COURSE LANDFILL

H.1.1 Location/Unit Description

LF-19, the Golf Course Landfill, is located due south of Fairway 7 of the Holloman AFB golf course and approximately 800 feet north of the southern Base boundary. The location of LF-19 with respect to the surrounding facility is shown on Figure A2. A site layout of LF-19 is provided as Figure H1.1.

LF-19 is approximately two acres in size and encompasses two disposal units (herein designated as the “northern” and “southern” disposal units). The two disposal units are separated by a narrow, shallow, man-made drainage ditch that trends northeast to southwest. Both disposal units are unpaved, primarily undeveloped, and partially vegetated. The largest portion of LF-19 is comprised of the northern disposal unit, which lies immediately south of the golf course. This unit is bounded to the north and northeast by the asphalt-paved golf cart path; to the east by a fenced-in cactus garden, a small salt cedar grove, and an aggregate (i.e., sand) stockpile; to the south by the shallow, man-made drainage ditch; and to the west by undeveloped, moderately vegetated land. The majority of the northern disposal unit is open, unpaved, and primarily clear of vegetation. Vegetation consisting of salt cedars, shrubs, and grasses is located primarily along the periphery of the northern disposal unit. The golf course historically and currently uses the northern disposal unit for the exterior storage of golf course materials and supplies. At the time of the supplemental RFI field investigation, sand and mulch piles, slashed vegetation, and grass clippings were observed. Minor amounts of concrete rubble were present in the southwestern portion of the disposal area, while scrap metal and degraded metallic corrugated piping was present southeast of the unit. The slashed vegetation and grass clippings were present in the southern portion of the disposal unit. The southern disposal unit is located immediately south of the northern disposal unit, across the narrow, shallow, man-made drainage ditch. This disposal unit is characterized primarily by a long, linear, east-west trending mound ranging approximately 2 feet above the surrounding topography, approximately 150 feet south of the man-made drainage ditch. The area between the mound and the drainage ditch is relatively flat, moderately vegetated with shrubs, and criss-crossed by several unpaved service roads. Sporadic amounts of scrap metal were observed on the surface of the mound. North of the mound, the ground was also sporadically littered with scrap metal. To the south of the debris mound, little to no debris was observed.

H.1.2 History/Current and Anticipated Future Land Use

LF-19 was used between 1968 and 1978 as a disposal site for golf course grass clippings; however, the RFA indicated that unused rodenticides may have been disposed at the landfill. No other information has supported the potential disposal of unused rodenticides at LF-19.

The current and anticipated future land use is open space.

H.1.3 Evaluation of Relevant Information

In 1992, a RFI consisting of installing and sampling three groundwater monitoring wells (MW19-01 through MW19-03) was conducted (Radian Corporation, Inc. [Radian], 1994). The locations of the wells in relation to the site are shown on Figure H1.1. The collected

groundwater samples were analyzed for volatile organic compounds (VOCs), organochlorine pesticides, organophosphorus pesticides, polychlorinated biphenyls (PCBs), chlorinated herbicides, total metals, anions, and total dissolved solids (TDS). Table H1.1 presents the RI analytical results screened against the EPA Maximum Contaminant Levels (MCLs) and New Mexico Groundwater Quality (NMGWQ) standards. None of the analytes were detected above background concentrations and EPA MCLs. Cadmium and chloride were the only analytes detected at concentrations exceeding background and NMGWQ standards. No organochlorine pesticides, organophosphorus pesticides, PCBs, or chlorinated herbicides were detected in the groundwater samples and no site-related VOCs were detected. Methylene chloride was detected but was considered a remnant of laboratory blank contamination. Based on the analytical results, the RFI concluded that wastes, if present at LF-19, had not impacted the underlying groundwater and that the site did not present an unacceptable risk even under worst-case exposure conditions.

Based on the results of the RI, Holloman AFB submitted a Decision Document (Radian, 1995) concluding a no-action remedy was appropriate for LF-19. As part of the no-action remedy, surface debris would be removed, a plat of survey would be produced, and groundwater long term monitoring (LTM) would be conducted at the site at the request of NMED and EPA. LTM activities would consist of the biennial collection and analysis of groundwater samples from the three onsite wells for 10 years to ensure that any potential future release from the site would be detected. The collected groundwater samples were to be analyzed for VOCs, organochlorine pesticides, organophosphorus pesticides, chlorinated herbicides, and metals. NMED concurred with and signed the Decision Document.

LTM activities were initiated in 1995. Over the course of the program, the required target analyte list (TAL) was reduced due to lack of analyte detections. By 2003, the required TAL had been reduced to barium, iron, and manganese. With the exception of lead in the first round of sampling, no constituents in the downgradient wells were detected above background concentrations and NMGWQ standards. The TDS concentrations of the groundwater beneath LF-19 exceed 10,000 milligrams per liter (mg/L); indicating that the water is not a potable or agricultural source. The 2003 LTM event marked the fifth biennial sampling event for LF-19. Consequently, within the 2003 LTM report, cessation of LTM and site closeout was recommended [Bhate Environmental Associates (Bhate), 2003]. The groundwater analytical results obtained during 10 years of LTM monitoring and associated EPA MCLs and NMGWQ standards are presented on Table H1.2.

NMED informed Holloman AFB that LTM could be suspended, but that NFA for LF-19 would be considered after additional characterization was performed at the site. Additional characterization activities consisted of a geophysical survey (terrain conductivity and in-phase geophysical survey) and site trenches were conducted in the fall 2005 and spring 2006. The non-invasive geophysical survey conducted on the site and surrounding area confirmed the absence of subsurface metallic anomalies. Magnetic surveying identified a few discrete magnetic anomalies associated with areas containing metallic or magnetically susceptible surface debris. Terrain conductivity results did not suggest the presence of a landfill.

On May 22, 2006, four trenches (designated as HGLTR19-01 through HGLTR19-04) and two test pits (designated as HGLTP19-01 through HGLTP19-02) were completed at LF-19. The trenches were completed within both lobes of the landfill and targeted identified geophysical anomalies and areas of visual interest. The locations of the trenches are depicted on Figure H1.1.

During propagation of trench HGLTR19-01, small bluish crystals were observed around several corroded copper pipe fragments. NMED visually inspected the LF-19 trenches on May 22, 2006, during which NMED was notified of the bluish crystals (Strasser, 2006). After inspecting the trench, NMED approved the collection of two soil samples, one from the area containing the bluish crystals and one from the soil immediately beneath it. The soil samples were analyzed for organochlorine pesticides, organophosphorous pesticides, herbicides, and TAL metals. The location of the two soil samples is depicted on Figure H1.1.

No organochlorine pesticides or herbicides were detected in the two soil samples. Several organophosphorous pesticides were detected in both soil samples with concentrations typically higher in the near surface soil sample (HGLTR19-01-0102). None of the organophosphorous pesticides concentrations detected in the soil samples exceeded NMED soil screening criteria. Elevated copper, aluminum, chromium, and manganese concentrations were detected in HGLTR19-01-0102, the soil sample containing the bluish crystals. The reported copper concentration exceeded the NMED residential soil screening level (SSL). None of the metals detected in sample HGLTR19-01-0203, collected within one foot below sample HGLTR19-01-0102, were detected at concentrations above NMED SSLs. The presence of the bluish crystals only immediately around the copper pipe fragments, the elevated copper concentrations in shallow soil sample HGLTR19-01-0102, and the lack of elevated metal concentrations in the deeper soil sample (HGLTR19-01-0203) supported the conclusion that the observed bluish crystals are a copper salt formed from the corrosion of copper pipe fragments. The soil analytical results are summarized on Table H1.3.

Based on the analytical results, NFA and the transfer of LF-19 from Appendix 4.A Table A to Appendix 4.A Table B based on NMED Criterion 3 was requested within the RFI report [HydroGeoLogic, Inc. (HGL), 2007]. On May 1, 2007, NMED approved the RFI report (NMED, 2007). A copy of the NMED approval letter is provided as Figure H1.2.

H.1.4 Basis for Determination

NMED concurred with the RFI conclusion that SWMU 105 (LF-19) is suitable for NFA based on NMED Criterion 3; no release to the environment has occurred or is likely to occur in the future from the SWMU/AOC.

H.1.5 References

Bhate Environmental Associates, Inc. (Bhate), 2003. Final 2003 Long-Term Groundwater Monitoring Report, Holloman AFB, New Mexico. September.

HydroGeoLogic, Inc. (HGL), 2007. Supplemental RCRA Facility Investigation, LF-19 (SWMU 105), LF-21 (SWMU 116), LF-22 (SWMU 115), and LF-23 (SWMU 108), Holloman Air Force Base, Alamogordo, New Mexico. February.

New Mexico Environment Department (NMED), 2007. Approval of the Supplemental RCRA Facility Investigation Report, LF-19 (SWMU 105), LF-21 (SWMU 116), LF-22 (SWMU 115), and LF-23 (SWMU 108), February 2007, Holloman Air Force Base, EPA ID#NM6572124422, HWB-HAFB-07-003. May 1.

Radian Corporation (Radian), 1992. RI, Report, Volume II of III, Appendices A, B, C, and D, Investigation, Study and Recommendation for 29 Waste Sites.

Radian, 1993. Preliminary Assessment and Site Investigation Report, Investigation of Four Waste Sites, Holloman Air Force Base, New Mexico.

Radian, 1994. Draft Final Phase I RCRA Facility Investigation Report, Table 2 Solid Waste Management Units, Volume 1, Holloman AFB, New Mexico. October.

Radian, 1995. Decision Documents, Multiple Sites.

Strasser, D., 2006. Personnel communication between Mr. Dave Strasser of NMED and Mr. Brett Brodersen of HGL while conducting an onsite inspection of the LF-19 trenches. The discussion was in regard to the collection of soil samples from trench HGLTR19-01 and associated NMED required analyses. May 22.

TABLES

Table H1.1
Remedial Investigation Groundwater Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico

| Analyses | Background¹ | EPA MCL | NMGWQ Standard | Detection Limit | MW-19-01 (upgradient) | MW-19-02 | MW-19-03 |
|--|-------------------------------|----------------|-----------------------|------------------------|------------------------------|-----------------|-----------------|
| Inorganic Results (mg/L) | | | | | | | |
| EPA 160.1- Total Dissolved Solids | 43,600 | -- | 1,000 | 10 | <i>17,000</i> | <i>21,000</i> | <i>42,000</i> |
| EPA 300.0- Chloride | 19,600 | -- | 250 | 26 | <i>7,200</i> | <i>8,200</i> | 20,000 |
| EPA 300.0- Sulfate | 7,470 | -- | 600 | 5.0 | <i>3,400</i> | <i>4,600</i> | <i>7,100</i> |
| EPA 340.2- Fluoride | 4.7 | 4 | 1.6 | 0.10 | <i>1.7</i> | <i>3.2</i> | <i>1.8</i> |
| EPA 353.1- Nitrate-Nitrite | 98 | -- | -- | 0.022 | 1.2 | 8.6 | 5.7 |
| EPA 365.2- Total Phosphorous | 0.75 | -- | -- | 0.020 | 0.26 | 0.5 | 0.18 |
| SW6010- Metals (µg/L) | | | | | | | |
| Antimony | 89.6 | 6 | -- | 100 | <i>140</i> | 140 | <i>100</i> |
| Cadmium | 8.3 | 5 | 10 | 5 | <i>6.3</i> | <i>5.4</i> | 11 |
| Chromium | 234 | 100 | 50 | 10 | 12 | 17 | ND |
| Nickel | 43.6 | -- | 200 [^] | 20 | 32 | 33 | 29 |
| Zinc | 253.4 | -- | 10,000 | 20 | 33 | 41 | < 0.020 |
| SW7421- Lead (µg/L) | 19.9 | 15 | 50 | 3 | < 0.0030 | | 21 |
| Organic Results | | | | | | | |
| SW8240 - Volatile Organics (µg/L) | | | | | | | |
| Methylene Chloride | -- | -- | 100 | 5.0 | 3.8 J | < 5.0 | 22 |

Note: Table presents only constituents detected in ground water at this site.

EPA = United States Environmental Protection Agency

MCL = Maximum Contaminant Level

NMGWQ = New Mexico Groundwater Quality

mg/L = milligrams per liter

µg/L = micrograms per liter

-- = No value or standard was found

J = Detected below the detection limit.

Results in **BOLD** and *italics* exceed EPA Primary Drinking Water MCLs and are greater than the background and upgradient values

Results shaded in **BOLD** and *italics* exceed NMGWQ Standards for Human Health and are greater than the background and upgradient values

Results in *italics* exceed EPA or NMGWQ standards but are below background and/or upgradient levels

[^] NMGWQ Standard for Irrigation Use

¹ Source for Inorganics Values is: Radian (1992). Source for Metals is Radian (1993).

Table H1.2
Long Term Groundwater Monitoring Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico

| Well Number Sampling Data | Background [^] | EPA MCL (µg/L) | NMGWQ Standard (µg/L) | MW-19-01 ⁴ | | | | |
|---|-------------------------|-------------------|-----------------------------|-----------------------|--------|------------|-----------|--------|
| | | | | Aug-95 | Sep-97 | Sep-99 | Sep-01 | Apr-03 |
| VOCs ¹ (µg/L) | | | | | | | | |
| 1,2,3- Trichlorobenzene ⁶ | -- | -- | -- | NA | ND | NA | NA | NA |
| 1,2,4- Trichlorobenzene ⁶ | -- | 70 | -- | NA | ND | NA | NA | NA |
| Metals ² (µg/L) | | | | | | | | |
| Arsenic | 35.4 | 10 | 100 | ND | ND | < 3 | NA | NA |
| Barium | 85.2 | 2000 | 1000 | ND | 19 | 14.5 B (J) | 11.3 | 7.18 J |
| Cadmium | 7.4 | 5 | 10 | ND | ND | .03 B | NA | NA |
| Iron | -- | -- | 1000 | ND | ND | < 21 | 89.3 | < 200 |
| Lead | 5.6 | 15 | 50 | 54 | ND | < 1.5 | < 10 (UJ) | NA |
| Manganese | -- | -- | 200 | ND | 230 | 284 (J) | 597 (J) | 514 |
| Mercury | 0.03 | 2 | 2 | ND | ND | < 0.2 | < 0.5 | NA |
| Selenium | 85.3 | 50 | 50 | ND | ND | 2.9 B (J) | NA | NA |
| Silver | 6.7 | -- | 50 | ND | ND | < 0.5 | NA | NA |
| Organochlorine Pesticides ³ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |
| Chlorinated Herbicides ⁴ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |

Table H1.2 (continued)
Long Term Groundwater Monitoring Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico

| Well Number Sampling Data | Background [^] | EPA MCL (µg/L) | NMGWQ Standard (µg/L) | MW-19-02 | | | | |
|---|-------------------------|-------------------|-----------------------------|------------|--------|------------|-----------|--------|
| | | | | Aug-95 | Sep-97 | Sep-99 | Sep-01 | Apr-03 |
| VOCs ¹ (µg/L) | | | | | | | | |
| 1,2,3- Trichlorobenzene ⁶ | -- | -- | -- | NA | 1.7 J | NA | NA | NA |
| 1,2,4- Trichlorobenzene ⁶ | -- | 70 | -- | NA | 0.9 J | NA | NA | NA |
| Metals ² (µg/L) | | | | | | | | |
| Arsenic | 35.4 | 10 | 100 | ND | ND | 3.9 B (J) | NA | NA |
| Barium | 85.2 | 2000 | 1000 | ND | ND | 21.6 B (J) | 15.2 | 11.9 |
| Cadmium | 7.4 | 5 | 10 | ND | ND | 0.5 B | NA | NA |
| Iron | -- | -- | 1000 | ND | ND | 132 | < 1000 | 146 J |
| Lead | 5.6 | 15 | 50 | 540 | ND | < 1.5 | < 10 (UJ) | NA |
| Manganese | -- | -- | 200 | ND | ND | 246 (J) | 77.5 (J) | 79.6 |
| Mercury | 0.03 | 2 | 2 | ND | ND | 0.56 (J) | < 0.5 | NA |
| Selenium | 85.3 | 50 | 50 | ND | ND | 2.7 B (J) | NA | NA |
| Silver | 6.7 | -- | 50 | ND | ND | < 0.5 | NA | NA |
| Organochlorine Pesticides ³ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |
| Chlorinated Herbicides ⁴ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |

Table H1.2 (continued)
Long Term Groundwater Monitoring Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico

| Well Number Sampling Data | Background [^] | EPA MCL (µg/L) | NMGWQ Standard (µg/L) | MW-19-03 | | | | |
|---|-------------------------|-------------------|-----------------------------|------------|--------|------------|--------------------|--------|
| | | | | Aug-95 | Sep-97 | Sep-99 | Sep-01 | Apr-03 |
| VOCs ¹ (µg/L) | | | | | | | | |
| 1,2,3- Trichlorobenzene ⁶ | -- | -- | -- | NA | ND | NA | NA | NA |
| 1,2,4- Trichlorobenzene ⁶ | -- | 70 | -- | NA | ND | NA | NA | NA |
| Metals ² (µg/L) | | | | | | | | |
| Arsenic | 35.4 | 10 | 100 | ND | ND | < 3 | NA | NA |
| Barium | 85.2 | 2000 | 1000 | ND | ND | 17.8 B (J) | 18.8 B | 10.6 J |
| Cadmium | 7.4 | 5 | 10 | ND | ND | < 0.3 | NA | NA |
| Iron | -- | -- | 1000 | ND | ND | < 110 | < 10,000 | < 200 |
| Lead | 5.6 | 15 | 50 | 420 | ND | < 1.5 | < 10 (UJ) | NA |
| Manganese | -- | -- | 200 | ND | ND | 1.1 B (J) | 1.5 B (J) | < 100 |
| Mercury | 0.03 | 2 | 2 | ND | ND | < 0.2 | < 0.5 | NA |
| Selenium | 85.3 | 50 | 50 | ND | ND | 4.1 B (J) | NA | NA |
| Silver | 6.7 | -- | 50 | ND | ND | 1.3 B (J) | NA | NA |
| Organochlorine Pesticides ³ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |
| Chlorinated Herbicides ⁴ (µg/L) | | | | | | | | |
| all | -- | -- | -- | ND | ND | NA | NA | NA |

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Holloman Air Force Base

Table H1.2 (continued)
Long Term Groundwater Monitoring Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico

Notes:

¹ Unless otherwise reported, no VOCs were detected prior to 2001 using EPA Method 8260B.
(EPA Method 8260A was used to analyze for VOCs in the 1995 and 1997 programs.)

Laboratory qualifiers--

² Unless otherwise reported, no metals were detected using EPA Methods 6010B Trace & 7470A.
assigned as a result of internal laboratory data assessment procedures
(EPA Method 8080A was used to analyze for organochlorine pesticides in the 1995 and 1997 programs.)

B - Value less than CRDL but greater than or equal to IDL

³ Unless otherwise reported, no organochlorine pesticides were detected prior to 1999 using EPA Method 8081A.

J - estimated value; less than CRDL but greater than or equal to IDL

(EPA Method 8080A was used to analyze for organochlorine pesticides in the 1995 and 1997 programs.)

UB - Qualifies as non-detect due to presence of analyte in associated laboratory blank

⁴ Upgradient monitoring well

EPA Qualifiers--assigned as a result of independent data validation

CRDL = Contract Required Detection Limit

(J) - Estimated value

IDL = Instrument Detection Limit

(UJ) - Estimated value below the reporting limit

NA = not analyzed

(U) Compound was analyzed for but not detected.

ND = not detected at or above method reporting limit

2003 Validation Qualifiers

VOC = volatile organic compound

J - Estimated value detected less than the CRDL but greater than the reporting limit.

µg/L = micrograms per liter

U - Compound was analyzed for but not detected. Analyte result was below the CRDL.

-- = No value or standard was found

UJ - Estimated as a non-detect at the detection limit.

SWMU = solid waste management unit

AFB = Air Force Base

NM = New Mexico

EPA = United States Environmental Protection Agency

NMGWQ = New Mexico Groundwater Quality

Results in **BOLD** and *italics* exceed EPA Primary Drinking Water MCLs and are greater than the background and upgradient values

Results shaded in **BOLD** and *italics* exceed NMGWQ Standards for Human Health and are greater than the background and upgradient values

Results in *italics* exceed EPA or NMGWQ standards but are below background and/or upgradient levels

^ Radian (1993)

**Table H1.3
Soil Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico**

| Analyte | NMED Soil Screening Levels, June 2006 | | | HGLTR19-01-0102 | HGLTR19-01-0203 |
|---|---------------------------------------|--------------------------|---------------------------|-----------------|-----------------|
| | Revision 4.0 Table A-1 | | | 1-2' | 2-3' |
| | Residential Soil | Indust/Occup Soil | Const Worker Soil | 5/22/2006 | 5/22/2006 |
| Chlorinated Herbicides (µg/kg) | | | | ND | ND |
| Organophosphorous Pesticides (µg/kg) | | | | ND | ND |
| Organochlorine Pesticides (µg/kg) | | | | | |
| alpha-Chlordane | 16,200 ⁽¹⁾ | 71,900 ⁽¹⁾ | 130,000 ⁽¹⁾ | 119 | 2.90 |
| gamma-Chlordane | 16,200 ⁽¹⁾ | 71,900 ⁽¹⁾ | 130,000 ⁽¹⁾ | 144 | 2.00 |
| p,p-DDE | 17,200 | 78,100 | 570,000 | 51.6 | -- |
| p,p-DDT | 17,200 | 78,100 | 138,000 | 7.00 | 1.90 |
| Endosulfan I | 367,000 ⁽²⁾ | 4,100,000 ⁽²⁾ | 1,400,000 ⁽²⁾ | 93.2 | -- |
| Endosulfan sulfate | 367,000 ⁽²⁾ | 4,100,000 ⁽²⁾ | 1,400,000 ⁽²⁾ | 6.10 | -- |
| Endrin aldehyde | 18,300 ⁽³⁾ | 205,000 ⁽³⁾ | 69,900 ⁽³⁾ | 105 | 1.00 |
| Metals (mg/kg) | | | | | |
| Aluminum | 77,800 | 100,000 | 14,400 | 58,300 | 1,200 |
| Antimony | 31.3 | 454 | 124 | 3.64 | -- |
| Arsenic | 3.9 | 17.7 | 85.2 | 3.17 | 1.88 |
| Barium | 15,600 | 100,000 | 60,200 | 16.4 | 17.4 |
| Calcium | NA | NA | NA | 28,700 | 156,000 |
| Chromium | 234 ⁽⁴⁾ | 3,400 ⁽⁴⁾ | 26.1⁽⁴⁾ | 78.6 | 0.976 |
| Cobalt | 1,520 | 20,500 | 61.0 | 3.47 | 0.695 |
| Copper | 3,130 | 45,400 | 12,400 | 7,870 | 20 |
| Iron | 23,500 | 100,000 | 92,900 | 4,060 | 1,240 |
| Lead | 400 | 800 | 800 | 367 | 7.37 |
| Magnesium | NA | NA | NA | 8,640 | 2,250 |
| Manganese | 3,590 | 48,400 | 150 | 480 | 17.5 |
| Nickel | 1,560 | 22,700 | 6,190 | 310 | 1.21 |

Fact Sheet/Statement of Basis for Approval of No Further Action for Eight SWMUs and AOCs
Holloman Air Force Base

**Table H1.3 (continued)
Soil Analytical Results
LF-19 (SWMU 105)
Holloman AFB, New Mexico**

| Analyte | NMED Soil Screening Levels, June 2006 | | | HGLTR19-01-0102 | HGLTR19-01-0203 |
|-----------|---------------------------------------|-------------------|-------------------|-----------------|-----------------|
| | Revision 4.0 Table A-1 | | | 1-2' | 2-3' |
| | Residential Soil | Indust/Occup Soil | Const Worker Soil | 5/22/2006 | 5/22/2006 |
| Potassium | NA | NA | NA | 1,240 | 619 |
| Silver | 391 | 5,680 | 1,550 | 4.26 | -- |
| Sodium | NA | NA | NA | 9,280 | 3,020 |
| Vanadium | 78.2 | 1,140 | 310 | 15.4 | 2.19 J |
| Zinc | 23,500 | 100,000 | 92,900 | 2,040 | 5.16 |

- (1) Chlordane NMED SSL value used as surrogate for alpha-chlordane and gamma-chlordane
- (2) Endosulfan NMED SSL value used as surrogate for endosulfan I and endosulfan sulfate
- (3) Endrin NMED SSL value used as a surrogate for endrin aldehyde
- (4) Hexavalent chromium NMED SSL value used as a surrogate for chromium

µg/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram
 NMED = New Mexico Environment Department
 SSL = soil screening level

Gray shaded and **bolded** analyte concentrations indicate analyte concentrations above one or more screening criteria values
Bolded screening criteria values are those values exceeded by an analyte concentration

FIGURES