Fact Sheet / Statements of Basis
Kirtland Air Force Base
Request for Approval of
No Further Action for
23 Solid Waste Management Units
(RCRA Permit No. 9570024423)
March 20, 2006
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<tr>
<td>AFB</td>
<td>Air Force Base</td>
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<tr>
<td>AFRL</td>
<td>Air Force Research Laboratory</td>
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<tr>
<td>AOC</td>
<td>Area of Concern</td>
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<tr>
<td>AST</td>
<td>above ground storage tank</td>
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<tr>
<td>bgs</td>
<td>below ground surface</td>
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<tr>
<td>CAU</td>
<td>Corrective Action Unit</td>
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<tr>
<td>CCC</td>
<td>Civilian Conservation Corps</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
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<tr>
<td>CMS</td>
<td>Corrective Measures Study</td>
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<tr>
<td>COPCs</td>
<td>Contaminants of Potential Concern</td>
</tr>
<tr>
<td>cu yd</td>
<td>cubic yard</td>
</tr>
<tr>
<td>DOE</td>
<td>Department of Energy</td>
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<tr>
<td>DRMO</td>
<td>Defense Reutilization and Marketing Office</td>
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<tr>
<td>DRO</td>
<td>diesel range organics</td>
</tr>
<tr>
<td>EBS</td>
<td>Environmental Baseline Study</td>
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<tr>
<td>EMI</td>
<td>electromagnetic induction</td>
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<tr>
<td>EOD</td>
<td>Explosive Ordnance Disposal</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>ft</td>
<td>ft or foot</td>
</tr>
<tr>
<td>GRABS</td>
<td>Great Reusable Air Bag System</td>
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<tr>
<td>GRO</td>
<td>gasoline-range organics</td>
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<tr>
<td>HE</td>
<td>high explosives</td>
</tr>
<tr>
<td>HEAT</td>
<td>High Explosives Anti Tank</td>
</tr>
<tr>
<td>HHRB</td>
<td>Human Health Risk Based</td>
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<tr>
<td>HSWA</td>
<td>Hazardous and Solid Waste Amendments</td>
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<tr>
<td>HWB</td>
<td>Hazardous Waste Bureau</td>
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<tr>
<td>ICM</td>
<td>Interim Corrective Measure</td>
</tr>
<tr>
<td>LTM</td>
<td>long term groundwater monitoring</td>
</tr>
<tr>
<td>mg/kg</td>
<td>milligram per kilogram</td>
</tr>
<tr>
<td>mg/L</td>
<td>milligrams per liter</td>
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<tr>
<td>mm</td>
<td>millimeter</td>
</tr>
<tr>
<td>MWSA</td>
<td>Manzano Weapons Storage Area</td>
</tr>
<tr>
<td>NFA</td>
<td>No Further Action</td>
</tr>
<tr>
<td>HHRA</td>
<td>Human Health Risk Assessment</td>
</tr>
<tr>
<td>NMAC</td>
<td>New Mexico Administrative Code</td>
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<tr>
<td>NMED</td>
<td>New Mexico Environment Department</td>
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<tr>
<td>NMEID</td>
<td>New Mexico Environmental Improvement Division</td>
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<tr>
<td>NMERI</td>
<td>New Mexico Engineering Research Institute</td>
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<tr>
<td>NMWQCC</td>
<td>New Mexico Water Quality Control Commission</td>
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<tr>
<td>OCP</td>
<td>organochlorine pesticides</td>
</tr>
<tr>
<td>OE</td>
<td>Ordnance and explosives</td>
</tr>
<tr>
<td>OWS</td>
<td>oil/water separator</td>
</tr>
<tr>
<td>PAH</td>
<td>polycyclic aromatic hydrocarbons</td>
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Acronyms and Abbreviations (Continued)

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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>PCB</td>
<td>polychlorinated biphenyls</td>
</tr>
<tr>
<td>PETN</td>
<td>pentaerythritol tetra nitrate</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
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<tr>
<td>RFI</td>
<td>RCRA Facility Investigation</td>
</tr>
<tr>
<td>RSI</td>
<td>Request for Supplemental Information</td>
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<tr>
<td>SGs</td>
<td>Soil Guidelines</td>
</tr>
<tr>
<td>SNL</td>
<td>Sandia National Laboratories</td>
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<tr>
<td>SSLs</td>
<td>soil screening levels</td>
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<tr>
<td>SVOC</td>
<td>semivolatile organic compound</td>
</tr>
<tr>
<td>SWMU</td>
<td>solid waste management unit</td>
</tr>
<tr>
<td>TAL</td>
<td>Target Analyte List</td>
</tr>
<tr>
<td>TCLP</td>
<td>Toxicity Characteristic Leaching Procedure</td>
</tr>
<tr>
<td>TDS</td>
<td>total dissolved solids</td>
</tr>
<tr>
<td>TKN</td>
<td>total Kjeldahl nitrogen</td>
</tr>
<tr>
<td>TNT</td>
<td>trinitrotoluene</td>
</tr>
<tr>
<td>TPH</td>
<td>total petroleum hydrocarbons</td>
</tr>
<tr>
<td>TPH-e</td>
<td>extractable total petroleum hydrocarbons</td>
</tr>
<tr>
<td>TPH-p</td>
<td>purgeable total petroleum hydrocarbons</td>
</tr>
<tr>
<td>TOC</td>
<td>total organic compounds</td>
</tr>
<tr>
<td>TOX</td>
<td>total organic halogens</td>
</tr>
<tr>
<td>USAF</td>
<td>U.S. Air Force</td>
</tr>
<tr>
<td>UST</td>
<td>underground storage tank</td>
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<tr>
<td>UXO</td>
<td>unexploded ordnance</td>
</tr>
<tr>
<td>VCM</td>
<td>Voluntary Corrective Measures</td>
</tr>
<tr>
<td>VOC</td>
<td>volatile organic compound</td>
</tr>
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<td>WT</td>
<td>water tower</td>
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STATEMENTS OF BASIS

Approval of No Further Action for 23 Solid Waste Management Units (RCRA Permit No. NM9570024423).

The New Mexico Environment Department (NMED) has determined that twenty-two (22) Solid Waste Management Units (SWMUs) currently listed on the Hazardous and Solid Waste Amendments (HSWA) Corrective Action module of the Kirtland Air Force Base (AFB) Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit (9570024423) issued to Kirtland AFB on 10 October 1990 (EPA, 1990) are suitable for No Further Action (NFA) Corrective Action Complete status. Kirtland AFB has submitted an October 7, 2005, request to the NMED for a Class 3 Permit Modification to officially designate the 22 SWMUs as suitable for NFA. These Statements of Basis provide a summary of the 22 SWMUs that are included in the permit modification request. Additionally, in their October 7, 2005, request, Kirtland AFB is requesting that NMED administratively remove the Active Landfill (LF-268) from Table A and place it on Table B as a “SWMU not requiring corrective action at this time”.

LF-268 is the active KAFB construction and demolition debris landfill and is regulated by the NMED pursuant to the New Mexico Solid Waste Management Regulations and the New Mexico Hazardous Waste Management Regulations (20.4.2 NMAC). Under NFA Criterion No. 4, the NMED may grant NFA status to a SWMU if the SWMU is regulated under another authority to avoid unnecessary duplication of requirements. For this reason, the NMED will remove the listing of LF-268 from Table A and put it into Table B of KAFB’s RCRA Permit.

A. Facility Description

Kirtland AFB is located in Albuquerque, Bernalillo County, New Mexico (Figure 1). The base covers 52,223 acres on a high, arid mesa approximately 5 miles east of the Rio Grande.

B. History of Investigation

The U.S. Environmental (EPA) and the NMED (formerly known as NMEID) jointly issued Kirtland AFB’s Hazardous Waste Permit in October 1990. One module of the permit, Module IV, Special Conditions Pursuant to the 1984 HSWA to RCRA, concerns the investigation of SWMUs. The HSWA Module requires Kirtland AFB to determine whether or not there have been any releases of hazardous waste from any SWMU and to take appropriate corrective measures for any such releases. On January 2, 1996, the NMED received authorization for corrective action under HSWA and became the administrative authority for this action. These Statements of Basis describe 23 of the SWMUs that were identified as “suitable for No Further Action Status.” In summary, if Kirtland AFB’s request for a permit modification is approved by NMED, these 23 SWMUs will be listed in Module IV as being approved for No Further Action.
Figure 1. Site Location Map
C. Investigation Results

The NFA determinations have been based upon the five NFA Criteria provided by NMED (Section II.B.4.a (4)(b), Page 1, 3 March 1998). These criteria are:

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

Section I below briefly describes the locations, history, evaluations of relevant information, and the bases for determination for each of the 23 SWMUs proposed for NFA. More detailed descriptions of the particulars for each SWMU can be found in the original referenced documents.

D. Permit Modification

A copy of the public notice, the Statement of Basis for each site, and the applicable supporting documents can be reviewed at either of the following locations during the 60-day comment period beginning October 7, 2005.

TVI Montoya Campus Library Reference Desk
4700 Morris NE
Albuquerque, NM 87111
(505) 224-5730

New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505
(505) 428-2500
E. Selected Remedy
The NMED’s determination that NFA status is considered appropriate at these SWMUs is based upon one or more of the following: field surveys, historical records, aerial photographs, employee interviews, and/or confirmatory sampling activities. The results of these activities indicate that these SWMUs do not pose a threat to human health or the environment. Each site proposed for NFA is described under the applicable NFA criteria discussed in Section I below.

F. Public Participation
Kirtland AFB issued a Public Notice on October 7, 2005 informing the public that a petition has been submitted to NMED requesting NFA status for 22 SWMUs and administrative removal of Landfill LF-268 from Table A of the Permit. The Public Notice specified that Kirtland AFB will accept comments on the petition during the 60-day comment period, ending December 7, 2005. The Notice also stated that information on each of the 22 SWMUs proposed for NFA would be presented in a public meeting on October 24, 2005.

NMED issued a public notice on March 20, 2006, to announce the beginning of a 60-day comment period that will end at 5:00 p.m., May 19, 2006. Any person who wishes to comment on this action or request a public hearing should submit written or electronic mail (e-mail) comment(s) along with their name and address to the following address. Only comments and/or requests received on or before 5:00 p.m., May 19, 2006, will be considered.

John E. Kieling, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Ref: KAFB – 23 No Further Actions (March 20, 2006)
E-mail: john.kieling@state.nm.us

Written comments must be based on the Administrative Record. 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 which such persons proposes to raise for consideration at the hearing. Written comment and requests for Public Hearing must be filed with Mr. John Kieling on or before 5:00 p.m., May 19, 2006, at NMED Hazardous Waste Bureau, 2905 Rodeo Park Drive East, Building 1, Santa Fe, New Mexico 87505-6303. The NMED will provide a thirty (30) day notice of a public hearing, if scheduled.
G. Next Steps
At the close of the 60-day comment period, NMED will issue a Public Notice of a 60-day comment period during which NMED will accept comments on the proposed changes to the status of the 23 SWMUs. After the close of the 60-day comment period, NMED will make a final decision, which will become effective 30 days after service of the decision unless a later date is specified or unless review is requested under the New Mexico Hazardous Waste Management Regulations, 20.4.1.901 New Mexico Administrative Code (NMAC).

H. Contact Person for Additional Information
For additional information, contact the following individual.

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Address</th>
<th>Email</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. John E. Kieling</td>
<td>New Mexico Environment Department</td>
<td>New Mexico Environment Department</td>
<td><a href="mailto:john.kieling@state.nm.us">john.kieling@state.nm.us</a></td>
<td>(505) 428-2500</td>
</tr>
<tr>
<td>Mr. William Moats</td>
<td>C/O Sandia National Laboratories</td>
<td>P. O. Box 5800/MS 1089</td>
<td><a href="mailto:wpmoats@sandia.gov">wpmoats@sandia.gov</a></td>
<td>(505) 284-5086</td>
</tr>
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I. Description of SWMUs Proposed for NFA
The descriptions for each of the 22 SWMUs being proposed for NFA are presented in the following sections.

1. AOC DP-101, Old EOD Disposal Pits

Location and Current Land Use
Area of Concern (AOC) DP-101, Old Explosive Ordnance Disposal (EOD) Pits, consists of an unconsolidated rubble pit within the inactive radiation training site TS-5. TS-5 is a portion of SWMU OT-10 which is located in the eastern portion of Kirtland AFB (Figure 2). Land use near AOC DP-101 is considered urban/industrial and is in an active portion of the base. There are no water production or supply wells within one mile of this area. Depth to groundwater is approximately 300 ft.

Projected Future Land Use
There are no proposed changes for the land use at AOC DP-101; however, the more conservative residential land use scenario was used for all risk-based screening assessments.

History
Eight radiation training sites (TS-1 through TS-8) were established in November 1961 at Kirtland AFB for the purpose of training military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. SWMU OT-10 comprises the four currently inactive training sites (TS-5 through TS-8).
During identification of the training sites for the original RCRA permit, a survey of TS-5 identified what was interpreted at the time as “debris” resembling a burn pit within TS-5. The unconsolidated rubble encountered in that area included metal material with elevated thorium signatures. As a result of that survey the area was individually designated as AOC DP-101. The size of the area designated AOC DP-101 was approximately 20 ft by 20 ft.

Based on detailed evaluation of historic operations, Kirtland AFB concluded in 2004 that there was no evidence to suggest that the DP-101 area was actually used as an active burn pit, or that the area may have independently received material from outside TS-5. The scrap metal and aircraft parts found in the DP-101 area were likely placed on the ground during training exercises to make TS-5 resemble an aircraft crash site. Some of the debris pieces in the DP-101 area had orange paint similar to that observed on larger aircraft parts found on the surface in other areas of TS-5.

Evaluation of Relevant Information

Geophysical surveys of the overall TS-5 site, including the DP-101 area, identified numerous magnetic anomalies that were indicative of buried ferrous metal material. Radionuclide analyses were conducted on samples from five soil cores that were advanced from 24 to 36 inches below ground surface (bgs) across TS-5. The results showed thorium activities ranging from background to 1,120 ±3.38 percent picocuries per gram (pCi/g).

In 2000, a site assessment was conducted at AOC DP-101 (USAF, 2001) wherein five boreholes were drilled and sampled to depths of 30 ft bgs and one background borehole was drilled approximately 75 ft west of DP-101. A total of 39 samples including 4 replicate samples were collected and analyzed for metals, VOCs, semi-volatile organic compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), and radionuclides. No VOC, SVOC, or TPH compounds were detected in the AOC DP-101 samples. Levels of metals were detected in some soil samples at concentrations above the Kirtland AFB-approved background levels. With the exception of arsenic, all detected metals concentrations were below the applicable NMED residential soil screening levels (SSLs). Almost all of the maximum metals detections occurred in the surface samples.
Figure 2. AOC DP-101, Old EOD Disposal Pits
As a result of the radionuclide levels detected throughout TS-5, the entire area, including the portion containing AOC DP-101, was excavated and filled with clean soil during the corrective action undertaken as part of the SWMU OT-10 decommissioning project in 2003-2004. Roughly 6 ½ ft of material was excavated and removed in the former AOC DP-101 area. Essentially all of the formerly sampled soil intervals that had contained metals concentrations above Kirtland AFB background levels were removed as part of the corrective action. One soil interval that had been identified with an arsenic concentration greater than the NMED SSLs remained. However, based on further evaluation of the arsenic results in 2004 it was concluded that the arsenic detection was within the range of naturally occurring arsenic values at Kirtland AFB. Furthermore, following submittal of additional information to the NMED, it was determined that the arsenic detection did not present an unacceptable risk to human health or the environment and arsenic is most likely not a contaminant related to operations at the site.

On April 12, 2004, following the corrective action at TS-5, the NMED issued a Request for Supplemental Information (RSI). In response, two additional soil samples were collected from the base of the approximately 6½-ft deep excavation that was present in the DP-101. The samples were analyzed for polychlorinated biphenyls (PCBs) and explosives. No detectable concentrations of PCBs or explosives were detected. Shortly following sample collection, the excavation in the former DP-101 area was backfilled as part of the SWMU OT-10 corrective action. In the April 12, 2004, RSI, the NMED also requested that all sample data from AOC DP-101 be re-evaluated using the most current 2004 NMED SSLs and risk evaluation process. On July 12, 2004, Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were below the current NMED SSLs and that the site did not pose an unacceptable level of risk to human health or the environment (USAF, 2004a). The NMED requested further clarification regarding the site arsenic data in a second RSI dated August 2, 2004. Kirtland AFB provided the requested supplemental information on August 31, 2004 (USAF, 2004b).

Basis for Determination
In a letter dated October 28, 2004, the NMED determined that AOC DP-101 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The SWMU has been characterized or remediated in accordance with current applicable State or Federal regulations, and the available data indicate that contaminants at AOC DP-101 pose an acceptable level of risk under current and projected future land use.

References


2. SWMU 6-31, McCormick Ranch Range (OT-028)

Location and Current Land Use
SWMU 6-31, McCormick Ranch Range (OT-028), is located outside the southwest corner of Kirtland AFB on property owned by the New Mexico State Lands Commission. The SWMU is bordered on the north by the Department of Energy (DOE) buffer zone, on the east by Kirtland AFB, on the south by the Pueblo of Isleta, and on the west by the proposed Mesa Del Sol development owned presently by the State Land Office. Figure 3 shows the SWMU location. There currently is no lessee of the property and Kirtland AFB only accesses the property to conduct groundwater sampling and well installation.

Land use near SWMU 6-31 is rural/industrial in an active portion of the base. One production well, KAFB-17 is located adjacent to the southeast corner of the SWMU and serves potable water to a small fire station facility on a helicopter training area. The depth to groundwater is greater than 350 ft.

Projected Future Land Use
Currently there are no proposed changes for the land use at SWMU 6-31; however, the more conservative residential land use scenario was used for all risk-based screening assessments.

History
During World War II, the site was part of a large artillery impact area. From 1963 to 1992, explosives testing was conducted by Kirtland AFB at McCormick Ranch Range for small-scale high explosives (HE) development, analysis, and modeling. HE testing activities included the use of a wide variety of explosives, initiators, co-detonation compounds, and associated test materials. According to the Phillips Laboratory [now Air Force Research Laboratory (AFRL)] Phase I and II Environmental Baseline Surveys (EBSs), (Phillips, 1993) (Phillips, 1995), there were 377 tests conducted from 1963 to 1992. The main explosives used were ammonium nitrate, pentaerythritol, and/or trinitrotoluene (TNT).

The majority of tests were conducted on the surface and in the shallow subsurface, so numerous craterlike features exist across the site. However, one test (DIP 5) on August 15, 1973, involved the placement of gelled explosives into 16 boreholes, each approximately 280 to 290 ft deep. Follow-up studies of the 16 boreholes determined that all had fired in the test. Test materials known to have been detonated or placed onto the ground at the DIP 5 test area include TNT, ammonium nitrate, sodium nitrate, fuel oil, and aluminum.
Figure 3. SWMU 6-31, McCormick Ranch Range (OT-028)
In April 1977, 1978, and December 1979, tests were conducted identified as "SIMQUAKE I, II, and III" to evaluate the use of sequenced explosions for extending the time duration of ground motion excitation.

Testing has ceased at this site and there are no plans for future testing. In preparation for the return of the property to the state, AFRL conducted an historical record search and a unexploded ordnance (UXO) survey, which determined that the 750 acres of McCormick Ranch leased by AFRL did not show indications of small arms range use or the kind of evidence needed to positively confirm a small arms or an artillery range.

Evaluation of Relevant Information

In 1990, a Phase II, Stage 2 RCRA Facility Investigation (RFI) was conducted (USAF, 1990). During the RFI, two groundwater wells located south of the site on the Isleta Indian Reservation were sampled. The two wells had windmills and were used for stock watering. One well was located approximately 1.5 miles downgradient of the site and the second well was located about 6 miles downgradient of the site. The water samples were analyzed for TPH, VOCs, SVOCs, total and dissolved metals, total dissolved solids (TDS), anions, nitrogen [nitrate-nitrite, ammonia, and total Kjeldahl nitrogen (TKN)], and explosives. The only analyte detected at a concentration that exceeded an action level was nitrate, in the most distant well. The United States Geological Survey indicated that the nitrate contamination probably was not a result of past activities at the site, as nitrate was detected previously in this same well in 1956, prior to testing activities at McCormick Ranch Range.

During the period 1991 through 1993, a Phase II, Stage 2A RFI (USAF, 1993) was conducted at SWMU 6-31 to characterize the upper unsaturated zone (from the surface to 100 ft deep) around the perimeter of the explosives testing area and the upper 20 ft of groundwater. Five boreholes were drilled to 100 ft bgs, monitoring wells were installed adjacent to each of the soil borings, and groundwater samples were collected. Soil samples were collected for chemical analysis from each boring. No explosives were detected in any of the soil samples collected from McCormick Ranch Range.

The five groundwater monitoring wells installed were sampled and analyzed for a full suite of parameters. No dissolved metals were detected above background levels. No explosives, dioxins, pesticides, or herbicides were detected in any of the wells sampled.

A Phase I EBS of the McCormick Ranch Range site, conducted by Phillips Laboratory (now the AFRL), evaluated the potential for contamination at the site based on document review, personnel interviews, site maps, and site reconnaissance. The Phase I EBS concluded that HE testing activities may have caused soil contamination at the site. The primary contaminants of concern were determined to be pentaerythritol tetra nitrate (PETN), TNT, nitrates, hydrocarbon fuels, and some metals. Additionally, the Phase I EBS qualitatively assessed the potential for groundwater contamination to be low due to the thickness of the unsaturated zone (>300 ft) and low mobility of most of the potential contaminants.
A field investigation was performed in Phase II of the EBS to determine whether soil contamination was present at McCormick Ranch Range. A geophysical investigation was first conducted to locate subsurface features indicative of explosives testing (i.e., buried cables, metal debris, and conductive, nonmetallic materials). The dimensions of the five areas were chosen to encompass all or some portion of the HE test areas. Trenching then was conducted in four locations where evidence of subsurface tests was indicated by the geophysical surveys. A total of 300 soil samples were collected from depths of 3 to 12 ft bgs from 13 areas at the site determined to be potentially contaminated. The soil samples were field-screened for PETN, TNT, TNT-degradation products, hydrocarbons, nitrates, and radionuclides. Based on the results of the field screening, selected samples were sent to the analytical laboratory. Laboratory analysis of the selected samples identified no explosives or explosive-degradation products in the soil.

Nitrate plus nitrite concentrations slightly exceeded background levels and were considered to be the result of HE testing or the presence of livestock. The maximum concentrations of nitrate plus nitrite were detected in the DIP-5 area, where sodium nitrate and ammonium nitrate reportedly were flushed onto the ground surface following an aborted explosives test.

In 1996, the Phase 2 RFI (USAF, 1997a) was performed to gather data to support a risk assessment and potential corrective measures for future residential land use and to identify the extent of impacts to groundwater. RFI activities included the collection and analysis of 25 surface soil samples, installation of 2 groundwater monitoring wells with down-hole geophysics conducted in the boreholes, and a topographic survey of the site. Soil samples were analyzed for TPH, Target Analyte List (TAL) metals, herbicides, pesticides, and explosives. All detected concentrations, with two exceptions (beryllium and manganese), were below applicable EPA Region 6 human health media-specific residential screening levels. Based on the results of the RFI, NFA status under a residential land use scenario and continued monitoring under the Long-term Groundwater Monitoring (LTM) Program was recommended. Information collected during the Phase 2 RFI was used for the screening-level assessments to evaluate the potential human and ecological risks from chemical contaminants found at SWMU 6-31. Results indicated that the level of human and ecological risk was acceptable.

LTM Program (USAF, 1997) activities were initiated at the site in May 1996. The LTM Program for McCormick Ranch Range consists of water level measurements at all seven wells at the site (KAFB-1001 through -1007) and sampling five of these wells. The five wells sampled include one upgradient well (KAFB-1002), one source well (KAFB-1006), and three downgradient wells (KAFB-1004, KAFB-1005, and KAFB-1007). Baseline concentrations for the upgradient well were established after the September 1997 event was completed. The well samples collected at McCormick Ranch Range are analyzed each quarter for explosives, groundwater quality parameters (chloride, iron, manganese, phenols, sodium, and sulfate); contaminant indicator parameters [conductivity, pH, total organic carbon (TOC), and total organic halogens (TOX)]; and RCRA metals, fluoride, nitrate as nitrogen, pesticides, herbicides, radioactivity, and coliform bacteria.
During the March 2002 sampling event, nitrate as nitrogen was detected at KAFB-1007 at a concentration of 11 milligrams per liter (mg/L), which exceeds the New Mexico Water Quality Control Commission (NMWQCC) standard of 10 mg/L (USAF, 2002). Based on the results for the groundwater monitoring events at McCormick Ranch Range, elevated concentrations of nitrate as nitrogen, iron, gross alpha, gross beta, radium-228, chloride, chromium, TOC, and sodium have been detected, but do not indicate a chemical release from the site. These constituents have periodically exceeded baseline concentrations and, in the case of radium-228 and gross alpha, the New Mexico Solid Waste Management Regulations standards. However, these exceedances are likely attributable to natural variation in groundwater chemistry, a potential upgradient source, or uncertainties in the data evaluation.

Investigations revealed little or no contamination of either soil or groundwater above action levels or groundwater standards, except those metals that are thought to occur at naturally elevated levels. On April 18, 2000, the NMED issued a RSI regarding the Phase 2 RFI. NMED requested that additional information and analytical data from previous investigations conducted by Phillips Laboratory be provided for SWMU 6-31. A clarification on whether the site was historically used for small firearms and information on the disposition of any unexploded explosives used in underground testing at McCormick Ranch Range were also requested. A response to the RSI was submitted to the NMED on July 17, 2000. In the response, Kirtland AFB provided additional historical site information and analytical results from previous investigations.

On May 14, 2004, the NMED requested that additional site information be provided, and recommended that SVOCs, perchlorate, polyaromatic hydrocarbons (PAHs), TPH, and TAL metals be added to the Kirtland AFB, analyte list. Kirtland AFB responded to the RSI on July 13, 2004. In the response, Kirtland AFB indicated that the LTM Program was implemented in accordance with NMSWMRs and 40 CFR 265.94, that the analyte list was developed in accordance with the guidelines, and that SVOCs, perchlorate, PAHs, TPH, and TAL metals (except beryllium) have either not been detected or detected at concentrations below EPA screening levels.

**Basis for Determination**

In a letter dated March 5, 2005, the NMED determined that SWMU 6-31(OT-028) appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The 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.

**References**


NMED, 2000. Request For Supplemental Information: Phase 2 RCRA Facility Investigation Report, August 1997, SWMUs 6-2, 6-4, 6-29, 6-31, 6-22, 6-16, 6-24, 6-3,
3. SWMU OT-074, Pistol Range Sites

Location and Current Land Use

SWMU OT-074 is a 1-acre former pistol range located south of the main east-west runway in the western portion of Kirtland AFB, about 1,500 ft east of the intersection of Southgate Avenue and Ira Sprecher Drive (Figure 4). The site includes the former pistol range, the area behind the active pistol range, and a small soil mound located near the active pistol range. The former pistol range lies at the base of a natural sand hill and consists of a relatively flat firing area surrounded on three sides by high (20- to 30-ft) soil berms.

Land use near SWMU OT-074 is urban/industrial in an active portion of the base. The depth to groundwater is greater than 350 ft. No water supply wells are located within a 1-mile radius of the site.
Figure 4. SWMU OT-074 Pistol Range Sites
Projected Future Land Use
There are no proposed changes for the land use at SWMU OT-074; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
The OT-074 area was used as a small arms firing range from 1941 to 1959. In 1959, the Building 707 area began operation as the active firing range and is still in operation today.

The nearby active pistol range was reconstructed and reduced in size between 1984 and 1988, based on aerial photographs. The reconstruction resulted in a disturbed area containing construction/demolition rubble and debris immediately behind the backstop of the range. Aerial photographs indicate a soil mound appeared in the mid 1980s.

Evaluation of Relevant Information
In 1995, Kirtland AFB performed a SWMU assessment at SWMU OT-074 to determine whether lead was present, and at what levels, in the soil of the firing range backstop (USAF, 1995). Soil samples were collected from the range backstop from five locations; no samples were collected from the soil mound. Soil sampling results presented in the SWMU Assessment Report indicated the presence of lead above the NMED approved background lead concentration of 39 mg/kg; none of the samples exceeded the NMED residential background SSLs for lead of 400 mg/kg (NMED, 2004a). SWMU OT-074 was further investigated in July 1997 under a RFI (USAF, 1997). The objective of the RFI was to characterize the nature and determine the extent of metals concentrations in the residual soil following physical separation of spent bullets from soil samples. Analytical results confirmed soil contamination with lead in discrete areas of the former firing area, the backstop, and in the soil mound. The RFI recommended further study of SWMU OT-074 to verify the nature and extent of lead found in the surface and near-surface soils.

In 2000, a Corrective Measures Study (CMS) was conducted to define the nature and extent of metals found in the surface and near-surface soil during the RFI in the firing area and in the backstop (USAF, 2000). In the firing area, 8 of 13 samples exceeded the NMED approved background concentration of 39 mg/kg (NMED, 1997); three samples exceeded the NMED SSLs of 400 mg/kg. In addition, copper, antimony, and zinc exceeded NMED approved background concentrations; no values were detected above NMED SSLs.

At the backstop, 11 of 22 samples exceeded the NMED approved background lead concentration (USAF, 2000); two samples exceeded the NMED SSLs for lead. Copper and antimony were detected at concentrations above NMED approved background concentrations; however, no values were detected above NMED SSLs.

To determine whether reported spent slugs on the ground surface behind the backstop had impacted the underlying soil, seven locations behind the backstop were sampled at
surface and shallow subsurface depths, and two sediment samples were collected from a small dry wash that drains the area behind the backstop (USAF, 2000). With the exception of lead reported at 40.4 mg/kg in one surface sample, no metals exceeded the NMED approved background levels in these samples. Through these results, Kirtland AFB identified a need for a Voluntary Corrective Measure (VCM) at the site to reduce risk to ecological receptors.

The VCM was conducted between November 2002 and January 2003 with the objective of removing lead-contaminated soil to minimize risks to ecological receptors at the site (USAF, 2003). VCM activities involved the disposal of site debris, the treatment of contaminated soil with MAECTITE®, a reagent that reduces the leachability of lead in soil to concentrations acceptable for disposal at a Subtitle D landfill, and the transportation and offsite disposal of the stabilized soil. Site preparation, waste characterization, verification soil sampling, and site restoration and closure activities were performed in conjunction with the VCM.

A total of 548 tons of treated soil was transported for disposal at Waste Management Inc.’s Rio Rancho Landfill. Verification samples collected from the floor of the excavated areas on the floor and backstop of the firing range, and from beneath the former location of the soil mound confirmed that all soil with lead concentrations above the soil remediation goal was removed. In a letter dated December 17, 2004, the NMED requested clarification on a sentence and corrections to two tables (NMED, 2004b). On February 14, 2005, Kirtland AFB submitted the requested supplemental information completing the report, which confirmed that the site did not pose an unacceptable level of risk to human health or the environment (USAF, 2005).

Basis for Determination
In a letter dated December 17, 2004, the NMED has determined that SWMU OT-074 appears to be suitable for NFA status (NMED, 2004b). This NFA proposal is based on NMED’s NFA Criterion 2 and 5:

**NFA Criterion 2**
The SWMU/AOC OT-074 has never been used for the management (i.e., generation, treatment, storage and/or disposal) of the RCRA solid waste or hazardous wastes and/or constituents or other Comprehensive Environmental Response, Conservation, and Liability Act (CERCLA) hazardous substances.

**NFA Criterion 5**
The SWMU/AOC was 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 land use.

References
**NMED, 1997.** Approved Background Concentrations, Sandia National Laboratories/Kirtland Air Force Base, *New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, RCRA Permits Management Program, Santa Fe, New Mexico, September.*
4. SWMU OT-091, South Coyote Firing Range

Location and Current Land Use

Corrective Action Unit (CAU) OT-091 is a 5-acre site located south of Mount Washington Road within the U.S. Forest Service Withdrawn Area in the southeast portion of Kirtland AFB (Figure 5). CAU OT-091 is surrounded by property designated by Kirtland AFB as Munitions Response Area ML-125 (Field Firing Range H-30). The CAU terminology is no longer current; it is now current practice to use the term “Solid Waste Management Unit (SWMU).” To maintain consistency with the VCM report, the request for supplemental information (RSI), and the response to RSI, the CAU terminology for Site OT-091 is retained.

The CAU OT-091 site is divided into two areas. The northern area lies within a natural drainage area and included numerous structures consistent with a firing site, possibly used by Sandia National Laboratories/New Mexico (SNL/NM) and the United States Air Force (USAF) as a test area. Site structures were demolished and/or removed during the VCM, but the former configuration is shown on Figure 5-1. Prior to VCM activities, the northern area contained a blast shield, a wooden trestle, concrete slabs and foundations,
Figure 5. SWMU OT-91, South Coyote Firing Range
and a sandbag berm. The southern area contained features consistent with open burning and open detonation; the prominent former feature of the southern area was a shallow crater and a steel vessel.

Land use near CAU OT-091 is military/industrial in rural portion of the base. Depth to groundwater measured at KAFB-1902 was measured at 86 ft below ground surface (USAF, 2001). Because bedrock at the site ranges from surface outcrops to less than 10 ft deep, no groundwater would be expected at CAU OT-091. There are no water supply wells within a mile of the site.

Projected Future Land Use

There are no proposed changes for the land use at CAU OT-091; however a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History

In 1996, SNL/NM identified CAU OT-091, after a site investigation uncovered spent ordnance items at the crater. CAU OT-091 lies within an abandoned mortar range and was used primarily for ordnance testing and disposal during the mid to late 1960s. Based on the types of spent ordnance found at CAU OT-091, SNL/NM and Kirtland AFB determined that the site was the responsibility of the USAF. CAU OT-091 was transferred to Kirtland AFB in 1999 (USAF, 2000).

Evaluation of Relevant Information

On May 23, 1996, a radiological survey of the surface debris at OT-091 was performed by SNL/NM Radiation Protection Office. The survey results found that the surface debris was not radioactive (SNL/NM, 1996). On May 17, 1999, Kirtland AFB EOD conducted a site survey over a 10-acre area surrounding CAU OT-091. The survey found two sets of 60-millimeter (mm) mortar fins as well as fragments of 57-mm High Explosives Anti Tank (HEAT) rounds. A live 57-mm HEAT round was discovered just outside the boundary of CAU OT-091 (KAFB, 1999).

In June 1999, a SWMU assessment was conducted to investigate potential soil contamination and identify contaminants of potential concern (COPCs) associated with an open-burning vessel and adjacent soil, an open-detonation crater and adjacent soil, the northern drainage area, an earthen berm, a concrete slab, and a concrete wall (USAF, 2000). In the SWMU Assessment Report certain metals were identified with concentrations above NMED approved background values (NMED, 1997) and the NMED residential SSLs (NMED, 2004a). High explosive (HE) compounds such as 2,4,6-trinitrotoluene (TNT), 1,3,5-trinitrobenzene, 4-amino-2,6-dinitrotoluene (4-A-2,6-DNT), 2-amino-4,6-dinitrotoluene (2-A-4,6-DNT), and 1,3,5-trinitro-1,3,5-triazacyclohexane (RDX) were detected in the crater area; in one sample, TNT exceeded the NMED SSLs. TPH concentrations in the crater exceeded the NMED standard.

Because of the findings, the site was further investigated in June 2001 under a Phase 2 RFI (USAF, 2001). The RFI identified various metals above NMED approved background values; all surface and subsurface soil samples exceeded the NMED SSLs for arsenic. TNT was detected in soil samples but did not exceed the NMED SSLs. The
The presence of ordnance items within the crater identified a need for a VCM and additional soil sampling at CAU OT-091.

The VCM at CAU OT-091 in January 2002 (USAF, 2003) involved the demolition and disposal of site structures, the performance of geophysical and visual surveys for UXO/ordnance and explosives (OE), shallow excavation and removal of detected items, and the disposal/recycling of scrap metal and debris. Activities included site preparation, waste characterization and verification soil sampling, and site restoration. A risk screening assessment of OT-091 was performed to evaluate the overall human health and ecological effects of exposure to COPCs in the soil. The potential risk from residual chemicals to human health and ecological receptors under current site conditions was determined to be low. Based on the VCM results, Kirtland AFB proposed NFA status for CAU OT-091.

In a letter dated December 17, 2004, the NMED requested the re-evaluation of all data using the most current 2004 NMED SSLs and risk evaluation process, and an update of the figures (NMED, 2004b). Kirtland AFB collected additional samples in February 2005 within the former crater to supplement the existing data, update tables and figures, conduct a risk assessment using all site data in accordance with current NMED SSLs guidance, and conduct a geochemical evaluation of metal data. Results of the revised risk assessment supported a finding of no unacceptable site risk from HE. Results of the geochemical evaluation indicated that metal concentrations at the crater above NMED-approved background values are naturally occurring and that a soil removal action was not required. Ecological risks associated with OT-091 were estimated through screening assessments performed for both the crater area and the northern drainage area and concluded that ecological risks were predicted to be low. On March 10, 2005, Kirtland AFB submitted its response to the RSI and recommended NFA status for CAU OT-091.

Basis for Determination

In a letter dated May 6, 2005, the NMED determined that CAU OT-091 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based on NMED's NFA Criterion 5: The SWMU has been characterized or remediated in accordance with current applicable state or federal regulations, and the available data indicate that the remaining contaminants pose an acceptable level of risk under current and projected land use.

References


5. AOC RW-084, Manzano Burial Site

Location and Current Land Use

Area of Concern (AOC) RW-084 investigation area is located in the northeast portion of Kirtland AFB, within the northern portion of the former Manzano Weapons Storage Area (MWSA), as shown in Figure 6. A high-security fence encloses the entire former MWSA. The fence consists of four separate barriers accessible only through a security gate. An access road circles the interior of the fence line. Eight suspected radiological and chemical waste burial areas were investigated in approximate 1-acre sections.

Land use in the area of RW-084 is vacant open space within the storage bunker system of the MWSA. There are no water supply wells within 1 mile of AOC RW-084. Because bedrock occurs at a depth less than 5 ft below ground surface, no groundwater would be expected at RW-084.

Projected Future Land Use

There are no proposed changes for the land use at RW-084; however, a residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

History

The Manzano area of Kirtland AFB dates back to 1947–1948, when it was initially developed as a securemunitions storage and maintenance facility known as Site Able. Operations began at Site Able on April 4, 1950. Manzano Base served as a depot and munitions maintenance facility with the capability to receive, inspect, store, maintain, assemble, modify, transport, and perform custodial transfer of munitions to storage or combat organizations of the military services. Manzano Base and Sandia Base merged with Kirtland AFB in July 1971.
Figure 6. AOC) RW-084, Manzano Burial Site
In June 1992, the MWSA was deactivated as a weapons storage area and resources were transferred to another facility. Both subterranean and aboveground igloos at the facility continue to provide storage for a variety of items ranging from documents to equipment. The vaulted bays of the underground igloos serve as both storage and research facilities.

**Evaluation of Relevant Information**

Sandia National Laboratories forwarded a letter, dated February 1996, to Kirtland AFB from a retired Air Force officer who worked at Manzano Base in 1950 and 1951. A portion of the letter discusses an incident involving the removal and burial of carbon tetrachloride-saturated radioactive chemical wipes at the MWSA, which had been transported to the former base depot via rail cars. The Kirtland AFB staff interviewed the letter’s author and the former depot commander, who validated the incident.

On July 27, 1997, a site reconnaissance was conducted to locate the disposal areas (USAF, 1998). The retired Air Force officer, who was stationed at the former MWSA during the 1950s and was directly involved with the disposal activities, attended the reconnaissance. The retired Air Force officer was unable to recall where the chemical wipes had been buried, but he did provide information that assisted those involved in the investigation to identify potential locations of the suspect burial site. He cited several visual references that were considered in the original selection of the disposal areas, including easy access from the roadway, placement of trenches parallel to the roadway, and placement of trenches away from established drainage areas. He recalled that the site was in the northern portion of the former MWSA and within view of the City of Albuquerque.

The survey also involved review of aerial photographs and a focused site walk. During this review, additional locations were identified as potential burial sites based on evidence of trenching activities, such as obvious surface disturbances, unusual depressions, and areas of stressed vegetation; areas easily accessible by truck in proximity to the perimeter road, and topographically flat areas less susceptible to erosion. Based on these criteria, eight sites were identified as possible burial locations and were targeted for geophysical investigation. A terrain conductivity meter was used to acquire electromagnetic induction (EMI) data at the eight sites identified during the July 1997 site reconnaissance.

The results of the first stage of the EMI survey did not indicate the presence of disposal areas at six of the eight identified locations (within Sites 1, 2, 5, 6, 7, and 8) and they showed only limited potential at one site (Site 3). When the data collected in the second stage of the EMI survey was evaluated, it was concluded that further investigation of Sites 3 and 4 should be conducted, based on readings characteristic of burial sites (USAF, 1998).

Based on the results of the SWMU Assessment Report data evaluation, an Interim Corrective Measure (ICM) was conducted to further investigate the nature and extent of possible contamination at the site. Trenching was conducted at Site 4 only. The Kirtland AFB Communications Squadron had ruled out Site 3 as a potential burial site by identifying the source of the unknown geophysical reading as a buried lead-lined cable.
Surface and sub surface soil samples were collected from the bottom and sidewalls of trenches excavated across the site. Field screening results indicated that no VOC’s or radioactivity exceeding background was encountered during trenching operations. No VOC’s or radiological results were above those reported for the background sample. Additionally, there were no visual observations or indications of buried radiological or mixed waste during the trenching operation.

**Basis for Determination**

In a letter dated June 17, 2005, the NMED determined that RW-084 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 1: The site does not exist, is a duplicate of another site, is located within another site and has been or will be investigated as part of that site.

**References**


**6. SWMU SD-090, Jet-Assisted Take-Off (JATO) Rocket Motor Disposal Area**

**Location and Current Land Use**

SWMU SD-090 is located in the central portion of Kirtland AFB in an open area approximately 3,000 ft south of the Kirtland AFB stables on the south side of Arroyo del Coyote. The site is approximately 1.5 acres in area, relatively flat, and vegetated with native desert shrubs and grasses. The Arroyo del Coyote runs along the northern boundary of SWMU SD-090, but the site is protected from flow through Arroyo del Coyote by a diversion berm approximately 8 ft high. Figure 7 shows the site location.

Land use in the area of SD-090 is open space with no base operations occurring in the vicinity of the site. One water supply production well, well KAFB-9, is located approximately 2/3-mile north of the SD-090. The depth to groundwater is approximately 300 ft.

**Projected Future Land Use**

There are no proposed changes for the land use at SD-090; however, a residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

**History**

According to Kirtland AFB personnel, this site has historically been vacant, undeveloped land located adjacent to Arroyo del Coyote and upstream of SWMU LF-107, VA Hospital Demolition Debris Landfill Environmental Restoration Program Site. During a
Figure 7. SWMU SD-090, Jet-Assisted Take-Off (JATO) Rocket Motor Disposal Area
survey of LF-107, small amounts of solid waste comprised of three spent JATO rocket canisters, concrete rubble, wood, tires, metal cans, and wire cable were observed southeast of the site in the area now identified as SWMU SD-090.

The rocket motors are approximately 8 inches long and 3 inches in diameter. All motor contents were spent and posed no potential hazard. The motors were identified by base EOD personnel as those used with the B-47 bomber in the early 1950s. The debris is believed to have been the result of unpermitted dumping of solid waste. All debris observed on the surface consisted of solid waste. No soil staining was observed in the area.

Evaluation of Relevant Information

The first investigation to occur at SD-090 was conducted in support of a SWMU Assessment Report performed in 1998 (USAF, 1998) after the JATO rocket motors were first discovered. Based on the limited amount of historical knowledge of the site and the absence of any specific chemical hazards that could be attributed to surface debris, a list of standard contaminants of potential concern (COPCs) was selected to verify that the solid waste on site did not contaminate soil or pose any threat to human health or the environment.

Six borings were completed to a depth of 10 ft bgs; sample depths at each borehole were 0, 5, and 10 ft bgs. Soil samples collected from 5 ft bgs and 10 ft bgs were field screened for VOCs and gross alpha/gross beta radioactivity. All soil samples collected during this investigation were sent to a laboratory and analyzed for TAL metals, VOCs, SVOCs, herbicides, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), and cyanide. Field screening results for all samples collected indicated no contamination, and analytical laboratory results identified no detection of organics at this site. Metals, however, were detected in all samples, and these values were compared to EPA Region 6 Human Health Media Specific Screening Levels for soil ingestion.

On May 14, 2004, the NMED issued a RSI requesting that site assessment analytical results be compared to NMED approved background levels for Kirtland AFB (NMED, 2004b). Four TAL metal analytical methods had method detection limits above NMED approved background levels. These include: antimony, arsenic, selenium, and silver. Arsenic and silver were estimated below the method detection limits and reported to levels below background levels with the exception of the elevated concentrations of arsenic discussed below. Selenium was estimated below the method detection limits also, but still had elevated concentrations slightly above background. Antimony was not reported in any samples. Analytical results reported above approved background levels were subsequently compared to the NMED residential SSLs (NMED, 2004a). Comparisons of these analytical results to NMED SSLs indicate that all analytes detected above approved NMED background concentrations occur at concentrations significantly below residential soil screening levels, with the exception of arsenic. Arsenic, a naturally occurring metal, is commonly observed in concentrations in natural geologic materials at Kirtland AFB to range above the NMED-approved background concentrations.
Basis for Determination
In a letter dated October 8, 2004, the NMED determined that SD-090 appears to be suitable for NFA status (NMED, 2004c). This NFA proposal is based upon NMED’s NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from the SWMU.

References

NMED, 2004a. Request for Supplemental Information: SWMU Assessment Report for AOCs DP-88, Trestle Site Disposal Area (DP-88), and SD-090, JATO Rocket Motor Disposal Site (SD-090) ID# NMD9570024423, TASK # HWB-KAFB-04-020, New Mexico Environment Department, Santa Fe, New Mexico, May 14.


USAF, 1998. SWMU Assessment Report for AOCs DP-88, Trestle Site Disposal Area (DP-88), and SD-090, JATO Rocket Motor Disposal Site (SD-090) Kirtland AFB, Albuquerque, New Mexico.

7. SWMU 9-20, Building 909, Waste Accumulation Area (SS-62)
Location and Current Land Use
SWMU 9-20 (SS-62) (Former ST-277) is comprised of a former waste accumulation area. The SWMU is located in the northwest portion of Kirtland AFB, adjacent to the southeast side of Building 909. Figure 8 shows the SWMU location. Land use near SWMU 9-20 is urban/industrial in an active portion of the base. There are four water supply wells located in this area of Kirtland AFB. Well KAFB-14 is 3,000 ft west-southwest; KAFB-2 is 4,500 ft southeast; KAFB-12 is 4,900 ft west-northwest; and KAFB-15 is 400 ft south of SWMU 9-20. The depth to groundwater is greater than 350 ft.

Projected Future Land Use
There are no proposed changes for the land use at SWMU 9-20; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.
Figure 8. SWMU 9-20, Building 909, Waste Accumulation Area (SS-062)
History
Building 909 was built before 1949. The plans indicate the building as Training Facilities Building “O” and show briefing rooms, a switchboard room, dressing rooms, a lobby, inner lock, outer lock, operations room, message center, weather room, first aid, shop and tech area. Later as-built drawings from the 1960s indicate that an addition was constructed east of the original portion of Building 909, which was called the Systems Environment and Test Facility. Based on the drawings, a testing facility was added in a large service bay area. This area of the facility was used for x-ray pulse testing to simulate the potential affects of nuclear blasts on electronic equipment. Activities related to this test facility at Building 909 have been investigated and remediated as part of SWMU SS-81.

Currently Building 909 is occupied by a branch of the Air Force Research Laboratory. The building is utilized for office space and laboratory facilities for high-energy microwave testing. From the mid-1950s until 1990, the outside area that comprises SWMU 9-20 was used for the management of waste oil and hydraulic fluid. Waste fluid containers (5- to 55-gallon sizes) were stored on wood pallets staged in this open dirt area. The accumulated hydraulic fluid was then disposed of by the Defense Reutilization and Marketing Office (DRMO) and the accumulated waste oil was removed by a base disposal contractor (Kearney/Centaur, 1988). No waste is currently stored at the area.

There were never any structures or buildings associated with the specific SWMU 9-20 area; therefore, there would be no possibility of waste being discharged from any drains or sewer lines from the interior of Building 909.

Evaluation of Relevant Information
The SWMU 9-20 waste accumulation area was investigated during the Appendix III Non-Wasteline RFI in 1995 (USAF, 1995). The objective of the investigation was to determine if contamination was present in the subsurface soils of the waste accumulation area. Four boreholes were drilled and sampled at this site, including one borehole drilled northwest of the waste accumulation area to collect background concentration data, where two soil samples were collected at depths of 5 and 20 ft below grade. Three boreholes were drilled in an equally-spaced line across the waste accumulation area. The boreholes were advanced to 26 ft below the ground, and five samples were collected from each borehole. A total of 19 soil samples were analyzed for the expected chemicals of potential concern associated with normal operations at this building, including VOCs, SVOCs, TPH, metals, mercury, polychlorinated biphenyls (PCBs), and pesticides, as well as soil pH, and soil moisture.

The field-screening instruments did not detect radioactivity or VOCs above background levels. Low levels of metals, one SVOC, and one very low level of a pesticide were identified in the soil samples collected. All of the detected concentrations for these constituents were below applicable NMED residential SSLs. Concentrations of TPH were detected in the top 4 ft of soil at 720 mg/kg, above the NMED action level of 100 mg/kg that was in effect at the time.
The Appendix III Phase 2 RFI (USAF, 1997) was conducted at SWMU 9-20 to delineate the extent of TPH contamination. In October 1996, soil samples from three boreholes were collected; one from the surface and one from a depth of 5 ft below grade. Eight soil samples and two replicates, for a total of 10 samples, were analyzed for TPH only. Results from one replicate sample collected from the 0-2 ft interval confirmed the presence of diesel range organics (DROs) at concentrations ranging 560 mg/kg to 5,500 mg/kg.

Based on the TPH analytical results, the site was recommended for an ICM to remove soils contaminated above the action level for TPH. The ICM was performed at the site in April 2000 and consisted of excavation, soil characterization, and removal of hydrocarbon-contaminated soil (USAF, 2004). Approximately 22 cubic yards (cu yd) of contaminated soil were removed from an area approximately 24-ft x 11-ft by 6-ft deep and disposed of at an appropriate facility.

Five post-excavation confirmation soil samples were analyzed for TPH DRO and gasoline range organics (GROs). Samples were collected from the bottom and the base of the four sidewall corners of the excavation. All gasoline range organics (GRO) concentrations were less than the analytical detection limit of 0.25 mg/kg. Three of the DRO samples were less than the analytical detection limit of 25.0 mg/kg and two had concentrations of 26 and 80 mg/kg DROs. The ICM removed soils that had TPH concentrations greater than the NMED action level at the time (100 mg/kg) and no TPH concentrations that exceed current NMED screening levels remain at the site.

Site characterization adequately investigated the horizontal and vertical extent of any chemical release and addressed the presence of expected chemicals of potential concern. Furthermore, those soils containing petroleum hydrocarbons were removed during an ICM to levels below current NMED screening guidelines. As discussed in the VCM report (USAF, 2004), the remaining chemical concentrations do not pose an unacceptable level of risk to human health or the environment.

In a December 17, 2004 letter, the NMED requested additional information based on review of the VCM report. On April 11, 2005, Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were below the current NMED SSLs and that the site did not pose an unacceptable level of risk to human health or the environment (USAF, 2005).

**Basis for Determination**

In a letter dated July 28, 2005, the NMED determined that SWMU 9-20 (SS-62) (Former ST-277) appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The SWMU has been characterized or remediated in accordance with current applicable State or Federal regulations, and the available data indicate that contaminants at SWMU 9-20 (SS-62) (Former ST-277) pose an acceptable level of risk under current and projected future land use.
References


8. AOC SS-081, Building 907 Detention Pond and Yard

**Location and Current Land Use**

Area of concern (AOC) SS-081 is a former detention pond, drain line, storage yard, and a former aboveground storage tank (AST) farm. AOC SS-081 is located in a secure area south of Aberdeen Avenue and west of San Mateo Boulevard, south of the Truman Gate in the northwest part of Kirtland AFB (Figure 9). The Air Force Research Laboratory/Directed Energy Directorate (known as the High Power Simulator Division) operates the site.

Located adjacent to AOC SS-081, directly to the west, is the inactive waste accumulation area (SWMU 9-20 [SS-062]), which is southeast of Building 909. SS-062 is a separate site consisting of a barren strip of soil (approximately 15 ft by 60 ft) surrounded by an asphalt parking and is not part of SS-081.

Land use near AOC SS-081 is urban/industrial in an active portion of the base. Four water supply wells are located within a 1-mile radius of AOC SS-081. KAFB-02 is located south southeast of AOC SS-081 to the south of the Albuquerque Sunport runway. The closest water supply well is KAFB-15, which is located 50 ft south of AOC SS-081. Two other water supply wells are located to the west of AOC SS-081 at distances of 2800 ft (KAFB-14) and 5100 ft (KAFB-12). The depth to groundwater at the site is approximately 440 ft bgs based upon monitoring well data from March 2002 (USAF, 2003).
Figure 9. AOC SS-081, Building 907 Detention Pond and Yard
Projected Future Land Use
There are no proposed changes for the land use at AOC SS-081; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
Complete histories of the uses of Buildings 906, 907, and 909 are not known. Building 907 was formerly used as an electronics shop to build electrical components for microwave research. The detention pond was constructed to contain process cooling water from Building 909 (USAF, 1998).

The former AST farm stored dielectric fluids containing low concentrations of polychlorinated biphenyls (PCBs) to support Building 909 operations. The tank farm contained nine ASTs that ranged in capacity from 14,000 to 20,000 gallons. Initially six tanks were installed and became operational in the mid- to late 1960s. Two more tanks were installed in August 1973 and the ninth tank was installed in the 1980s. When the tank contents were sampled in 1992, 1995, and 1996, PCBs were detected in the fluids.

The last fluids were drained from the tanks and vacuumed from the discharge piping on November 17, 1997. On December 12, 1997, all tanks were removed from the site. An unknown volume of dielectric fluid leaked from valves on the discharge piping at the east end of the tank farm and east of the pump house where the discharge piping enters the building.

Evaluation of Relevant Information
In 1992, 1995, and 1996, the contents of the nine ASTs at the former tank farm were sampled. During this sampling, PCBs were detected in the fluid at levels ranging from 1 to 14 parts per million. The remaining fluid was drained from the tanks and vacuumed from the discharge piping on November 17, 1997 (USAF, 1998).

Kirtland AFB identified SS-081 as a potential SWMU based upon a May 1993 accidental discharge of copper sulfate from Building 907 into a detention pond through a connecting drain line (USAF, 1993). Prior to the incident, operations personnel did not know that the Building 907 sink drain was connected to the detention pond. Following the incident, all drains from Buildings 906, 907, and 909 that were connected to the detention pond were rerouted to the sewer system, and the fluid in the detention pond was allowed to evaporate (USAF, 1993). After the discharge was discovered, water and sediment samples were collected from the detention pond and analyzed for total metals (USAF, 1993); results detected metals in the water and sediment samples below the method detection limit (MDL).

In April 1998, a SWMU assessment was conducted to identify contaminants of potential concern associated with the former detention pond, the drain lines, the storage yard, and the former dielectric tank farm (USAF, 1998). The SWMU Assessment Report indicated metals were detected at the pond and drain line above NMED approved background levels, pond sediment analysis detected SVOCs, and PCBs at two locations at the tank farm.
In October 1999 and May 2000, Kirtland AFB conducted an RFI at the former detention pond and the former dielectric tank farm. Again, metals were detected above NMED approved background concentrations, polycyclic aromatic hydrocarbons (PAHs) were detected at the detention pond and the tank farm, and Aroclor-1248 and Aroclor-1254 were detected at the tank farm. Because of the detection of benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene above NMED residential SSLs, the RFI report (USAF, 2000) recommended a VCM at the site.

VCM activities were conducted at AOC SS-081 in January, April, May, and July of 2002 and included the removal of residual dielectric fluid from tank piping, the demolition and offsite disposal of site structures, and the excavation and offsite disposal of tank farm soil and detention pond sediment containing low levels of PCBs and PAHs. Excavated soil and sediment were transported to Waste Management’s Rio Rancho Landfill for disposal. VCM activities also included verification sampling, backfill, site grading and site restoration. Verification samples documented that all soil with polycyclic aromatic hydrocarbons (PAH) or polychlorinated biphenyls (PCB) contamination above NMED SSLs had been removed, and the VCM report (USAF, 2003) recommended NFA at SS-081.

In a RSI letter dated October 15, 2004, the NMED requested clarification on several statements in the VCM, requested that Kirtland AFB update tables to compare the analytical data with the current NMED SSLs (NMED, 2004), and requested that Kirtland AFB conduct a residential risk assessment (USAF, 2004). Data tables were updated to include the current NMED SSLs. Analytical data from all 55 soil samples were studied with geochemical methods to evaluate whether they represented naturally occurring levels of metals, or whether they were indicative of contamination. The study indicated that concentrations of arsenic and barium at the site occur naturally above the respective NMED-approved background value, but some copper levels appeared to be indicative of contamination. The maximum detected concentration of copper was 271 mg/kg; the NMED SSLs for copper is 3,130 mg/kg. Concentrations of arsenic, barium, and copper above NMED approved background values were shown to be either naturally occurring, as in the case for arsenic and barium, or no risk to human health, as in the case for copper.

On December 17, 2004 Kirtland AFB submitted its response to the RSI and recommended NFA for AOC SS-081 (USAF, 2004). In a letter dated March 4, 2005, the NMED requested that Kirtland AFB make several minor revisions to the December 17, 2004 response to RSI. Kirtland AFB submitted these changes to the NMED on March 10, 2005 and recommended no further action for AOC SS-081.

Basis for Determination
In a letter dated April 27, 2005, the NMED determined that AOC SS-081 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based on NMED's NFA Criterion 5: The SWMU/AOC was 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 land use.
9. SWMU ST-72, Building 30146, MWSA Security Garage OWS

Location and Current Land Use

SWMU ST-72, Building 30146, Manzano Weapons Storage Area (MWSA) Security Garage OWS (Former ST-265) is comprised of an oil/water separator (OWS) and the associated waste pipelines of the unit. The OWS was used to prevent some pollutants from entering the sanitary sewer system. Building 30146 and all associated drain lines and the OWS were removed in 1999. The area is now a parking lot.

The SWMU was located in the eastern portion of Kirtland AFB in the north maintenance bay of Building 30146. Figure 10 shows the SWMU location. Land use near SWMU ST-72 is urban/industrial in an active portion of the base. The SWMU ST-72 area is currently used as a parking lot. The closest water supply well is KAFB-7201, which is
Figure 10. SWMU ST-072, Building 30146, MWSA Security Garage OWS
located less than two ft west of SWMU ST-72. Depth to groundwater at this site is more than 250 ft bgs.

Projected Future Land Use
There are no proposed changes for the land use at SWMU ST-72; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
A site grading plan from original construction at the site identifies the building as a Troop Housing Motor Pool. Prior to being condemned and demolished in 1999, Building 30146 had operated as a maintenance garage for the MWSA security police. Based on this information, the building appears to have always operated primarily as a motor vehicle maintenance facility.

According to the United States Air Force (USAF) Civil Engineers Office blueprints, the OWS received inflow from the adjacent floor drains in the building that entered the OWS on the west side. Original as-built drawings from 1949 show the same floor drain and drain sump/OWS configuration as was present at the time of building demolition. The OWS discharge pipe exited to the east and tied into a sanitary sewer lateral that trends north to south along the east side of the building’s exterior. Building 30146 was demolished as part of the ICM in 1999.

Evaluation of Relevant Information
Beginning in 1990, Kirtland AFB regularly sampled the water and sediment present in the OWS. During these sampling events low concentrations of TPH, TOX, and some metals were detected (USAF, 2004). Detections of these chemicals are expected considering the function of the OWS. The SWMU ST-72 OWS was investigated as part of the Appendix II, Stage 2B RFI in 1994 (USAF, 1995). The objective of the investigation was to determine the presence or absence of contaminants in soil adjacent to the OWS. Three boreholes were drilled and sampled around the OWS area. One borehole was drilled northeast of Building 30146 to collect background concentration data. The other two boreholes were drilled as close as possible to the OWS inflow and outflow piping. Two depth intervals were sampled in each borehole; one at a depth equal to, and the other 5 ft below the OWS base (i.e., 6 and 11 ft).

Samples were analyzed for the expected chemicals of potential concern associated with normal operations at this building, including VOCs, SVOCs, TPH, metals, and mercury, as well as soil pH, and soil moisture. Samples were also screened at the time of collection for detectable radiation and VOCs. Screening with field instruments did not indicate any radiation or VOCs above background levels. Diesel range organics (DRO) were detected at a concentration of 3,400 mg/kg in the 4 to 6 ft interval adjacent to the OWS outflow, above 100 mg/kg, the NMED action level at the time.

An additional field investigation was performed during the Appendix II Phase 2 RFI (USAF, 1997). The objective was to delineate the extent of TPH detected in the Appendix II Stage 2B RFI in the vicinity of the OWS and its piping. Soil samples were collected from four boreholes. Nine soil samples and three replicates, a total of 12
samples, were collected from between 5 and 13 ft below ground surface and analyzed for TPH only. DRO were detected at concentrations between 850 and 14,000 mg/kg in the soils surrounding the OWS.

An ICM, to remove contaminated soils, was performed (USAF, 2004). Approximately 136 cubic yards (cu yd) of contaminated soil were removed from three excavation areas. There was one main excavation in the SWMU area. Two smaller excavations were located within 10 and 20 ft north of the main excavation. Samples were collected from the excavations to test the remaining soil. All detected chemical concentrations were below the applicable NMED residential SSLs.

Site characterization adequately investigated the horizontal and vertical extent of any chemical release and addressed the presence of expected chemicals of potential concern. Furthermore, those soils containing elevated petroleum hydrocarbons were removed during an ICM to levels below current NMED screening guidelines. As discussed in the VCM report (USAF, 2004), the remaining chemical concentrations do not pose an unacceptable level of risk to human health or the environment.

In a December 17, 2004 letter, the NMED requested additional information based on review of the VCM report. On April 11, 2005, Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were below the current NMED SSLs and that the site did not pose an unacceptable level of risk to human health or the environment (USAF, 2005).

Basis for Determination
In a letter dated July 28, 2005, the NMED determined that SWMU ST-72 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The SWMU has been characterized or remediated in accordance with current applicable State or Federal regulations, and the available data indicate that contaminants at the SWMU ST-72 (Former ST-265) pose an acceptable level of risk under current and projected future land use.

References


10. AOC DP-099, Building 29015 Disposal Pit

Area of concern (AOC) DP-099 consists of a shallow, rectangular pit located in an open area approximately 136 ft northwest of Building 29015. The pit, with approximate dimensions of 6 by 7 ft by 2 ft deep, was used to dispose of used motor oil. AOC DP-099 is located in the southeastern portion of Kirtland AFB, near the intersection of Mortar Range Road and Lovelace Road. Figure 11 shows the AOC location. Land use near AOC DP-099 is urban/industrial in an active portion of the base. One monitoring well (KAFB-1903) is located within one-half mile and to the south southeast of AOC DP-099. Three monitoring wells are located southeast of the site, at distances ranging from 2,750 to 3,075 ft. Estimated depth to groundwater in the vicinity of this site is approximately 57 to 93 ft bgs.

Projected Future Land Use

There are no proposed changes for the land use at AOC DP-099; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History

According to Kirtland AFB real estate records, Building 29015 was constructed in 1950 for use as a hangar by the United States Air Force (USAF) and has had multiple tenants since. Records indicate that the building was used by the U.S. Army from 1955 to 1971; however, actual activities during this period are unknown. The USAF took possession of the building in 1971 upon merging with Sandia Army Base and used the building for research activities until 1975. From 1975 to 1987, the building was occupied by the Department of Energy (DOE) and used for biological research (USAF, 2002). In 1987, the USAF resumed possession of the building and Kirtland AFB Civil Engineer Division used the building for storage. Currently, the building is used for USAF training activities. It could not be determined if activities at Building 29015 are related to the disposal pit.

Evaluation of Relevant Information

In March 2000, a SWMU assessment was performed at DP-099 (USAF, 2000). Soil samples from the disposal pit and a background location were collected and analyzed for VOC, semivolatile organic compounds (SVOC), TPH (as motor oil), herbicides, pesticides, PCB, cyanide, and TAL metals.

The SWMU Assessment Report reported that there was no indication of releases of VOC, SVOC, herbicide, pesticide, PCB, or cyanide contaminants at either the disposal pit or background locations. The NMED SSLs for arsenic of 3.9 mg/kg and the approved background of 5.6 mg/kg for arsenic in surface soil were exceeded (NMED, 2004a; NMED, 1997); the maximum arsenic concentration was 6.0 mg/kg. Soil samples also exceeded the approved background values for barium, beryllium, cobalt, copper, and vanadium. The concentrations of all regulated metals at DP-099 are compatible with natural background values and are not indicative of a release at the site.
Figure 11. AOC DP-099, Building 29015 Disposal Pit
TPH as motor oil was detected in the disposal pit at concentrations that ranged from 7.6 mg/kg 8 to 10 ft below the bottom of the pit to 1,200 mg/kg in the soil on the bottom of the pit. The highest result exceeded the TPH risk-based screening guideline for residential exposure of 800 mg/kg (unknown oil) (NMED, 2002).

In October 2001, a RFI was conducted (USAF, 2002). During the RFI, approximately 8 cubic yards of low-level motor oil contaminated soil was removed from the disposal pit and transported to the Kirtland AFB Construction and Demolition (C&D) Landfill for disposal. Soil excavation and removal eliminated the source and potential for exposure from ingestion of soil or dermal contact with contaminated soil. It was determined that contaminant migration into groundwater is unlikely due to the depth to groundwater in the area (approximately 85 ft below ground surface) and the limited amount of contaminated soil. Verification soil samples were collected from the bottom of the excavation and analyzed for TPH diesel range organics (DRO) and VOCs. No VOC analytes were detected above laboratory reporting limits in the verification soil samples. The maximum TPH-DRO concentration was 77 mg/kg, below the TPH screening guideline. The disposal pit was backfilled with clean soil obtained from the Kirtland AFB C&D Landfill and graded to match the existing topography.

**Basis for Determination**

In a letter dated December 17, 2004, the NMED determined that AOC DP-099 appears to be suitable for NFA status (NMED, 2004b). This NFA proposal is based upon NMED’s NFA Criterion 5: The 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.

**References**


NMED, 2004a. Technical Background Document for Development of Soil Screening Levels, Rev. 2.0, Hazardous Waste Bureau, New Mexico Environment Department, Santa Fe, New Mexico, August.


NMED, 2002. Total Petroleum Hydrocarbons Screening Guidelines, Draft, New Mexico Environment Department, Santa Fe, New Mexico.

11. FT-15, NMERI Fire Suppression Test Area

Location and Current Land Use

FT-15, New Mexico Engineering Research Institute (NMERI) Fire Suppression Test Area site operations ceased in 1994. Currently, the site consists of an unlined bermed area approximately 60 ft by 60 ft in size in the southern portion of the site; a 40 ft by 80 ft fire test pad with an approximately ten-foot diameter recessed, polyethylene-lined pit, where much of the fire suppression testing was conducted; and a foundation of a former modular storage shed.

FT-15 is located approximately one mile north of the southern boundary in the central portion of Kirtland AFB, east of the Solar Research facility on the south side of Target Road. The location of FT-15 is shown on Figure 12. Land use near FT-15 is open space and research/administration in this remote area near the southern boundary of the base. There are no potable water supply wells within a mile and down gradient of the site. Depth to groundwater is approximately 120 ft.

Projected Future Land Use

There are no proposed changes for the land use at FT-15; however, residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

History

Tests at the NMERI Fire Suppression Test Area Site designed to evaluate alternative fire suppressant agents were conducted intermittently between 1985 and March of 1993. The concrete pad, where the fire testing was performed, was constructed before the fire suppression test program began and may have been used for geotechnical concrete design testing. Information obtained regarding other NMERI testing programs and visual observation of other concrete pads in the vicinity of the site suggest geotechnical testing involved destructive tests to evaluate properties of concrete mixtures and structural design.

The Fire Suppression Test Area was operated by the NMERI. Fire suppression tests were conducted to evaluate replacement agents for Halon 1301 for use on aircraft fires. Halon 1301 was determined to be detrimental to stratospheric ozone and production of new Halon 1301 was stopped on January 1, 1994. Reportedly, JP-4 and JP-8 were the only fuel sources used to create fires, as the purpose of the tests were to simulate jet aircraft fires. Fire suppression chemical candidates tested at the site consisted exclusively of varying concentrations of commercial hydrofluorocarbons and possibly hydrobromocarbons. These agents were mixed to various concentrations with water and a surfactant (foaming agent) and applied to the fires. All tests using liquid fuels were performed by floating the fuel on water in steel pans.
Figure 12. FT-15, NMERI Fire Suppression Test Area
Hazardous materials handling protocols were followed at the facility. Wastes were managed through either the University of New Mexico and/or Kirtland AFB hazardous waste management programs. According to employee reports, all residual fuels were either re-ignited and burned after tests or collected in drums and disposed of as hazardous waste. Residual dry materials were also collected, drummed, and disposed of as hazardous waste. In most cases, wastewater from tests was allowed to evaporate from pans. In some instances, wastewater was contained and disposed of in accordance with regulatory guidance.

Evaluation of Relevant Information
Kirtland AFB notified the NMED of the newly identified FT-15 Area of Concern (AOC) on November 17, 2004, as required in Section F.1, Module IV of the Kirtland AFB RCRA Hazardous Waste Permit. Subsequent to this notification, pursuant to Section F to Module IV of the Kirtland AFB RCRA Hazardous Waste Permit, Kirtland AFB performed a site assessment and submitted the report summarizing assessment findings 90 days after the NMED was notified (USAF, 2005).

The site assessment involved placing the location of the AOC in relation to existing Solid Waste Management Units (SWMUs); determining the type and function of the unit as well as the general dimensions, capacities, and structural descriptions of the unit; defining the period during which it was operated; gathering information on the specifics of wastes managed at the site (to the extent available); and reporting the results of sampling and analysis acquired for the purpose of determining whether or not releases of hazardous wastes, including hazardous constituents, have occurred, are occurring, or are likely to occur from the unit.

Research was conducted to determine the types of fuel used for testing and to identify the Halon replacement agents. The research involved a library literature search, review of numerous NMERI project logbooks, and interviews with NMERI Fire Suppression Test staff. Interviews and logbook entries indicated only JP-8 and JP-4 aviation fuels were used on-site for the fire suppression tests. The fuels were stored in aboveground storage tanks in the bermed lay-down area.

Based on results of the research, the Site Assessment at FT-15 consisted of collection and analysis of surface and shallow subsurface soil samples to establish presence, nature, and extent of JP-4 and JP-8 fuel contamination. The objective of the Site Assessment at FT-15 was to determine presence and concentrations of VOC, semivolatile organic compounds (SVOC), and TPH, both purgeable (TPH-p) and extractable (TPH-e). Sample locations were selected where a release was most likely to have occurred based on site features and historical information.

Sixty-four surface and shallow subsurface soil samples were collected from thirty-two sampling locations. Generally, samples were collected from 0-6 inches bgs and 1.5-2.0 ft bgs. In addition, the condition of concrete in the concrete fire pits was evaluated to determine if leakage of contaminants into subsurface occurred. Sixteen surface and shallow subsurface soil samples were collected around the perimeter of the concrete fire test pad, four soil samples were collected in the pan pit, twenty-four soil samples were
collected along the test trench, sixteen samples were collected within the bermed laydown area, two soil samples were collected in the center of storage shed, and two to the north of the shed.

Laboratory analytical results indicated low levels of volatile organic compound contamination associated with motor oil and fuels at seven locations in and around the concrete fire test pad. No analytes were detected at concentrations above, at, or even within an order of magnitude of the NMED residential SSLs or soil guidelines (SGs). All detections above reporting limits occurred at locations around and within the concrete fire suppression test pad. Hydrocarbon reported as motor oil was detected above the reporting limit at three locations surrounding the concrete fire suppression test pad at concentrations ranging from 22 to 54 mg/kg, well below the NMED Residential TPH SG of 940 mg/kg. Because concentrations of motor oil, although very low, were highest in the lowest sample interval at two locations, the NMED instructed Kirtland AFB to advance one boring at each location to a depth of 20 ft bgs to determine if concentrations increased with depth and posed a threat to groundwater (NMED, 2005a).

Laboratory analytical results for all samples from those two borings indicated very low levels of VOCs associated with fuels. No motor oil or any other analytes were detected at concentrations above, at, or even within an order of magnitude of the NMED SSLs or SGs. Per NMED guidance, the residential human health-based risk ratio was calculated to be 0.000207 for all contaminants of potential concern. Because the risk ratio is less than 1, it is determined that there is no risk to human health due to direct exposure to soils in the area of FT-15.

Basis for Determination
In a letter dated August 11, 2005 (NMED, 2005b), the NMED determined that FT-15 appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5: The site has been characterized or remediated in accordance with current applicable state and federal regulations, and available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

References


12. SWMU SS-078, Water Tower Soils – 21650

Location and Current Land Use
SWMU SS-078, Water Tower Soils, consists of five potable water tanks at four locations on Kirtland AFB. Water Tower (WT) tank 21650 is the subject of this Statement of
Basis. WT 21871 was recommended for NFA status in March 2005, and is pending a
determination of whether the site is suitable for NFA from NMED. The remaining three
WTs are not under investigation.

Elevated WT 21650 is located on the northeastern corner of Hardin Field on Kirtland
AFB. The 250,000-gallon tank and tower structure is 120 ft tall and is supported by six
columns on concrete piers with lateral bracing rods. The tower is sited in a vacant field
and is surrounded by a chain-link fence (Figure 13). Land use in the area surrounding
SWMU SS-078 is urban/residential in an active portion of the base. There are three
water supply wells located in this area of Kirtland AFB: KAFB-12 is 1,003.2 ft
northwest, KAFB-13 is 4,224 ft southwest, and KAFB-15 is 3,801.6 ft southeast of the
site. Estimated depth to groundwater in the vicinity of this site is approximately 550 ft
bgs.

Projected Future Land Use
After the water tower was demolished, new base housing was constructed in the area.
Although the site area was excavated to construct a storm water detention basin designed
to receive runoff from an adjacent industrial/commercial area, a residential land use
scenario was used for all risk-based screening assessments to consider the most restrictive
possible land use.

History
Constructed in 1947, WT 21650 was demolished and disposed of in 1999. Field
sampling activities were conducted following the demolition and destruction of the water
tower.

Evaluation of Relevant Information
In May 1997, a SWMU assessment was conducted to develop a SWMU Assessment
Report (SAR) to determine if weathering and past management practices (such as water
tank maintenance) had released contaminants to the environment and the extent of those
releases. The contaminants of potential concern (COPCs) for WT 21650 were metals
associated with the erosion of paint from the water towers. These materials could have
accumulated in the soil underneath the towers, and could potentially have been
distributed away from the area by wind or water erosion. A total of 15 samples were
collected: 9 surface samples; 3 samples from zero to 0.5 ft bgs; and 3 samples from 0.5 to
1 ft bgs.

All samples were analyzed for TAL metals using EPA SW-846 methodologies (EPA,
1996). Based on the results presented in the SWMU SAR, arsenic and lead at WT 21650
were identified as COPCs requiring further investigation. Lead was detected in all 15
soil samples at concentrations ranging from 10 to 3,700 mg/kg. Arsenic was detected in
all 15 samples at concentrations ranging from 1.4 to 62 mg/kg.
Figure 13. SWMU SS-078, Water Tower Soils – 21650
The objectives of the subsequent Appendix III Phase 2 RFI were to determine the vertical extent of arsenic and lead contamination and define changes in the distribution of contamination possibly caused by recent maintenance and demolition activities (USAF, 2000). A total of 92 samples were collected from 58 different locations (including Kirtland AFB, background locations) at depths ranging from zero to 5 ft bgs. Samples taken were analyzed only for arsenic and lead. Arsenic was detected at levels ranging from 1.4 to 62 mg/kg, which exceeded the NMED approved background concentration of 3.9 mg/kg for surface soil. Lead was detected at levels ranging from 10 to 3,700 mg/kg, which exceeded the NMED approved background concentration of 39 mg/kg for surface soil. Based on these results, the site was recommended for an ICM to remove arsenic and lead contamination.

The ICM was conducted at WT 21650 in February 2000. The primary soil remediation goal selected for SS-078 was removal of soil with lead concentrations exceeding the NMED residential SSLs (NMED, 2004) of 400 mg/kg. Secondary soil remediation goals for arsenic, a co-contaminant with lead, were to remediate arsenic concentrations in soil to below the NMED residential SSLs of 3.9 mg/kg (NMED, 2004) and the NMED approved background concentrations of 5.6 mg/kg for surface soil and 4.4 mg/kg for subsurface soil (NMED, 1997).

Lead in the soils was stabilized chemically in-situ, excavated, and disposed of at the Waste Management, Inc., Rio Rancho Landfill. One hundred twenty (120) cubic yards of manifested soil were removed from WT 21650. Results from soil samples were collected from WT 21650 following completion of the soil removal revealed arsenic concentrations ranging between 2.4 and 18.5 mg/kg. Lead (16.1 mg/kg) was detected in one confirmation sample at a concentration above the NMED approved background concentration of 11.2 mg/kg for subsurface soil. This concentration did not exceed the NMED residential SSLs of 400 mg/kg (NMED, 2000).

Clean fill material from the Waste Management of New Mexico facility was stockpiled onsite during the excavation. Five soil samples of the fill material were collected and analyzed for TAL metals at the request of the NMED. Arsenic concentrations ranged from 2.5 to 5.7 mg/kg in the clean fill material. The clean fill material was used to backfill the SS-078 excavation area. A VCM was implemented in October 2004. An additional two ft of fill material was placed on the SS-078 (WT 21650) site by the housing construction contractor. This resulted in the site being buried at depths ranging from 4 ft to 8 ft below ground surface. It is unlikely that soils remaining at SWMU SS-078 (WT 21650) will be disturbed in the future. Soil concentrations at the SS-078 (WT 21650) site above the NMED approved background level and NMED Residential Soil Screening Level are a minimum of 4 ft below land surface. At this depth, the residential exposure pathway is incomplete. Therefore, the arsenic soil concentrations present at SWMU SS-078 (WT 21650) pose an acceptable level of risk to both residential and industrial receptors. Based upon a review of operational histories, site conditions, and environmental investigations, a finding of NFA was recommended for SWMU SS-078 (WT 21650).
Basis for Determination
In a letter dated January 10, 2005, the NMED determined that SWMU SS-078 (WT 21650) appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5 (NMED, 2005): The SWMU 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.

References


13. SWMU SS-079, Building 381 Spill Site (SS-079)

Location and Current Land Use
SWMU SS-079, Building 381 Spill Site, is located in the western portion of Kirtland AFB, near the west side of Building 381. Building 381 is the Aerospace Ground Equipment shop and is used to maintain flight line support equipment. SWMU SS-079 is in the urban/industrial land use zone (Figure 14). Land use near SWMU SS-079 is urban/industrial in an active portion of the base. There are three water supply wells located in this area of Kirtland AFB. Well KAFB-14 is 1,584 ft northeast, KAFB-12 is 1794.0 ft northwest, and KAFB-13 is 2745.6 ft northwest of the site. Estimated depth to groundwater in the vicinity of this site is approximately 500 ft bgs.
Figure 14. SWMU SS-079, Building 381 Spill Site (SS-079)
Projected Future Land Use
There are no proposed changes for the land use at SWMU SS-079; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
SWMU SS-079 Spill Site is associated with the Aerospace Ground Equipment Maintenance Shop, Building 381. The spill site was west of Building 381 and consisted of a 6 ft by 12 ft gravel-covered area. The gravel was underlain by asphalt.

In August 1996, this site was identified during an external inspection for compliance with the Environmental Compliance Assessment Management Program. Oil staining of a gravelly area adjacent to two storage bins was observed. Waste oil and hydraulic fluid were known to have been stored in the bins.

Evaluation of Relevant Information
Kirtland AFB notified the NMED of the newly identified SS-079 Area of Concern (AOC) on September 21, 1996, as required in Section F to Module IV of the Kirtland AFB RCRA Hazardous Waste Permit. Subsequent to this notification, SS-079 was appended to the Appendix III Phase 2 RFI and an RFI was performed at the site.

The objective of the RFI (USAF, 1997) was to determine the nature and extent of contamination and to obtain initial sampling data. Surface and subsurface soil samples were analyzed for VOCs, SVOCs, TPH, and metals. On November 25, 1996, one surface sample was collected from the stained gravel area near the storage bins. Diesel range organics (DRO) were detected at 3,200 mg/kg in the surface sample indicated a release of waste oil and/or hydraulic fluid from the adjacent storage bins or spillage onto the surface. Lead, which was detected at 1,420 mg/kg in the same sample, was likely related to the release. Because these concentrations exceeded the NMED TPH action level of 100 mg/kg and the human health risk based (HHRB) lead action level of 400 mg/kg, five boreholes were drilled on December 31, 1996 to determine the horizontal and vertical extent of contamination. Samples were collected from each borehole at depths of 2 and 7 ft bgs. Subsurface samples showed no evidence of contamination from DRO or lead.

In 1998, an ICM was implemented to remove the TPH-, and lead-contaminated soil identified during the RFI. The ICM soil remedial action goals were removal and disposal of all TPH-contaminated soil and metals-contaminated soil above NMED approved background concentrations (USAF, 1999). The stained gravel covering the site was removed and an 8-ft-long by 7-ftwide by 3-ft deep area was excavated. A manifested volume of 10 cubic yards was transported to the Rio Rancho Landfill for disposal (USAF, 1999). Five post excavation soil samples were collected: one sample from each side wall at a depth of 2 ft bgs, and one sample from the base of the excavation near the center.

These samples were analyzed for SVOCs, TPH-DRO, and TAL metals. Analytical results indicated that TPH at concentrations ranging between not detected and 4,200 mg/kg (center of the North end of the concrete pad) and select metals (antimony, 4.3
mg/kg; thallium, 1.1-1.4 mg/kg) concentrations exceeded the 1998 ICM soil remedial action goals of non-detectable levels of TPH and background levels for metals (antimony, 3.9 mg/kg; thallium, <1.1 mg/kg). Therefore, additional excavation was recommended (USAF, 1999).

A second ICM was conducted at SS-079 between March 24 and April 24, 2000, to remove residual TPH affected soils from the site. On March 28, 2000, 9 cubic yards of TPH-contaminated soil were excavated and disposed of at the Waste Management of New Mexico, Inc., Rio Rancho Landfill. Five post excavation samples were collected from the bottom and sides of the excavation. TPH concentrations in the post excavation samples were below the NMED waste oil action level of 2,500 mg/kg TPH (NMED, 2003).

Due to the limited precipitation and the great depth to groundwater, transport to groundwater was unlikely. Potential human health and ecological risks posed by the residual petroleum hydrocarbons at SS-079 were evaluated following completion of ICM in year 2000. Residual petroleum hydrocarbons in SS-079 soils posed no excess carcinogenic or non-carcinogenic risks to humans. In addition, there was no ecological habitat at SS-79 because of high-density industrial development of the area. An ecological risk assessment was not performed for SS-079 because exposure pathways between petroleum hydrocarbons and receptors are incomplete.

Based upon a review of operational histories, site conditions, and environmental investigations, NFA was recommended for SS-079 (USAF, 2002).

Basis for Determination

In a letter dated June 6, 2005, the NMED determined that SWMU SS-079 appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5 (NMED, 2005): The SWMU 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.

References


USAF, 1999. Interim Corrective Measures Report for Site WP-26, Golf Course Main Pond (WP-26), and Areas of Concern SS-79, Building 381 Spill Site (SS-79); and WP-87, GRABS Site Waste Pile (WP-87), Kirtland Air Force Base, New Mexico, May.

USAF, 1997. SWMU Assessment Report for AOC SS-78, Four Water Tanks; A OC ST-80, Building 30124, Manzano Area Hobby Shop; and AOC SS-77, Railroad Tracks, Kirtland Air Force Base, New Mexico, June.
14. AOC SS-089 Transportation Yard

Location and Current Land Use
Area of Concern (AOC) SS-089 is a transportation yard located in the northern portion of Kirtland AFB immediately north of the old Atomic Museum near the intersection of H Avenue and Wyoming Boulevard (Figure 15). The site covers approximately 1.6 acres and lies in a relatively flat industrial area; locally an asphalt surface is underlain by a concrete apron ranging in thickness from 12 to 36 inches.

Land use near AOC SS-089 is urban/industrial in an active portion of the base. Twelve wells are located within a 1-mile radius of SS-089. Three of these are active production wells and nine are monitoring wells. The groundwater at the site is deeper than 425 ft bgs based upon production well KAFB-01 and monitoring wells north and south of the site.

Projected Future Land Use
There are no proposed changes for the land use at AOC SS-089; however a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
The concrete apron underlying AOC SS-089 was constructed around 1936 by the Civilian Conservation Corps (CCC) as part of Albuquerque’s first airport (IT, 1998). AOC SS-089 was used for dismantling approximately 2,200 decommissioned aircraft at the close of World War II, for subsequent melting into scrap metal in an incinerator formerly located in Building 20338. The area has since been used as a transportation yard. Building 20349, located immediately north, is a vehicle maintenance facility. In 1997, steam line replacement activities in the transportation yard next to Buildings 20338 and 20349 intercepted a shallow caliche soil unit topped with a thin green-stained layer of soil. The stained soil may have been caused by former dismantling activities at this location, or other associated activities.

Evaluation of Relevant Information
In March and April 1998, a SWMU assessment was conducted at AOC SS-089 to determine whether contamination was present in site soils (USACE, 1998). Thirty-seven subsurface soil samples were collected and analyzed for metals. Field observations of the soil detected no signs of visible organic staining, and no organic vapors were detected by the use of a photoionization detector. At the time, the NMED residential SSLs were not established and the data were compared to EPA Region 6, Human Health Media-Specific Screening Levels. This comparison indicated that only arsenic exceeded the EPA Region 6 screening levels.

In a May 14, 2004 letter, the NMED requested the re-evaluation of all site data using the most current NMED SSLs and risk evaluation process and an update of the figures (NMED, 2004a). During the re-evaluation of the data, Kirtland AFB recognized the extent of the thin contamination layer was unknown to the north, and proposed the collection of ten new samples from three locations.
Figure 15. AOC SS-089 Transportation Yard
One 1998 SWMU assessment sampling location was re-used, and the other two locations were new. The samples were analyzed by a laboratory for TAL metals, VOCs, TPH/diesel range organics (DRO), and polychlorinated biphenyls (PCBs).

Review of data from the 1998 SWMU Assessment Report indicated that arsenic values and one lead value exceeded the NMED residential SSLs (NMED, 2004c), and two samples associated with the stained soil horizon within the top 2 ft of soil at the site exceeded the NMED-approved background concentration for lead (NMED, 1997). However, the review also showed that the arsenic concentrations at SS-089 fell within the range of NMED-approved background concentrations.

Review of data from the 10 new samples confirmed arsenic detections within the NMED approved background range (USAF, 2004b). Data also indicated lead in samples from the stained horizon exceeded the range of NMED approved background concentrations, but not the NMED human health residential lead SSLs of 400 mg/kg. The high concentration of 651 mg/kg from 1998 was not duplicated in a resample. The site does not contain concentrations of lead above residential risk standards, and does not represent a risk to human health. No VOCs, TPH/DRO, or PCBs were detected at concentrations that exceeded the NMED SSLs or NMED TPH screening guidelines.

In a September 24, 2004 letter, the NMED requested a residential soil risk assessment for barium at the site and required Kirtland AFB to justify why the elevated barium concentrations were not a potential contaminant of concern (NMED, 2004d). In response, Kirtland AFB conducted both a geochemical evaluation and a residential soil risk assessment (USAF, 2004c). The geochemical evaluation concluded that barium concentrations at the site directly correlate with high calcium values associated with the prominent caliche layer across the site and that the detections of barium at the site are most likely naturally occurring. Furthermore, the barium data were compared to the NMED SSLs for barium and confirmed that the detectable concentrations were below the current NMED SSLs.

**Basis for Determination**

In a letter dated December 17, 2004, the NMED determined that AOC SS-089 appears to be suitable for NFA status (NMED, 2004e). This NFA proposal is based on NMED's NFA Criterion 5: The 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.

**References**

IT Corporation (IT), 1998. Personal Communication between D. Jercinovic (IT) and C. Whitson (Kirtland AFB, 377 Civil Engineer Group), IT Corporation, Albuquerque, New Mexico, April 3, 1998.


15. SWMU ST-080, Manzano Auto Hobby Shop, Building 30124

Location and Current Land Use

SWMU ST-080, Building 30124, Manzano Auto Hobby Shop, is located in the east-central portion of Kirtland AFB and consists of a 30-ft by 15-ft building, housing three covered automobile bays, which served as the auto hobby shop for the Manzano Weapons Storage Area. The automobile bays served as light vehicle repair and wash-down areas. Figure 16 shows the layout of the site.

Land use near SWMU ST-080 is urban/industrial and in an active portion of the base. There are no potable water supply wells within two miles and down gradient of the site. Estimated depth to groundwater in the vicinity of this site is approximately 270 ft bgs.

Projected Future Land Use

There are no proposed changes for the land use at ST-080; however, residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

History

SWMU ST-080 was operational from the 1950s through the late 1980s and served as a hobby shop for light vehicles. Gasoline, waste oils, and lubricants used in light vehicle repair were handled at SWMU ST-080. Currently, the automobile bay located at the south end of the building is used as locked storage for grounds maintenance equipment. Building 30124 is scheduled for demolition by Kirtland AFB.

Evaluation of Relevant Information

SWMU ST-080 was first investigated during a SWMU assessment on May 15, 1997 (USAF, 1997). Soil samples were collected from three locations along the open drain trough and the surface grate, and sediment samples were collected from the two floor drains in the building and the floor drain beneath the hydraulic lift. Soil and sediment samples were analyzed for VOCs, SVOCs, TPH, (diesel-range organics [DROs] and gasoline-range organics [GROs]), and TAL metals.

Results of the 1997 SWMU Assessment Report indicated that polyaromatic hydrocarbons (PAHs) and metals, at concentrations greater than NMED residential soil screening levels, were present in the sediment samples collected from the floor drains within Building 30124.

In 1998, a RFI was performed to determine if a release of contamination had occurred into the surrounding environment (USAF, 1999). Ten boreholes were sampled to a depth of approximately 30 ft bgs. Soil samples were collected at 5-ft intervals and field-screened with a photoionization detector (PID) for volatile organics. All samples were analyzed for SVOCs including PAHs. Samples from two boreholes were also analyzed for lead. No analytes were detected at concentrations greater than their respective NMED residential soil screening levels in any soil samples. Based on the
Figure 16. SWMU ST-080, Manzano Auto Hobby Shop, Building 30124
results of the 1997 SWMU assessment and the 1998 RFI sampling, contamination was found to be limited to sediment located in floor drains inside the building.

In 2001, a Phase 2 RFI was performed to locate the floor drain line and collect soil samples from three soil borings along the line to determine if the line was a possible source of subsurface contamination (USAF, 2003). In each soil boring, one sample was collected adjacent to the drain line, and one sample was collected below the drain line and analyzed for VOCs, PAHs and TAL metals. The analytical results of the 2001 Phase 2 RFI subsurface soil samples indicate that the drain line on the north side of Building 30124 is not a source of subsurface contamination. The analytical results of the 1997 SWMU assessment, 1998 RFI, and 2001 Phase 2 RFI indicated that PAHs and metals were present in the floor drain sediment above NMED residential soil screening levels. Soil samples collected in and around Building 30124 did not show contamination. A Human Health Risk Assessment for SWMU ST-080 was performed as part of the Phase 2 RFI Report in January 2003. All hazard indices were below one (1) and SWMU ST-080 was determined to be suitable for residential usage.

In December 2003, a VCM was implemented at SWMU ST-080. The connection between the interior drain lines and storm water discharge line was severed and sediment in the drain lines was flushed, collected and disposed of. Caps were installed on the interior drain lines and the storm water discharge line was plugged with cement. One-hundred ten (110) gallons of wastewater collected were found to be non-hazardous waste by Toxicity Characteristic Leaching Procedure (TCLP) analyses. The three wastewater drums were picked up and disposed of as non-hazardous waste on January 21, 2004. Kirtland AFB effectively removed the potential source of contamination at ST-080 in December 2003 by removing the contaminated sediment from the floor drains and by disconnecting and capping the interior drains.

Basis for Determination
In a letter dated April 5, 2005, the NMED determined that SWMU ST-080 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The SWMU 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.

References


Accumulation Area (ST-276); and ST-80, Building 30124, Manzano Auto Hobby Shop (ST-80), Kirtland Air Force Base, New Mexico.

USAF, 1999. *RCRA Facility Investigation for Solid Waste Management Unit 9-4, Waste Accumulation Area, Building 617 (ST-276) and Areas of Concern SS-77, Abandoned Railroad Spur (SS-77); and ST-80, Building 30124, Manzano Auto Hobby Shop (ST-80), Kirtland Air Force Base, New Mexico.*


16. SWMU 10-21-B, Building 618, Septic System

SWMU 10-21-B, Building 618, Septic System (Former ST-273) is comprised of a septic tank and the associated waste pipelines. The septic system received and treated sanitary waste from Building 618. The SWMU is located in the northwest portion of Kirtland AFB, west-southwest of Building 618 (Figure 17).

Land use near SWMU 10-21-B (Former ST-273) is urban/industrial in an active portion of the base. There are two water supply wells located in this area of Kirtland AFB. Well KAFB-2 is 4,500 ft east-northeast, and KAFB-14 is 4,100 ft north of the site. Estimated depth to groundwater in the vicinity of this site is approximately 350 ft bgs.

Projected Future Land Use

There are no proposed changes for the land use at SWMU 10-21-B (Former ST-273); however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History

Building 618, the Missile and Space Engineering Research Facility, was constructed in 1953. Record drawings from 1958 refer to Building 618 as the “GE” facility and show that this building housed an engine test cell. Record drawings from 1972 show the floor plan as comprising offices, a battery room, two labs, and storage. At the time of demolition in 2002, Building 618 contained offices and one vehicle bay. It is not known when the septic tank was constructed however; a septic tank is shown on drawings as early as 1972.

Based on engineering drawings and observed site conditions, there were two pipe lines exiting the building and entering a single inflow line into the septic tank. The septic tank potentially could have received contaminants from Building 618 from the time of construction until the building’s demolition in 2002. The septic tank was abandoned in place by Kirtland AFB in March 2005. The septic tank leach field was located west of the septic tank and was confirmed by excavation activities in May 2004. The leach field piping was constructed of 4-inch clay pipe.
Figure 17. SWMU 10-21-B, Building 618, Septic System
Evaluation of Relevant Information

The SWMU 10-21-B (Former ST-273) septic tank was investigated during the Appendix III Wasteline RFI in 1995 (USAF, 1995). The objective of the investigation was to determine if contamination was present in the subsurface soils adjacent to the septic tank. Four boreholes were drilled and sampled at this site, including one borehole drilled west-northwest of the septic tank to collect background concentration data. Three boreholes were drilled as close as possible to the septic tank. The boreholes were advanced to 5 ft below the septic tank depth, and one sample was collected from each borehole.

Samples from both the Appendix III Wasteline Sites and May 2004 investigations were analyzed by a laboratory for the expected chemicals of potential concern associated with normal operations at this building, including VOCs, SVOCs, TPH, metals, and mercury. Samples were also screened at the time of collection, using field instruments for detectable radiation and VOCs. The field-screening instruments did not detect radiation or VOCs above background levels.

Low levels of TPH and some VOCs, SVOCs, and metals were identified in the soil samples collected adjacent to the septic system during the Appendix III Wasteline RFI. All detected chemical concentrations were below the applicable NMED residential SSLs.

An additional investigation was performed at the site in response to a RSI received from the NMED on March 2, 2004. The investigation was conducted in May 2004 (USAF, 2004) to locate the septic tank leach field that was associated with SWMU 10-21-B (Former ST-273). Three soil samples were collected, including one field replicate, from the native sandy soil, approximately 1 foot below the clay pipes in the leach field. A composite sample was collected from dark black material accumulated in the clay pipes. Samples of the water and sludge in the septic tank also were collected. A total of six samples were collected and analyzed for VOCs, SVOCs, TPH, metals, and mercury.

Samples collected from the residual septic tank sludge and the residual material accumulated in the leach field clay piping each contained metals concentrations greater than the NMED-approved Kirtland AFB background levels. However, subsurface soil samples collected from the two locations beneath the leach field area did not contain elevated metals concentrations. The detected chemical concentrations from all samples collected beneath the leach field were below the applicable NMED SSLs. This suggests that the fluids discharged through the leach field did not result in an impact to the underlying soils. Site characterization activities adequately investigated the horizontal and vertical extent of any chemical release and addressed the presence of expected chemicals of potential concern. In the March 2, 2004 RSI, the NMED also requested that all sample data from the site be re-evaluated using the most current 2004 NMED SSLs and risk evaluation process. In an addendum to the May 28, 2004 RSI response (USAF, 2004), Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were below the current NMED SSLs and the site did not pose an unacceptable level of risk to human health or the environment.
Basis for Determination
In a letter dated August 26, 2004 (NMED, 2004), the NMED determined that SWMU 10-21-B (Former ST-273) appears to be suitable for NFA status pending permanent closure of the septic tank. The septic tank was abandoned in place in March 2005. Documentation regarding the closure was submitted to the NMED in 2005 by Kirtland AFB (USAF, 2005). This NFA proposal is based upon NMED’s NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from SWMU ST-273

References


17. SWMU 9-4, Building 617 Waste Accumulation Area (ST-276)
SWMU 9-4 (ST-276) is located at the Air Force Research Laboratory Chemical Laser Facility in the southwest portion of Kirtland AFB. The waste accumulation site is a ground-level concrete pad, with dimensions of 60 ft by 30 ft, located east of Building 617. The area is used for the temporary storage of drums containing waste generated during chemical laser research operations; access to the area is restricted. Figure 18 shows the site location. Land use near SWMU 9-4 is urban/industrial in an active portion of the base. There are three water supply wells located in this area of Kirtland AFB. KAFB-14 is 3,907.2 ft north, KAFB-15 is 4,899 ft northeast, and KAFB-2 is 3,717 ft northeast of SWMU 9-4. Estimated depth to groundwater in the vicinity of this site is approximately 500 ft bgs.

Projected Future Land Use
There are no proposed changes for the land use at SWMU 9-4; however, residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

History
The chemical laser facility is no longer in operation. The waste generated during operation at the facility consisted of oil and sodium hydroxide that was contained in either 55-gallon, closed-top waste drums, or 30-gallon, double-containment, vented drums. During a 1988 visual site inspection (Kearney/Centaur, 1988), the west and north sides of SWMU 9-4 reportedly had 2-ft-high concrete dikes; the remaining perimeter was enclosed with a concrete dike by 1991. Drums at SWMU 9-4 were typically removed monthly for disposal. The Kirtland AFB Defense Reutilization Marketing Organization (DRMO) had managed the waste disposal effort.
Figure 18. SWMU 9-4, Building 617 Waste Accumulation Area (ST-276)
Evaluation of Relevant Information

A site inspection conducted in 1988 indicated that one or more of the two dozen 55-gallon drums stored on the SWMU 9-6 concrete pad may have leaked petroleum liquids (Kearney/Centaur, 1988). An Appendix III Phase 1 RFI (USAF, 1995) was conducted in June and July of 1994. The RFI consisted of soil sampling and analyses from the ground surface to a depth of 27 ft bgs. The analytical data presented in the RFI were compared to the EPA Region 6 HHRB residential screening levels (EPA, 2000) and NMED approved background concentrations (NMED, 1997). During the RFI, no compounds were detected at concentrations in excess of their respective EPA Region 6 HHRB residential screening levels. The detection of multiple SVOCs and TPH as diesel range organics (DRO) in soil, although all below NMED residential SSLs, indicated a limited release of hydrocarbons. In order to characterize the lateral and vertical extent of this contamination, a Phase 2 RFI was performed at the site.

The Appendix III Phase 2 RFI was conducted on September 26, 1996 (USAF, 1997). During this investigation, four surface and four subsurface soil samples were collected from two boreholes. Although all contaminants of potential concern were detected at concentrations below the NMED SSLs, the concentrations of benzo(a)pyrene (0.12 to 0.48 mg/kg) in the surface soil samples were greater than the screening levels in effect at the time of the Appendix III Phase 2 RFI (EPA Region 6 HHRB screening levels).

Additional sampling was conducted during the 1998 RFI in an attempt to delineate the horizontal extent of SVOCs in the surface soils around the concrete pad. The 1998 RFI collected and analyzed 10 surface samples for SVOCs (USAF, 1999). The concentration of benzo(a)pyrene equaled or exceeded the NMED SSLs (0.62 mg/kg) in surface soil samples ranging between 0.68 mg/kg and 3.8 mg/kg and the concentration of benzo(b)fluoranthene exceeded the NMED SSLs (6.2 mg/kg) in one surface soil sample (6.4 mg/kg). Although the goal of the 1998 RFI was to determine the horizontal extent of surface SVOC contamination, this was not accomplished because SVOCs were detected in each sample collected. Based on the cumulative results of prior RFI investigations, the horizontal extent of SVOC contamination in surface soils at the site remained to be defined. All subsurface concentrations of SVOCs and TPH-DROs were below EPA Region 6 HHRB (EPA, 2000) and New Mexico Oil Conservation Division (NMOCD) [NMOCD, 1993] screening levels.

In July 2001, six surface soil samples (0 to 6 inches bgs) were collected from the perimeter of the site concrete pad in an effort to determine the horizontal extent of PAH contamination in surface soils greater than NMED SSLs. The concentrations of PAHs were below the NMED SSLs in five of the six surface soil samples collected. The concentration of benzo(a)pyrene (1.85 mg/kg) exceeded the NMED SSLs of 0.62 mg/kg in the 2001 Phase 2 RFI soil sample collected west of the concrete pad.

A baseline human health risk assessment (HHRA) was performed using all available RFI data for SWMU 9-4. Results of the HHRA did not identify any potential risks to human receptors. Based on the results of the RFIs and the HHRA, preparation of a NFA proposal was recommended.
In a January 7, 2005 letter, the NMED requested additional information based on review of the Phase 2 RFI report. On June 30, 2005, Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were below the current NMED SSLs and that the site did not pose an unacceptable level of risk to human health or the environment (USAF, 2005).

**Basis for Determination**

In a letter dated August 22, 2005, the NMED determined that SWMU 9-4 (ST-276) appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5 (NMED, 2005): the SWMUs have 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.

**References**


18. SWMU ST-347, Building 29015 Cess Pool

Location and Current Land Use

SWMU ST-347 is located in a relatively flat area near the intersection of Lovelace Road and Mortar Range Road located in the southeast section of Kirtland AFB, near the intersection of Lovelace Road and Mortar Range Road. This site is an inactive seepage pit that drained a bathroom located in Building 29015.

Building 29015 is a hangar that currently serves as a warehouse for bivouac and training operations. Because of its location east of the Hubbell Springs Fault system, the ST-347 septic system is installed over a shallow groundwater system (NMED, 2004). Figure 19 presents the ST-347 layout. Land use near SWMU ST-347 is urban/industrial in an active portion of the base. There are no water supply wells located in this area of Kirtland AFB. Production wells KAFB-1901, KAFB-1902 and KAFB-1904 are between 2534.4 to 356.8 ft southeast of SWMU ST-347. The depth to groundwater is approximately 55 ft bgs.

Projected Future Land Use

There are no proposed changes for the land use at SWMU ST-347; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History

The seepage pit is located west of Building 29015. Building 29015 had been constructed as a hangar and served as a support facility for a dirt airfield located directly north of the hangar. No additional information about previous uses of Building 29015 is available.

Evaluation of Relevant Information

Kirtland AFB notified the NMED of the newly identified ST-347 Area of Concern (AOC) on August 26, 1999, as required in Section F to Module IV of the Kirtland AFB RCRA Hazardous Waste Permit. Subsequent to this notification, pursuant to Section F.1. to Module IV of the Kirtland AFB RCRA Hazardous Waste Permit, Kirtland AFB performed a site assessment and submitted the report summarizing assessment findings 90 days after notifying the NMED.

The objective of the initial release assessment was to identify contaminants of potential concern (COPCs) associated with the septic tank systems and seepage pits. Because it was unknown whether waste other than sanitary waste was drained into the seepage pit, Kirtland AFB analyzed soil samples from the seepage pit for a broad spectrum of COPCs, including VOCs, SVOCs, metals, TPH-diesel range organics (DRO)/GRO, herbicides, pesticides, and polychlorinated biphenyls (PCBs).

Two samples were collected, the first directly beneath the bottom of the seepage pit (8 to 10 ft bgs), and the second from 10 to 12 ft below the bottom of the seepage pit. Barium, detected at 245 mg/kg from the 8- to 10-foot depth interval was the only metal that exceeded the NMED approved background concentration of 214 mg/kg for subsurface soil. This slight elevation in the subsurface soil more likely reflects a site-specific
Figure 19. SWMU ST-347, Building 29015 Cess Pool
correlation with higher calcium than a contaminant release to the seepage pit (NMED, 2004). The pesticide dichlorodiphenyldichloroethane (4,4-DDD) was detected slightly above the practical quantitation limit (PQL) of 1.9 mg/kg at a concentration of 2.2 mg/kg in the 8- to 10-foot depth interval. The EPA Region 6 residential screening level was not exceeded for 4,4'-DDD. The sample from the deeper interval (the 10- to 12-foot depth) did not contain 4,4'-DDD. This indicates that no downward migration of the pesticide has occurred. Because of the low levels of pesticide, NFA was recommended based on Criterion 5 (NMED, 2004). It was confirmed to NMED that discharges or potential discharges to the Building 29015 cesspool from activities that may potentially generate hazardous wastes have been halted (NMED, 2005a).

Basis for Determination
In a letter dated February 23, 2005, the NMED determined that SWMU ST-347 appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5 (NMED, 2005b): The SWMU 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.

References

NMED, 2005b. Correspondence with Carl Lanz, Environmental Management Branch, 377 MSG/CEVR, February.


19. SWMU 10-21-B, Building 635 Septic Tank (ST-351)
SWMU 10-21-B, Building 635 Septic Tank (ST-351) is listed as a septic tank associated with Building 635. Building 635 was reportedly located southwest of Pad 1 in an area that was formerly a Skeet Range (Figure 20); however, during the site inspection the location of former Building 635 could not be verified. After discussion with Kirtland Environmental Management personnel, it was decided that the former skeet range would be investigated to assess the extent of lead contamination in the ground surface in lieu of the Building 635 Septic Tank since the exact location of the septic tank could not be substantiated.
Figure 20. SWMU 10-21-B, Building 635 Septic Tank (ST-351)
Land use near SWMU 10-21-B (ST-351) is urban/industrial in an active portion of the base. There is one water supply well located in this area of Kirtland AFB. Well KAFB-14 is 3643.2 ft northeast of the site. The depth to groundwater is approximately 500 ft bgs at ST-351.

Projected Future Land Use
There are no proposed changes for the land use at SWMU 10-21-B (ST-351); however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
Environmental Restoration Program (ERP) Site ST-351 is listed as a septic tank associated with Building 635. An aerial photo and building drawing were located, which indicate Building 635 was constructed in 1942 in conjunction with the skeet range and demolished in 1983. Building 635 was a small support building of roughly 850 square ft, likely used to provide storage and/or shelter. Because of its likely use as support for skeet range activities, it is improbable this building received or stored hazardous wastes.

The ST-351 Skeet Range has been validated by the United States Air Force (USAF) as a Munitions Response Area and is identified as TS-775, Airfield Skeet Range. The site will be investigated and remediated under the Military Munitions Response Program (MMRP) (NMED, 2005a).

Evaluation of Relevant Information
The objective of the release assessment (USACE, 2000) was to determine if lead was a contaminant of potential concern (COPCs) at the former skeet range (now known as ST-351). To fulfill the objectives of the release assessments, field activities involved investigations using a backhoe, direct-push drilling, and surface soil sampling. If located, the leachfield soil was to be sampled and analyzed for VOCs, SVOCs, and metals.

Surface and near-surface soil samples were collected at ST-351 from the 0- to 6-inch depth interval. The concentration of copper in surface soil slightly exceeded the NMED approved background concentration of 17 mg/kg at 17.9 mg/kg. Barium (at 256 mg/kg) exceeded the NMED approved background concentration of 200 mg/kg. Copper and barium were the only metals detected above NMED approved background concentrations at the former skeet range. Physical inspection of the remaining building slab revealed no evidence of restroom facilities. Subsequent backhoe excavation to undisturbed soil completely around the slab failed to locate a drain line or other evidence of a water or septic system associated with the building (NMED, 2005a).

Because no septic lines, tanks, or leachfield were discovered, no soil samples were analyzed for VOCs or SVOCs. Those metals (copper and barium) detected in surface soil samples from the skeet range that were above NMED approved background concentrations are not considered releases to the environment; rather, they fall within the range of natural background levels. None of the metals exceeded the NMED residential SSLs. NFA was recommended for the septic tank portion of the site based on Criterion 1 (NMED, 1998), and for the skeet range portion of the site based on Criterion 5 (NMED, 1998).
Basis for Determination

In a letter dated February 23, 2005, the NMED determined that SWMU 10-21-B (ST-351) appears to be suitable for NFA status (NMED, 2005b). This NFA proposal is based upon NMED’s NFA Criterion 1: The SWMU cannot be located.

References


NMED, 2005b. Correspondence with Carl Lanz, Environmental Management Branch, 377 MSG/CEVR, February.


20. SWMU 10-21-B, Building 613/614 Septic Tank (ST-352)

SWMU 10-21-B (ST-352) is an active septic tank and leachfield. This site is located adjacent to Building 614, in the northwest area of Kirtland AFB, between the Runway and Southgate Road. The septic tank collects waste water from a sink located in Building 614. Figure 21 shows the site location and layout. Land use near SWMU 10-21-B is urban/industrial in an active portion of the base. There are three water supply wells located in this area of Kirtland AFB. Well KAFB-15 is 4480 ft northeast, KAFB-2 is 2870 ft northeast, and KAFB-14 is 3809 ft northwest of the site. Estimated depth to groundwater in the vicinity of this site is approximately 500 ft bgs.

Projected Future Land Use

There are no proposed changes for the land use at SWMU 10-21-B; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History

SWMU 10-21-B is an active septic tank and leachfield that collects waste water from a sink located in Building 614, which was reportedly used as a photo processing lab. The septic tank is constructed of fiberglass, and two leachfield lines (one trending east and one trending north) drain the tank from the eastern side. The leachfield lines are constructed of 4-inch perforated plastic pipe. No additional information about previous uses of Building 614 is available.
Figure 21. SWMU 10-21-B, Building 613/614 Septic Tank (ST-352)
Evaluation of Relevant Information

Kirtland notified the NMED of the newly identified ST-352 Area of Concern (AOC) on August 30, 1999, as required in Section F.1, Module IV of the Kirtland AFB RCRA Hazardous Waste Permit. Subsequent to this notification, and pursuant to Section F to Module IV of the Kirtland AFB RCRA Hazardous Waste Permit, Kirtland AFB performed a site release assessment and submitted the report summarizing assessment findings 90 days after notifying the NMED.

The objective of the site release assessment was to identify contaminants of potential concern (COPCs) associated with the septic tank systems and leachfield. To fulfill the objectives of the release assessments, a field investigation was conducted and involved using a backhoe, direct-push drilling, and surface soil sampling. Three subsurface samples were collected at locations thought to represent the reaches of the drain lines, based on visual projection of drain line trends. Because no information about Building 614 activities was available, Kirtland AFB analyzed a drain line sample for a broad spectrum of COPCs, including VOCs, SVOCs, metals, total petroleum hydrocarbons-diesel/gasoline range organics (TPH-DRO/GRO), herbicides, pesticides, polychlorinated biphenyls (PCBs), and high explosives (HE).

In January 2000, Kirtland AFB Environmental Management (EM) personnel excavated the septic tank at Building 614 (ST-352) was opened and samples of wastewater and sludge were collected from the tank. The wastewater sample was collected from the top of the tank and the sludge sample was collected from material on the tank bottom. The wastewater and sludge samples were analyzed for metals using the TCLP for waste characterization purposes. No organic chemical constituents were detected in soil samples from ST-352. No metals exceeded TCLP regulatory limits for classification. A camera survey was performed on the drain line at ST-352 in order to satisfy a NMED RSI to determine the configuration and extent of drain line features (NMED, 2004). In a meeting at Kirtland AFB EM on August 31, 2004, NMED directed Kirtland AFB to verify the layout of the drainfield. An additional drain line trending north in a configuration that looks like a backward capital F was discovered.

Based on the information from the camera survey, NMED requested that Kirtland AFB conduct additional characterization sampling. Samples were collected midway along the new drain line at the depth of the drainfield and at 5 ft below the first sample. The additional samples detected selenium (1.76 mg/kg), and silver (1.95 mg/kg) above the corresponding NMED approved background of 1.0 mg/kg, but within the range of background values, and determined to be naturally occurring or no risk to human health. Analytical results for all samples were below the corresponding NMED residential SSLs. Because the detected COPCs did not indicate a release, NFA was recommended for the site based on Criterion 3 (NMED, 2005a).

Basis for Determination

In a letter dated February 23, 2005, the NMED determined that SWMU 10-21-B (ST-352) appears to be suitable for NFA status (NMED, 2005b). This NFA proposal is based...
upon NMED’s NFA Criterion 5: The SWMU 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.

References

NMED, 2005b. Correspondence with Carl Lanz, Environmental Management Branch, 377 MSG/CEVR, February.


21. SWMU WP-087, GRABS Site Waste Pile
SWMU WP-087, Great Reusable Air Blast Simulator (GRABS) Site Waste Pile was used as a high explosive air blast simulation testing unit. The SWMU is located in the southeastern portion of Kirtland AFB adjacent to the Shock Tube Research Facility. The GRABS site waste pile was located at the southeastern edge of the parking lot for the Shock Tube Research Facility (Figure 22).

Land use near SWMU WP-087 is open space and research/administration in this remote area of the base. There are no potable water supply wells within a mile and down gradient of the site. Estimated depth to groundwater in the vicinity of this site is approximately 75 ft bgs.

Projected Future Land Use
There are no proposed changes for the land use at WP-087; however, a residential land use scenario was used for all risk-based screening assessments to consider the most protective criteria for possible future land use.

History
During the 1980s, the site was used as a high explosive air blast simulation testing unit. The GRABS site was part of a practice artillery range, used between 1941 and 1952 for proximity fuse testing; it has not been used since that time.
Figure 22. SWMU WP-087, GRABS Site Waste Pile
The GRABS site waste pile was composed of approximately 4 cubic yards of TPH-affected gravelly soil and 30 cubic yards of concrete and other debris. According to Environmental Management personnel, the source of the contaminated soil was either a suspected spill or release associated with a French drain.

Evaluation of Relevant Information

In 1995, a SWMU assessment was conducted at SWMU WP-087 (USAF, 1995), followed in 1998 by an ICM (USAF, 1999). The SWMU assessment was conducted to assess contamination in the GRABS site waste pile. The waste pile and underlying TPH-affected soil was removed in the 1998 ICM.

In the 1995 SWMU assessment one soil sample was collected from the waste pile and one soil sample was collected at 5 ft below the base of the waste pile, by way of an angled boring. The soil samples were analyzed for VOCs, SVOCs, TPH, and TAL metals. No VOCs or SVOCs were detected above NMED residential SSLs. The SWMU Assessment Report indicated the concentrations of TPH detected in the samples collected within and below the waste pile sample were 33,300 mg/kg and 503 mg/kg, respectively. Chromium, lead, and zinc were detected at concentrations below the residential NMED SSLs. In 1998, an ICM was conducted to excavate and dispose of the TPH-contaminated waste pile and 288 cubic yards of soil beneath the waste pile (USAF, 1999). Five confirmation soil samples were collected at about 2 ft bgs; one from the base of each side wall and one from the center of the excavation bottom.

The confirmation samples were analyzed for SVOCs, TPH-diesel range organics (DRO), and TAL metals. No SVOCs were detected above laboratory reporting limits. TPH-DRO was detected in two of the five samples analyzed at concentrations of 23 and 4.1 mg/kg, below the NMED action level of 100 mg/kg TPH (NMED, 1995). Antimony, barium, and vanadium were detected at concentrations below their respective NMED SSLs. Based on these confirmation sampling results, the excavation was backfilled with clean soil and no further excavation was conducted.

In year 2000, an ICM was conducted to assess the extent of petroleum hydrocarbons in soils greater than 2 ft bgs, underlying the former GRABS Site Waste Pile (USAF, 2002). The ICM activities consisted of soil sampling at depths greater than 2 ft bgs below the former GRABS Site Waste Pile. Two subsurface soil samples and one field replicate were collected from below the 1998 excavation and analyzed for TPH, VOCs, and polycyclic aromatic hydrocarbons (PAHs). The two soil samples were collected at 5 ft and 3 ft below the locations where TPH was detected in the post excavation samples of 1998. No benzene, toluene, ethylbenzene, xylenes, PAHs, or TPH were detected in any of the soil samples. Therefore, no additional soil removal was required at the site.

In a December 17, 2004 letter, the NMED requested that all sample data be re-evaluated using the most current 2004 NMED SSLs, NMED TPH Screening Guidelines and risk evaluation process (NMED, 2004). On April 14, 2005, Kirtland AFB submitted the requested supplemental information confirming that the detectable concentrations were
below the current NMED SSLs and the site did not pose an unacceptable level of risk to human health and the environment (USAF, 2005).

Basis for Determination
In a letter dated June 6, 2005, the NMED determined that SWMU WP-087 appears to be suitable for NFA status. This NFA proposal is based upon NMED’s NFA Criterion 5 (NMED, 2005): The SWMU 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.

References


NMED, 1995. UST Soil/Water Sampling and Disposal Guidelines, New Mexico Environment Department, Environmental Improvement Board, Santa Fe, New Mexico, March.


USAF, 2002. Interim Corrective Measures Report for CAUs SS-78, Water Tower Soils (SS-78); SS-79, Building 381 Spill Site (SS-79); and WP-87, GRABS Site Waste Pile (WP-87), Kirtland AFB, Albuquerque, New Mexico.

USAF, 1999. ICM Report for Site WP-26, Sewage Lagoons & Golf Course Pond (WP-26); AOC SS-79, Building 381 Spill Site (SS-79); and AOC WP-87, GRABS Site Waste Pile (WP-87), Albuquerque, New Mexico.

USAF, 1995. SWMU Assessment Reports for the GRABS Site and the KC135 Septic Tank Site, Kirtland AFB Albuquerque, New Mexico.

22. SWMU WP-339, Contractor Yard West of Building 20423 (WP-339)
SWMU WP-339 is a contractor yard where vehicles and equipment historically have been and are still currently stored. The SWMU is located in the northwest portion of Kirtland AFB, at the northwest corner of Hardin Blvd and 3rd Street, across the street to the west of Building 20423 (Figure 22-1). Land use near SWMU WP-339 is urban/industrial in an active portion of the base. There are four water supply wells located in this area of Kirtland AFB. Well KAFB-6 is 3,600 ft east; KAFB-4 is 4,800 ft southwest; KAFB-7 is 5,000 ft southwest; and KAFB-1 is 1,500 ft northwest of SWMU WP-339. Estimated depth to groundwater in the vicinity of this site is approximately 350 ft bgs.
Figure 23. SWMU WP-339, Contractor Yard West of Building 20423 (WP-339)
Projected Future Land Use
There are no proposed changes for the land use at SWMU WP-339; however, a residential land use scenario was used for all risk-based screening assessments to consider the most restrictive possible land use.

History
The contractor yard west of Building 20423 is in the northwest portion of Kirtland AFB near the intersection of 3rd Street and Hardin Blvd. The originally designated SWMU WP-339 contractor yard site is a 90-ft x 100-ft area west of Building 20423, which is now the northeast section of a larger contractor yard which is currently a 277-ft x 322-ft area. The yard area currently has a gravel and dirt surface with small concrete pads. During various investigation phases different portions of the site have been differentiated, using both the site names “WP-339, Contractor Yard West of Building 20423” and “WP-339S, Contractor Yard South”. Kirtland AFB and the NMED now consider the entire area as one site, designated as SWMU WP-339.

For approximately 25 years between 1970 and 1995, base contractors parked vehicles and stored equipment at SWMU WP-339 (USAF, 1981). During its use as a contractor yard, the 277-ft x 322-ft area was fenced into three sections, one of which was the 90-ft x 100-ft northeastern area which was originally designated SWMU WP-339. The interior fences at the site have been removed, and a cement block wall has been constructed around the 277-ft x 322-ft area with an entrance on the south side. The entire area is now considered SWMU WP-339. No permanent structures, garages, or maintenance bays are known to have existed at the site. There are no subsurface structures, wastelines, or pipelines. The only known operations at the site included vehicle and equipment storage and possibly light maintenance of vehicles. There have not been any facilities or buildings that could have housed industrial operations or processes. A temporary Quonset-type tent is erected in one portion of the site for covered storage of equipment. The walled yard is currently used by the Kirtland AFB Civil Engineer Division for vehicle and equipment storage.

Evaluation of Relevant Information
The SWMU WP-339 contractor yard was investigated during the Appendix III Non-Wasteline RFI (USAF, 1995). Sixty-two soil samples were collected from ten boreholes that were drilled to depths of 50 ft below ground surface. Each boring location typically had samples collected from roughly the 0-, 10-, 20-, 30-, 40-, and 50-ft bgs. Samples were analyzed for VOCs, SVOCs, TPH, metals, and mercury, as well as soil pH, and soil moisture. Samples were also screened using field instruments for detectable radiation and VOCs. The field-screening instruments did not detect radiation or VOCs above background levels. Laboratory analyses showed some low-level SVOCs and one sample with elevated arsenic: the surface soil value at WP-339 was reported as 88.2 milligrams per kilograms (mg/kg) arsenic. This value exceeds both the NMED-approved Kirtland AFB background value of 5.6 mg/kg for surface soils as well as the NMED SSLs of 3.9 mg/kg.
Six additional soil samples were collected during the Appendix III Phase 2 RFI (USAF, 1997) and analyzed for VOCs and SVOCs, to determine the lateral extent of limited SVOCs detected during the Appendix III Non-Wasteline RFI. Low levels of VOCs, and SVOCs were identified in the soil samples collected although detected concentrations of VOCs and SVOCs were below the applicable NMED residential SSLs.

Additional field investigation activities were performed by Kirtland AFB Environmental Restoration Program in response to a RSI received from the NMED on August 26, 2004. To further evaluate the single high arsenic detection found in the Appendix III Non-Wasteline RFI at WP-339, limited confirmatory sampling in that area was conducted in November 2004.

A borehole was advanced in the same location as the previously elevated detection and resampled. Three additional boreholes were drilled around the areas of high arsenic detection and sampled. One sample was collected from each borehole at a depth of 8 to 12 inches bgs. The results for these samples did not reconfirm the previously detected elevated arsenic concentration. Evaluation of these results, in conjunction with all other site sample results for arsenic, concluded that arsenic detections were within the range of naturally occurring arsenic values at Kirtland AFB. Furthermore, the results demonstrate that arsenic does not present an unacceptable risk at SWMU WP-339, and most likely arsenic is not a contaminant related to operations at the site. This information was presented in Kirtland AFB’s response to the NMED RSI USAF, 2005).

Other investigations at SWMU WP-339 site included soil gas surveys and the installation of a groundwater monitoring well. The soil gas survey results suggested that low levels of VOCs might be present in the subsurface soil vapor; however, subsequent soil sampling did not verify these results. Groundwater samples collected from the onsite monitoring well have not indicated the presence any compounds of concern in the regional aquifer. Full discussion of data collected from these investigations is presented in the 2003 RFI report (USAF, 2003). In the August 26, 2004 RSI, the NMED requested that all previous sample data from the site that was presented in the 2003 RFI report be re-evaluated using the most current 2004 NMED SSLs and risk evaluation process. On January 24, 2005, Kirtland AFB submitted the requested supplemental information confirming that site did not pose an unacceptable level of risk to human health or the environment and that site characterization activities adequately investigated the horizontal and vertical extent of any chemical release and addressed the presence of expected chemicals of potential concern.

Basis for Determination
In a letter dated August 26, 2005, the NMED determined that SWMU WP-339 appears to be suitable for NFA status (NMED, 2005). This NFA proposal is based upon NMED’s NFA Criterion 5: The SWMU has been characterized or remediated in accordance with current applicable State or Federal regulations, and the available data indicate that contaminants at SWMU WP-339 pose an acceptable level of risk under current and projected future land use.
References


