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**RON CURRY**  
SECRETARY

**DERRITH WATCHMAN-MOORE**  
DEPUTY SECRETARY

**STATEMENT OF BASIS**

**June 14, 2003**

**Notice of Intent to Approve a Permit Modification Granting No Further Action Status for  
Thirteen (13) Solid Waste Management Units  
United States Air Force/Kirtland Air Force Base, New Mexico  
EPA ID NO. NMD9570024423**

The New Mexico Environment Department (NMED) has made a determination to approve no-further-action (NFA) status for thirteen (13) solid waste management units (SWMUs) at Kirtland Air Force Base (Permittee). The 13 SWMUs are listed in the Hazardous and Solid Waste Amendments (HSWA) Corrective Action Module (Module IV) of the Permittee's Resource Conservation and Recovery Act (RCRA) Permit.

**A. FACILITY DESCRIPTION**

Kirtland Air Force Base (KAFB) is located in Bernalillo County, New Mexico south and adjacent to the City of Albuquerque. KAFB covers 52,223 acres on a high, arid mesa approximately 5 miles east of the Rio Grande. KAFB is bounded on the north and northwest by the City of Albuquerque, on the east by the Cibola National Forest, on the south by the Pueblo of Isleta, and on the west by land owned by the State of New Mexico and the Albuquerque International Sunport. KAFB was originally named Oxnard Field and began operation in 1928. The installation is home to the 377th Air Base Wing, KAFB's host organization. The mission of the wing is to provide world-class munitions maintenance, readiness and training, and base operating support to approximately 76 Federal government and 384 private sector tenants and associate units. As a result of the facility's operations and from approximately 1944 to the present, KAFB has generated, treated, stored, disposed of, and otherwise handled solid wastes, hazardous wastes, hazardous waste constituents, and radioactive wastes. KAFB continues this mission and is one of the nation's leading research, development, test, and evaluation facilities. In 1981 KAFB began the Installation Restoration Program (IRP) and completed a Phase I Records Search of potential contaminated sites. A Resource Conservation Recovery Act (RCRA) Part B operating permit was issued to KAFB on October 10, 1990.

**B. HISTORY OF INVESTIGATION**

In October 1990 the U.S. Environmental Protection Agency (EPA) issued a Hazardous and Solid Waste Amendment HSWA Module to the RCRA Hazardous Waste Facility permit that became effective on November 10, 1990. The original RCRA permit required investigation of 57 SWMUs.

Additional SWMUs have been added to the RCRA permit through subsequent permit modifications comprising a total of approximately 200 SWMUs requiring investigation under the RCRA corrective action process. On January 2, 1996, NMED received authorization for Corrective Action and is consequently the Administrative Authority (AA) for this action.

The Permittee has conducted RCRA corrective action investigations and cleanups at some of these sites. Before this request, no SWMU has been requested by the Permittee for NFA status. On April 3, 2003, NMED received a permit modification request from the Permittee to approve 13 SWMUs for NFA status in Module VIII of the Permit. NMED has reviewed the request and has determined that these SWMUs are appropriate for NFA.

### **C. INVESTIGATION RESULTS**

At this time, NMED has identified all 13 of these sites as appropriate for NFA based on the five NFA criteria described in Section E. During investigation, it was determined that three of these sites never released any hazardous wastes or constituents to the environment. Ten of the thirteen sites were remediated in accordance with state and/or federal regulations. The 13 SWMUs proposed for NFA are categorized based on these criteria. Descriptions of each of the SWMUs proposed for NFA approval are included in Section I. A detailed description can be found in the KAFB's RCRA Facility Investigation (RFI) Work Plans and RFI Reports as referenced in the permit modification request. References are included in respective subsections that describe each of the 13 SWMUs.

### **D. ADMINISTRATIVE RECORD**

The administrative record for this proposed action consists of the Permit Modification Request, the Fact Sheet, the Statement of Basis, the Public Notice, the draft Permit that consists of the Proposed Revised Tables A and B, and the referenced supporting documentation. The administrative record may be reviewed at the following locations during the public comment period:

NMED – Hazardous Waste Bureau	Albuquerque Technical Vocation Institute
2905 Rodeo Park Drive East, Building. 1	Montoya Campus Library reference desk
Santa Fe, New Mexico 87505-6303	4700 Morris, NE
(505) 428-2500	Albuquerque, New Mexico 87111
Monday - Friday from 8:00 a.m. to 5:00 p.m.	(505) 224-3285
	Monday – Friday from 7:30 a.m. to 5:00 p.m.

A copy of the Fact Sheet, the Statement of Basis, the Public Notice, the draft Permit that consist of the Proposed Tables A and B, are also available on the NMED website at [www.nmenv.state.nm.us/HWB/kafbperm.html](http://www.nmenv.state.nm.us/HWB/kafbperm.html) under No Further Action. To obtain a copy of the

Administrative Record or a portion thereof, in addition to further information please contact Mr. Richard Kilbury at (505) 846-0053, or at the address given below. NMED will provide members of the public with up to 80 pages of the Administrative Record free of charge. Thereafter, NMED will charge a copy fee of \$0.25 per page.

#### **E. NO FURTHER ACTION DETERMINATION**

NMED's determination that NFA is appropriate at these SWMUs is based on sampling and analytical data, field surveys, historical records, aerial photographs, and employee interviews. The determination is based on one of the following five NFA criteria:

1. The site does not exist; is a duplicate of another site; cannot be located; or is located within another site and, has been or will be, investigated as part of that site.
2. The site was never used for the management (that is, generation, treatment, storage or disposal) of RCRA solid or hazardous wastes and/or constituents.
3. The SWMU is not known or suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment. The term "release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment.
4. The SWMU is regulated under another state and/or federal authority. If the SWMU is known or suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment, it has been or will be investigated and/or remediated in accordance with the applicable state and/or federal regulation.
5. The SWMU was characterized or remediated in accordance with applicable state and/or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

#### **F. PUBLIC PARTICIPATION**

Public notification is required by the New Mexico Hazardous Waste Management Regulations, 20.4.1.901 NMAC. Upon submittal of a request for permit modification, a facility is required to publish a notice in a local newspaper, and send notices to all persons on the facility mailing list maintained by NMED. The facility's notice announced a 60-day comment period for the request for permit modification that began March 31, 2003 and ended May 29, 2003. Comments made during the public comment period are addressed to NMED for consideration during the review process. NMED will respond to comments received during the 60-day comment period. Upon review of the request for a permit modification by NMED, a list of SWMUs that are deemed

appropriate for NFA will be published in a local newspaper and public notices will be sent to all persons on the facility mailing list. As part of this process, the public may make comments to and/or request additional information from NMED during a 45-day public comment period that will be held from **June 14, 2003** through **July 29, 2003**.

A request for the permit modification was submitted to NMED on April 3, 2003. The Permittee was required by regulations to hold a public meeting during the sixty-day comment period. The Permittee held a public meeting on April 17, 2003, from 7:30 p.m. to 8:30 p.m. at the Radisson Hotel and Conference Center (I-40 and Carlisle, NE), Albuquerque, New Mexico. Sixty people attended the meeting, including representatives from KAFB and NMED.

NMED issued a public notice on **June 14, 2003**, to announce the beginning of a 45-day comment period that will end at 5:00 p.m. on **July 29, 2003**. Any person who wishes to comment on this action or request a public hearing should submit written or electronic mail (e-mail) comment(s) with the commenter's name and address to the respective address below. Only comments and/or requests received on or before **5:00 p.m. July 29, 2003** will be considered.

John E. Kieling, Program Manager  
Hazardous Waste Bureau - New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6303  
Ref: Kirtland Air Force Base– No Further Action  
e-mail: hazardous\_waste\_comment@nmenv.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 Permit Modification; and (4) a statement of the issues which the commenter proposes to raise for consideration at the hearing. The NMED will provide a thirty (30) day notice of a public hearing, if scheduled.

## **G. FINAL DECISION**

The NMED must ensure that the approved draft Permit is consistent with the New Mexico Hazardous Waste Management Regulations. All written comments submitted on the draft Permit will become part of the administrative record, will be considered in formulating a final decision, and may cause the draft Permit to be modified. NMED will respond in writing to all significant public comment. The response will specify which provisions, if any, of the draft Permit have been changed in the final Permit decision, and the reasons for the change. This response will

also be posted on the NMED website in addition to notifying all persons providing written comments.

After consideration of all written public comments received, NMED will issue, or modify and issue the Permit. If NMED modifies and issues the Permit, the Permittee shall be provided by mail a copy of the modified Permit and a detailed written statement of reasons for the modifications. The NMED Secretary will make the final Permit decision publicly available and shall notify the Permittee by certified mail. The Secretary's decision shall constitute a final agency decision and may be appealed as provided by the Hazardous Waste Act. All persons on the mailing list, or that provided written comments, or who requested notification in writing, will be notified of the final decision by mail.

The final decision will become effective thirty days after service of the decision, unless a later date is specified or review is requested under the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC, Section 901.E., *Hearings*.

#### **H. CONTACT PERSON FOR ADDITIONAL INFORMATION**

Richard Kilbury  
Hazardous Waste Bureau  
New Mexico Environment Department  
377 SPTG/CEVR  
2050 Wyoming Blvd., NE, Suite 124  
Kirtland AFB, NM 87117-5270  
(505) 846-0053

## **I. DESCRIPTION OF SWMUs PROPOSED FOR NO FURTHER ACTION**

*NFA Criterion 3. The SWMU is not known or suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment. The term "release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment.*

### **1. SWMU 6-10, Abandoned Landfill (LF-09)**

#### **Location and Current Land Use**

The SWMU 6-10 abandoned landfill covers approximately 65 acres and is located in the west-central region of Kirtland AFB and is bounded to the south by the weapons storage haul road, to the north by the Tijeras Arroyo, and to the east and west by barbed wire ranch fencing. The site is relatively flat and drains northward to the Tijeras Arroyo. Hubble Springs and Sandia Faults are located to the east. No evidence of dumping is present at the site. Review of documents and interviews conducted during investigations did not indicate that dumping or landfilling occurred at the site.

#### **Projected Future Land Use**

The projected future land use for the SWMU 6-10 area is industrial; however, a residential scenario was used for risk-based screening assessments.

#### **History**

According to base personnel, the area of the abandoned landfill was used primarily as a practice competition bombing target range during World War II. Range activities ceased in 1945. The site was used to hold contests among bombing crews from each graduating class. No live bombs, spotting charges, or fuses were used. The competition was viewed from the bleachers erected on the north side of the arroyo. No other records are available indicating land use after 1945.

#### **Evaluation of Relevant Information**

Data were collected previously between 1991-1993 at the Abandoned Landfill under a Stage 2A RFI (USGS, 1993). During the Stage 2A RFI, a geophysical survey was conducted and no conductive materials were identified.

Phase 2 RFI activities at the abandoned landfill included a geophysical survey, drilling of two auger soil borings, soil sampling for chemical and geotechnical analysis, and a topographic survey of the site (USAF, 1997). Two weak anomalies from the geophysical survey were used

to place two soil boring locations. No volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), or explosives were detected in the six samples analyzed. Nitrates and metals were detected at concentrations well below their respective NMED screening levels.

No VOCS, pesticides, herbicides, or metals have been detected in adjacent Landfill 2 monitoring wells at concentrations above applicable New Mexico Solid Waste Management Regulations (NMSWMR) health-based groundwater standards during the Long-Term Monitoring (LTM) Program at Kirtland AFB.

### **Basis for Determination**

In a letter dated December 28, 2001, the NMED's Hazardous Waste Bureau determined that SWMU 6-10 is appropriate for NFA based upon NMED's NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from SWMU 6-10.

### **References**

Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.

USAF, 2001. *IRP Responses to NMED RSI Phase 2 RCRA Facility Investigation Report*. February.

USAF, 2000. *RSI Phase 2 RCRA Facility Investigation Report*. July.

USAF, 1997. *Phase 2 RCRA Facility Investigation Report. Foster Wheeler*. August.

USAF, 1993. *Appendix III, Stage 2B RCRA Facility Investigation Report*.

USGS 1993. *Appendix II, Stage 2A RCRA Facility Investigation Report*. U.S. Geological Survey.

## **2. SWMU 8-58, Battery Storage Area, Bldg 57007 (ST-321)**

### **Location and Current Land Use**

SWMU 8-58 is located in the gravel/dirt parking area on the east side of Building 57007, the New Mexico Engineering Research Institute's Vehicle Maintenance facility in the southern portion of Kirtland AFB. The nearest production well to the site is KAFB-10, 4 miles northwest; it is controlled and operated by the U.S. Department of Energy (DOE) and Sandia National Laboratories (SNL). Building 57007 is currently abandoned and the land use is industrial.

## **Projected Future Land Use**

The projected future land use for the SWMU 8-58 area is industrial; however, all screening assessments were performed using a residential scenario.

## **History**

SWMU 8-58 was used for used battery storage for the New Mexico Engineering Research Institute Vehicle Maintenance activities. According to a VSI (Kearney/Centaur, 1988), this unit consisted of two side-by-side pallets, stacked with lead-acid vehicle batteries. The pallets were placed on a gravel/dirt parking area on the east side of Building 57007 and were stacked two-high. The batteries were disposed of via the Defense Reutilization and Marketing Office (DRMO). Twenty-five batteries containing an estimated 10 gallons of sulfuric acid were noted as well as several cracked batteries. Following a site reconnaissance in September 1993, it was determined that used batteries are no longer stored in this manner (USAF, 1995). Used batteries are presently stored in a locked battery room, 8 ft by 5 ft, added to the northwest end of Building 57007.

## **Evaluation of Relevant Information**

SWMU 8-58 was investigated as part of the Appendix III Non-Wasteline Sites RFI (USAF, 1995). The objective of this investigation was to determine the presence or absence of contaminants in the soil at this site. Nine boreholes were drilled and sampled with a Geoprobe at SWMU 8-58. Boreholes ST-321C-03 through ST-321C-09 were located along the east side of Building 57007, in the former battery storage area. ST-321C-02 was drilled and sampled on the west side of Building 57007 in an attempt to determine if that area also had been used as a battery storage area. Three soil samples were collected per borehole: one at the surface and the other two at depths of 2 ft and 5 ft bgs. To obtain site-specific background concentration data, the background sampling borehole, ST-321C-01, was drilled northwest of the site, away from any known or suspected waste areas. The background soil sample was collected at a depth of 5 ft bgs.

Twenty-five soil samples and four replicates were analyzed for SVOCs, lead, and mercury (the expected contaminants associated with the site), and soil moisture. Three samples were analyzed for metals to determine if any other metal contamination was present and Toxicity Characteristic Leaching Procedure (TCLP) lead to determine the potential leachate concentration of any lead contamination. The background sample was analyzed for SVOCs, metals, TCLP lead, and soil moisture. The brass tubes in each 2-ft sample interval were field-screened for possible contamination using gamma and beta-gamma meters and a PID and/or a FID. All field-screening instrument readings remained at background levels throughout drilling and sampling activities at SWMU 8-58.

As discussed in the Appendix III Non-Wasteline Sites RFI report (USAF, 1995), the data did not indicate that there is a risk posed to the environment by SWMU 8-58. All of the concentrations of compounds that would have been expected from storage of cracked batteries, such as SVOCs and lead and mercury, were detected in concentrations much less than the applicable residential NMED soil screening levels. All of the detected concentrations of metals were less than the NMED residential soil screening levels, except for one detection of arsenic that is not a contaminant of concern at the site and is known to have naturally occurring elevated levels in the soils of the Albuquerque Basin.

### **Basis for Determination**

SWMU 8-58 was investigated during the Appendix III Non-Wasteline Sites RFI. The investigation determined that there has been no release of contaminants from this SWMU. In a letter dated July 8, 2001, NMED's Hazardous Waste Bureau found that SWMU 8-58 is appropriate for NFA based upon NMED's NFA Criterion 3: No release to the environment has occurred or is likely to occur in the future from SWMU 8-58.

### **References**

Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.

USAF, 2000. *No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. April 25.

USAF, 1995. *RCRA Facility Investigation Report, Appendix III Non-Wasteline Sites*. October.

### **3. SWMU 10-3, Used Oil UST, Building 20205 (ST-249)**

#### **Location and Current Land Use**

Used oil UST ST-249, also listed as ST-200 in the Kirtland AFB RCRA Permit B, Appendix III Stage 2C sites (USAF, 1995d), was utilized for used engine oil storage. It was located underneath an asphalt parking lot on the east side of Building 20205, the Army Air Force Exchange Service (AAFES) Service Station at the intersection of Second Avenue and F Street. The 500-gallon UST was filled and emptied through a standpipe covered by a 1-ft-diameter manhole. It also received inflow from a drain inside the station service bays. The steel tank had a 1,000-gallon capacity. The base was measured at 6 ft bgs. The tank was used by station personnel and also served as an unsupervised used oil collection point for Kirtland AFB personnel.

During the Appendix II Stage 2B sampling activities, personnel were observed arriving with various oil-filled containers and discharged the contents down the standpipe into the UST. A sign posted on the building wall next to the tank area stated that only motor oil was acceptable for disposal into the tank. Station personnel periodically measured the tank level and contacted a subcontractor to pump out the used oil when the tank was full. In 1991, the tank passed a leak test capable of detecting leaks as low as 0.05 gallons per hour with a 97 percent detection probability (USGS, 1993). ST-249 was removed in October 1994 under the Kirtland AFB UST program. The gas station has been demolished as well. The area is in an active portion of Kirtland AFB and the current land use is industrial.

### **Projected Future Land Use**

The projected future land use for the SWMU 10-3 area is industrial; however, all human health risk screenings for the site have been performed using a residential scenario.

### **History**

It is unknown how long this UST was in service prior to its removal in 1994.

### **Evaluation of Relevant Information**

In 1991 and 1992, a Kirtland AFB environmental contractor sampled residual materials present in UST ST-249. TPH was reported at 422,000 mg/kg and 33,000 mg/kg in the 1991 and 1992 samples, respectively. TOX were reported at 488 mg/kg and 904 mg/kg in the 1991 and 1992 samples, respectively. TCLP chromium, selenium, and lead were detected at 6.3 milligrams per liter (mg/L), 1.3 mg/L, and 29.4 mg/L, respectively. In October of 1994, UST ST-249 was removed.

During the 1994 Appendix II Stage 2B RFI, 15 soil samples were collected and analyzed for VOCs, SVOCs, TPH, metals, and mercury. The VOCs acetone, carbon disulfide, methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), methylene chloride, and tetrachloroethene were detected in one or more of the soil samples. All of the concentrations detected were orders of magnitude less than the NMED residential soil screening levels and several were detected in quality control samples and are believed to be the result of laboratory contamination. The highest concentration of TPH detected was 3.4 mg/kg. Remaining analytes did not exceed their respective NMED screening levels.

### **Basis for Determination**

SWMU 10-3 has been investigated several times and each of the investigations determined that there has been no release of contaminants from this SWMU. Likewise, the site was investigated

and closed under another authority, NMED's UST Bureau. A closure letter is available. In a letter dated July 8, 2001, the NMED's Hazardous Waste Bureau found that SWMU 10-3 is appropriate for NFA 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

- Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.
- USAF, 2003. *Interim Remedial Action Draft Report for Corrective Action Units 10-3, Building 20205, Waste Oil Storage Tank (ST-249); 6-16, Fire Training Area (FT-13); and ST-64, U.S. Army Corps of Engineers Vehicle Maintenance Yard*. January.
- USAF, 2001a. *RSI to No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. May 7.
- USAF, 2001b. *Replacement Pages for No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. June 15.
- USAF, 2001c. *Letter from William P. Moats, re: Replacement Pages—Revised June 15, 2001: IRP NFA Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. July 8.
- USAF, 2001d. *Interim Remedial Action Work Plan for Corrective Action Units 10-3, Building 20205, Waste Oil Storage Tank (ST-249); 6-16, Fire Training Area (FT-13); and ST-64, U.S. Army Corps of Engineers Vehicle Maintenance Yard*. November.
- USAF, 2000. *Installation Restoration Program No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. April 25.
- USAF, 1995a. *RCRA Facility Investigation Report, Appendix II Phase 2B RFI Report, Kirtland AFB, Albuquerque, New Mexico*.
- USAF, 1995b. *On-Site Investigation for UST Site 117, Forty-five Day Report, AAFES East Service Station*. March 24.
- USAF, 1995c. *Letter from John Cochran, re: No Further Action at UST 117, AAFES East Service Station (Waste Oil Release Only), Kirtland AFB NM*. March 27.
- USAF, 1995d. *RCRA Facility Investigation Report, Appendix III Non-Wasteline Sites*. October.
- USAF, 1994. *Appendix II, Stage 2B RCRA Facility Investigation Report*.
- USAF, 1993. *Work Plan Stage 2B, U.S. Geological Survey*. January.

USGS 1993. *Appendix II, Stage 2A RCRA Facility Investigation Report*. U.S. Geological Survey.

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

#### **4. SWMU 6-7, Landfill A (LF-18)**

##### **Location and Current Land Use**

SWMU 6-7 consists of a gravel-covered soil area 30 ft x 45 ft on the north side of Building 20681. The site is in a fenced area in the urban/industrial zone south of M Street and east of Wyoming Boulevard. It is surrounded by buildings and asphalt pavement. The closest production wells to this site are Eubank-1, 4,500 ft northeast; Sandia-6, 2,200 ft southeast; and KAFB-1, 3,300 ft northwest. The northern disposal area lies just north of the Federal Aviation Administration facility, north of South Gate Road, and near a runway extension for the Albuquerque Sunport constructed in 1999. The southern disposal area is located along the top of a small ridge approximately 125 ft east of the Kirtland AFB south gate on Ira Sprecher Drive. The dimensions of the disposal sites are indistinct, but the surface debris occurred over an area approximately 300 by 900 ft. Debris was scattered to the east along the ridge top as well as south outside the Kirtland AFB boundary on City of Albuquerque property. In addition, five large pieces of broken concrete footings were located on the ridge top just across the base boundary fence to the south.

##### **Projected Future Land Use**

The projected future land use for the SWMU 6-7 area is industrial; however, a residential scenario was used for risk-based screening assessments.

##### **History**

SWMU 6-7 was used between 1941 and 1946 for the surface disposal of burned nonmedical waste, residential waste, and mess hall refuse. Visible waste at the site consisted of rusted metal scraps, broken glassware and dishware, and small piles of ash, all exposed locally beneath windblown sand and desert plants, such as bunch grass, sage, and cactus. In addition, five large pieces of broken concrete footings were located on the ridge top just across the base boundary fence to the south.

According to the Phase I Records Search (U.S. Air Force [USAF], 1981), waste material consisting of used paint thinners and paint-booth wastewater was generated in Building 20681.

An estimated 10 gallons per month of thinners were discharged onto the gravel-surface bed. Large objects also were reportedly spray-painted on the gravel area. The discharging of small quantities of paint thinners to the gravel area appears to have been a long-standing practice. There were no release controls at the unit prior to 1991. During the RCRA Facility Assessment (RFA) Visual Site Inspection (VSI), paint stains were observed on the gravel bed (Kearney/Centaur, 1988). Prior to 1986, approximately 50 gallons per month of paint-booth wastewater were discharged to the sanitary sewer via the floor drain and a sink in the paint booth. The paint shop is currently active; however, the gravel bed is no longer used as a painting area or for the disposal of paint and thinner. Painting is now accomplished in a dry, double air-filtered booth instead of a water booth. In 1986, the new painting method was initiated and the paint shop floor drain was capped.

### **Evaluation of Relevant Information**

In response to a 1990 NMED Notice of Violation related to surface refuse that had been observed during an inspection, SWMU 6-7 was investigated during the Stage 2A, Volume 1 RCRA Facility Investigation (RFI). No evidence of site contamination from the dumping was found (USGS, 1993). To delineate the extent of debris, the landfill was investigated again in 1996 during a Phase 2 RFI (USAF, 1997). The Phase 2 investigation included a magnetic and electromagnetic induction geophysical survey over the southern disposal area. Based upon the geophysical anomalies, 500 ft of trenching was excavated in the southern disposal area and immediately north of South Gate Road. The trenching excavated charred metal food cans, broken plates, cups, silverware, glass soda bottles, and medicine bottles. No chemical containers were identified.

All of the detected concentrations of metals were less than the NMED residential soil screening levels other than arsenic, which is not a contaminant of concern at the site and is known to have naturally-occurring elevated levels in the soils of the Albuquerque Basin..

A Corrective Measures Implementation was conducted in June of 2000. A total of 3,324 cubic yards of soil and debris was removed. After the excavation, soil samples were collected to verify that no regulated metals were present above screening levels in soil beneath the debris layer. Three samples were collected from the southern disposal area and one sample was collected from the northern disposal area. With the exception of one sample (3.9 milligrams per kilograms [mg/kg]) of arsenic, all compounds were below their respective NMED screening levels. Arsenic is a naturally occurring metal at Kirtland AFB, with NMED-approved background values of 4.4 mg/kg to 5.6 mg/kg for soils in this area of the base.

The total disturbed area requiring reseeding was 7 acres (3 acres at the northern disposal area and 4 acres on the southern disposal area). The disturbed areas, including haul roads, were ripped, mulched, and reseeded.

## **Basis for Determination**

In a letter dated December 28, 2001, the NMED's Hazardous Waste Bureau found that SWMU 6-7 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU 6-7 has been characterized and remediated in accordance with 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**

- EPA, 1990. Kirtland Air Force Base Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit (9570024423). Issued to Kirtland AFB on October 10.
- Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.
- NMED, 1998. *HSWA/CA-Related Permit Modifications, No Further Action Proposal*. Section II.B.4.a(4)(a), pp.1. March 3.
- USAF, 2001a. *IRP Responses to NMED RSI for Appendix 1, Phase 2 RCRA Facility Investigation Report*. February.
- USAF, 2001b. *Non-RCRA Corrective Measures Implementation Report For CAU 6-7, Landfill A (LF-18), and CAU 6-15, Unnamed Dump (LF-45)*. March.
- USAF, 2000a. *Corrective Measures Implementation Work Plan for SWMU 6-7, Landfill A (LF-18), and SWMU 6-15, Unnamed Dump (LF-45)*. June.
- USAF, 2000b. *Responses to NMED Request for Supplemental Information Phase 2, RCRA Facility Investigation Report, SWMUs 6-7 and 6-1*. December.
- USAF, 1997. *Phase 2 RCRA Facility Investigation Report*. Foster Wheeler. August.
- USAF, 1981. *Phase I, Records Search, Hazardous Materials Disposal Sites*. November.
- USGS 1993. *Appendix II, Stage 2A RCRA Facility Investigation Report*. U.S. Geological Survey.

## **5. SWMU 6-15, Unnamed Dump (LF-45)**

### **Location and Current Land Use**

SWMU 6-15, in the northwestern portion of Kirtland AFB, lies just north of the railroad spur and along a flat ridge approximately 0.25 mile northeast of the Engine Test Cell and 0.25 mile south of the 600 Area. SWMU 6-15 consisted of a large, roughly square excavation approximately 85 ft by 100 ft that varies between 12 and 18 ft deep. The east and north sides sloped gradually to the floor of the excavation, but the steep walls of the south and west sides were held in place by interlocking steel sheet piling. The east slope was covered with sheet piling, and additional piling had been pushed over the edge of the arroyo west of the site. An access road to the floor of the excavation entered from the northwest corner. Two steel I-beams were on the ground surface north of the excavation, and two I-beam footings were near the west center of the excavation floor. Instrumentation cables were evident north of the excavation.

### **Projected Future Land Use**

The projected future land use for the SWMU 6-15 area is industrial; however, a residential scenario was used for risk-based screening assessments.

### **History**

SWMU 6-15 had reportedly been used as an explosives test area between 1951 and 1955 (USAF, 1997). Current site features, however, are not visible on aerial photographs from that timeframe. In an aerial photo dated April 15, 1965, the explosives test site appears to be under construction.

SWMU 6-15 was identified as a dump site because of previous reports that discuss the existence of metal debris. During a Phase II, Stage 2A, remedial investigation for residual contamination from explosives testing, the metal debris was identified as retaining wall paneling integral to the test site; no evidence of dumping was found (USGS, 1993).

### **Evaluation of Relevant Information**

Between 1991 and 1993, a Stage 2A RFI was conducted at SWMU 6-15 to determine whether soil at or near the land surface contained any contaminants resulting from explosives used at the site. To assess the condition of the near-surface soil, soil samples were collected from a depth of 3 ft belowground surface (bgs) from each of 14 hand-augered borings and were analyzed for explosives, metals, VOCs, and SVOCs. No metals were detected at concentrations exceeding the residential soil screening levels. The organic constituents acetone, methylene chloride, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone were detected in five of the soil samples. Acetone and methylene chloride concentrations were below the residential soil screening levels for these constituents; there are no established risk-based screening levels for 2-butanone, 2-hexanone, and 4-methyl-2-pentanone. All detected organic constituents also were found in trip blanks and laboratory blanks, which indicates laboratory contamination (USGS, 1993).

Phase 2 RFI activities were performed at SWMU 6-15 during 1996 to determine the vertical extent of soil contamination, if any was present, and to determine whether waste disposal activities had occurred at the site. These activities included a geophysical survey, drilling of one direct-push technology borehole, and soil sampling for chemical analysis.

To assess potential subsurface contamination, one boring was located in the center of the explosives test pit floor during September 1996. The boring was advanced to a depth of 25 ft bgs, and five soil samples from depths of 3, 8, 13, 18, and 23 ft were analyzed for target analyte list (TAL) metals and explosives. The compound 2,4-dinitrotoluene, at a concentration of 460 micrograms per kilograms ( $\mu\text{g}/\text{kg}$ ), was the only explosive constituent detected among the soil samples; it occurred at a depth of 3 ft and at a concentration of less than the soil screening level of 1,200  $\mu\text{g}/\text{kg}$ . Several metals were detected in some or all of the soil samples that were analyzed. None of the detections exceeded residential soil screening levels for these metals.

During the Corrective Measures Implementation in 2000, I-beams and sheet piling scrap metal were removed from the site and transported to a recycling yard. Following the removal of all scrap metal, the explosives test pit was backfilled. Adjacent soil originally from the pit was used for backfill material; thus, no imported soil was required.

Five confirmation soil samples were collected from surface soil (the 0- to 6-inch depth interval) of the floor of the explosives test pit. The samples were analyzed for high explosives (HE) using EPA Method 8330 and for TAL metals using EPA Method 6010. No HE were detected above practical quantitation limits (PQLs), and no metal concentrations exceeded NMED screening levels.

The site was contoured using a motor grader to establish drainage and to match the existing topography and then reseeded. The total disturbed area at SWMU 6-15, which included the haul road leading from South Gate Road to the site, was 4.5 acres.

### **Basis for Determination**

In a letter dated December 28, 2001, the NMED's Hazardous Waste Bureau determined that SWMU 6-15 is appropriate for a NFA based upon NMED's NFA Criterion 5: SWMU 6-15 has been characterized and remediated in accordance with 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**

Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base.*  
Kearney/Centaur Report.

USAF, 2001a. *IRP Responses to NMED RSI Phase 2 RCRA Facility Investigation Report*. February.

USAF, 2001b. *Non-RCRA Corrective Measures Implementation Report For CAU 6-7, Landfill A (LF-18), and CAU 6-15, Unnamed Dump (LF-45)*. March.

USAF, 2000a. *Corrective Measures Implementation Work Plan for SWMU 6-7, Landfill A (LF-18), and SWMU 6-15, Unnamed Dump (LF-45)*. June.

USAF, 2000b. *Responses to NMED Request for Supplemental Information Phase 2, RCRA Facility Investigation Report, SWMUs 6-7 and 6-15*. December.

USAF, 1997. *Phase 2 RCRA Facility Investigation Report. Foster Wheeler*. August.

USAF, 1981. *Phase I, Records Search, Hazardous Materials Disposal Sites*. November.

USGS, 1993. *Appendix II, Stage 2A RCRA Facility Investigation Report*. U.S. Geological Survey.

## **6. SWMU 6-16, Fire Training Area (FT-13)**

### **Location and Current Land Use**

The Fire Training Area (FTA) is located in the northwest corner of Kirtland AFB, approximately 600 ft southwest of the old Federal Aviation Administration (FAA) Tower. It is bounded by access roads to the west, northwest, and north. The 14.4-acre site consists of the former FTA (two unlined pits), the deactivated FTA (FT-52, Jet Burn Area, a 200-ft-diameter graded area surrounding an 80-ft-diameter concrete pad with an airplane mockup in the center), and the storm drains and piping. An 18-inch-high earthen berm surrounds the concrete pad. A fuel storage tank located southeast of the graded area fed a sprinkler system on the pad during training exercises. This site was used to train firefighters how to fight jet fuel fires.

### **Projected Future Land Use**

The projected future land use for the SWMU 6-16 area is industrial; however, a residential scenario was used for risk-based screening assessments.

### **History**

Prior to 1976, fire training activities were held twice per week in two unlined fire pits located about 110 ft east of the graded area. The pits were soaked with water, and then filled with

approximately 200 to 300 gallons of contaminated fuel, waste oil, or solvents. The fuel was ignited and then extinguished with aqueous film-forming foam (AFFF). The remaining liquids were allowed to evaporate and infiltrate (USGS, 1993). These unlined pits were apparently also used between 1960 and 1976 for monthly disposal of one to two 55-gallon drums of waste solvents and oils from the base shops. At some point following the construction of the concrete pad in 1976, these unlined pits were filled with soil and graded flat.

At the deactivated FTA, quarterly activities were restricted to burning uncontaminated JP-4 jet fuel. Typically the jet fuel was applied to the mockup airplane and then ignited. AFFF was used to extinguish the fires. After an exercise, residual liquids were allowed to evaporate (USAF, 1993).

### **Evaluation of Relevant Information**

Data were previously collected at the FTA under the Phase II, Stage 1 RFI (1983-1985), the Stage 2, Volume 1 RFI (USAF, 1993), the Phase II, Stage 2A RFI (USGS 1993), the LTM Program (USAF 2003b), and the Phase 2 RFI (USAF, 1997). Forty-five soil borings and one monitoring well were completed during these investigations, as were a soil gas survey and soil and groundwater sampling and analyses.

During the Phase II, Stage 1 RFI, soil samples were analyzed for oil and grease and total halogenated organics (TOX), which included total organic chloride, total organic iodide, and total organic bromide. Detected compounds included organic chloride in all boreholes (except FTA-9), organic iodide in five boreholes and oil and grease in 12 of 30 samples. Organic chloride was detected in the background borehole. There are no applicable screening levels for TOX.

Soil gas surveys were conducted across the majority of the site for the purpose of targeting boring locations. Twenty-two soil gas samples were collected during the Stage 2 RFI, and jet fuel was detected on and adjacent to the concrete fire training pad. Soil samples were analyzed for TPH, VOCs, SVOCs, metals, mercury, chromium, and nitrogen. All detections are below respective current NMED soil screening levels.

During the Stage 2A, Volume 1 RFI Technical Report (conducted from 1991 to 1993) RFI soil samples from 16 boreholes throughout the site were analyzed for VOCs, SVOCs, and metals. All compound detections were below respective current NMED soil screening levels.

In 1994, results from a bioventing study pilot test indicated that the level of organic compounds in soil was reduced; however, further vertical delineation was needed. Eighty to ninety milligrams of fuel per kilogram of soil were biodegraded in the upper soils.

During the 1995 RFI Appendix III Non-Wastelines investigation, the jet engine burn area (FT-52) was investigated. VOCs, SVOCs, and metals were all below NMED soil screening levels, except arsenic, which was below Kirtland AFB background concentrations.

Groundwater from well KAFB-0417 has been sampled as part of the LTM Program, and all detections were below NMSWMR standards in December 1996.

The 1997 Phase 2 RFI at FTA was conducted to address the bioventing study results and define the vertical extent of contamination. Soil samples were collected from 17 boreholes during the Phase 2 RFI, and analyzed for VOCs, SVOCs, and metals. All sample concentrations were below their respective current NMED soil screening levels.

### **Basis for Determination**

In a letter dated January 2, 2002, the NMED's Hazardous Waste Bureau found that SWMU 6-16 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU 6-16 has been characterized and remediated in accordance with 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**

- Kearney/Centaur 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.
- SAIC 1984. *Phase II Field Investigation*. SAIC. For Brooks Air Force Base, San Antonio, Texas.
- USAF, 2003a. *Interim Remedial Action Draft Report for Corrective Action Units 10-3, Building 20205, Waste Oil Storage Tank (ST-249); 6-16, Fire Training Area (FT-13); and ST-64, U.S. Army Corps of Engineers Vehicle Maintenance Yard*. January.
- USAF, 2003b. *Long-Term Groundwater Monitoring Summary and Baseline Determination, 1996-2003*.
- USAF, 2001. *Interim Remedial Action Work Plan for Corrective Action Units 10-3, Building 20205, Waste Oil Storage Tank (ST-249); 6-16, Fire Training Area (FT-13); and ST-64, U.S. Army Corps of Engineers Vehicle Maintenance Yard*. November.
- USAF, 2000. *RSI Phase 2 RCRA Facility Investigation*. July.
- USAF, 1997. *Phase 2 RCRA Facility Investigation Report, Foster Wheeler*. August.

USAF, 1995. *RCRA Facility Investigation Report, Appendix III Non-Wasteline Sites*. October.

USAF, 1993. *RCRA Facility Investigation, Stage 2, Volume 1 Technical Report*. December.

USAF, 1981. *Phase I, Records Search, Hazardous Materials Disposal Sites*. November.

USGS 1993. *Appendix II, Stage 2A RCRA Facility Investigation Report*. U.S. Geological Survey.

## **7. SWMU 8-53, Paint Shop Floor Drain Bldg 20681 (ST-335)**

### **Location and Current Land Use**

SWMU 8-53 consists of a gravel-covered soil area 30 ft by 45 ft on the north side of Building 20681. The site is in a fenced area in the urban/industrial zone south of M Street and east of Wyoming Boulevard. It is surrounded by buildings and asphalt pavement. The closest production wells to this site are Eubank-1, 4,500 ft northeast; Sandia-6, 2,200 ft southeast; and KAFB-1, 3,300 ft northwest.

### **Projected Future Land Use**

The projected future land use for the SWMU 8-53 area is industrial; however, a residential scenario was used for risk-based screening assessments.

### **History**

According to the Phase I Records Search (USAF, 1981), waste material consisting of used paint thinners and paint-booth wastewater was generated in Building 20681. An estimated 10 gallons per month of thinners were discharged onto the gravel-surface bed. Large objects also were reportedly spray-painted on the gravel area. The discharging of small quantities of paint thinners to the gravel area appears to have been a long-standing practice. There were no release controls at the unit prior to 1991. During the RCRA Facility Assessment (RFA) Visual Site Inspection (VSI), paint stains were observed on the gravel bed (Kearney/Centaur, 1988). Prior to 1986, approximately 50 gallons per month of paint-booth wastewater were discharged to the sanitary sewer via the floor drain and a sink in the paint booth. The paint shop is currently active; however, the gravel bed is no longer used as a painting area or for the disposal of paint and thinner. Painting is now accomplished in a dry, double air-filtered booth instead of a water booth. In 1986, the new painting method was initiated and the paint shop floor drain was capped.

### **Evaluation of Relevant Information**

SWMU 8-53 was investigated as part of the Appendix III Non-Wasteline Sites RFI. The objective of the non-wasteline sites investigation at SWMU 8-53 was to determine the presence or absence of contaminants in soil adjacent to the SWMU. On June 13-15, 1994, soil samples were collected from five boreholes with a Geoprobe. Four boreholes, ST-335C-02 to ST-335C-05, were drilled 26 ft bgs in the gravel bed north of Building 20681. Five soil samples were submitted for analysis from each borehole: one from the surface, and from depths of 5, 10, 15, and 25 ft bgs. To determine site-specific background concentrations, ST-335C-01 was drilled in an area away from any known or suspected contamination. Two soil samples were collected from ST-335C-01 at depths of 5 and 24 ft bgs.

A total of 22 soil samples and one replicate were submitted for analysis from SWMU 8-53 and analyzed for VOCs, SVOCs, TPH, metals, and soil moisture. The brass tubes in each 2-ft sample interval were field-screened for possible contamination using gamma and beta-gamma meters and a photoionization detector (PID) and/or a flame ionization detector (FID). No readings above background were measured with these instruments.

As discussed in the Appendix III Non-Wasteline Sites RFI report, the data did not indicate that there is a risk posed to the environment by SWMU 8-53. All of the concentrations of compounds that would have been expected from the disposal of paint thinners, such as VOCs and SVOCs, were detected in concentrations much less than the applicable residential NMED soil screening levels. All of the detected concentrations of metals were less than the NMED residential soil screening levels other than arsenic, which is not a contaminant of concern at the site and is known to have naturally occurring elevated levels in the soils of the Albuquerque Basin (Stanton et al., 2001).

All of the detected concentrations of metals were less than the NMED residential soil screening levels other than arsenic, which is not a contaminant of concern at the site and is known to have naturally-occurring elevated levels in the soils of the Albuquerque Basin..

### **Basis for Determination**

In a letter dated July 8, 2001, the NMED's Hazardous Waste Bureau found that SWMU 8-53 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU 8-53 has been characterized and remediated in accordance with 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**

Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report*. August.

Stanton, M.R., R.F. Sanzolone, S.J. Sutley, D.J. Grimes, P.J. Lamothe, and R.A. Zielinski, 2001. *Geochemical Studies of Arsenic in the Albuquerque Basin, New Mexico*. USGS Arsenic Studies Group, <http://www.brr.cr.usgs.gov/Arsenic/FinalAbsPDF/stanton.pdf>.

USAF, 2000. *No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. April 25.

USAF, 1995. *RCRA Facility Investigation Report, Appendix III Non-Wasteline Sites*. October.

USAF, 1981. *Phase I, Records Search, Hazardous Materials Disposal Sites*. November.

## **8. SWMU SWMU ST-66, Trestle Facility (Vehicle Pit and Aircraft Pit) (ST-66)**

### **Location**

The ST-66 Vehicle Pit is concrete, 5 ft deep, and has inside dimensions of 5.3 ft by 28 ft and outside dimensions of 9.3 ft by 32 ft with a service entrance on the east side. Visual staining was evident inside and immediately adjacent to the pit during the Phase V RFI. A defunct oil/water separator (OWS) containing a mixture of water and petroleum, oil, and lubricant was located 11.5 ft north of the pit. The OWS and its associated lines were removed during an Interim Corrective Measure (ICM) in 1997.

The concrete ST-66 Aircraft Pit is 25 ft by 25 ft by 6 ft and drains to the Tijeras Arroyo. An asphalt apron directed fuel spills into the pit. During a records search and interview, it was determined that fuel trucks were used for refueling the aircraft; therefore, an UST was not present at the site. It is unknown whether the spill pit was ever used for its intended purpose.

### **History**

It is not known when the Vehicle Pit and Aircraft Pit were constructed. Phillips Laboratory used the trestle for electromagnetic pulse testing of aircraft; the trestle is currently operated by Orion International Technologies, Inc., in a caretaker status for the U.S. Army at White Sands Missile Range. No plans exist to continue electromagnetic pulse tests at this facility.

An ICM to remove the OWS and contaminated soil was completed in June 1997, and an ICM Completion Report was submitted in July 1997.

### **Evaluation of Relevant Information**

During the Appendix V RFI, 37 samples from eight boreholes were collected at the Vehicle Pit and Aircraft Pit. The samples were analyzed for VOCs, SVOCs, metals, TPH, soil moisture, and

pH. There were no VOCs detected in the soil samples collected from SWMU ST-66. The only SVOCs detected were bis(2-ethylhexyl)phthalate and di-n-butylphthalate. The highest concentrations detected were 0.7 mg/kg and 3.6 mg/kg, respectively, which are orders of magnitude less than their respective human health risk-based (HHRB) and NMED residential soil screening levels of 35 and 6,100 mg/kg. All confirmed concentrations of TPH were below the screening level (880 mg/kg). All metals detected in the soil samples from SWMU ST-66 were much less than the screening level criteria.

A human health-risk screening was performed and the hazard quotient was calculated to be less than 0.1 (USAF, 2000a). It was concluded that SWMU ST-66 does not pose an adverse health risk to humans and no further action was required. An ecological risk assessment was performed and it was concluded that the observed concentrations of the contaminants of potential concern (COPC) are at concentrations of little to no concern to exposed ecological receptors. There was uncertainty associated with the evaluation due to the over-conservative assumption that receptors would be exposed, whereas the exposure is likely to be incomplete and thus there is no associated risk. As per EPA guidance, these conclusions indicated no need for further evaluation.

### **Basis for Determination**

As presented above, SWMU ST-66 has been investigated as part of the Appendix V RFI. The investigation determined that the data indicate that any contaminants at the SWMU pose an acceptable level of risk to human health and the environment. Detailed human health and ecological risk assessments performed for the SWMU using the data from these investigations also determined that the site did not pose an unacceptable risk to a site worker, construction worker, visitor, or the environment. In a letter dated July 8, 2001, the NMED's Hazardous Waste Bureau found that SWMU ST-66 is appropriate for NFA 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**

- USAF, 2001a. *RSI for No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. May 7.
- USAF, 2001b. *Letter from William P. Moats, re: Replacement Pages—Revised June 15, 2001: IRP NFA Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. July 8.
- USAF, 2000a. *Installation Restoration Program No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326*. April 25.

USAF, 2000b. *Replacement Pages for No Further Action Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326.* June 15.

USAF, 1998. *RCRA Facility Investigation Report Appendix III Phase 2 Addendum Solid Waste Management Unit 10-21, Trestle Site Septic Tank and Leach Field (ST-346).* April 7.

USAF, 1997a. *Interim Corrective Measure Completion Report, SWMU ST-66, Trestle Facility (ST-66).* July.

USAF, 1997b. *RCRA Facility Investigation Report for Appendix I Phase 2, Final Draft, Kirtland Air Force Base, New Mexico.* July.

USAF, 1996. *RFI Report Appendix V SWMUs, Final Draft.* February 29.

## **9. SWMU RW-68, Radium Dump/Slag Piles and Cratering Area**

### **Location and Current Land Use**

SWMU RW-68 consists of radium dump/slag piles and a cratering area located in the south-central portion of Kirtland AFB. The site area encompasses approximately 45 acres and the topography is relatively flat with a gentle slope towards the arroyo at the southern boundary. The slag pile area of the site is in the floodplain of a major, unnamed arroyo; the cratering area is adjacent to an abandoned dirt runway, but is not in the arroyo's floodplain.

### **Projected Future Land Use**

The projected future land use for the SWMU RW-68 area is industrial; however, a residential scenario was used for risk-based screening assessments.

### **History**

The cratering area at SWMU RW-68 was used for aircraft research to determine weaknesses and other vulnerabilities under combat conditions. In the course of conducting the vulnerability research, aircraft were subjected to direct fire and/or explosive detonations, which resulted in severe damage. Upon completion of the tests, the aircraft hulks were moved from the cratering area to what is now the radium dump/slag piles area, where they were dismantled and incinerated. In addition, aircraft used during the proximity fuse development program also were incinerated at the site.

### **Evaluation of Relevant Information**

Previous investigations at the site identified approximately 150 tons of waste material in 19 discrete, open, uncovered piles composed of metal slag, ash, refractory brick, and associated aircraft debris (USAF, 1997). Previous investigations also documented the presence of radium-226 and heavy metals contamination (lead, cadmium, and selenium) in the slag piles (Caputo, 1992 and 1993). Luminescent dials, gauges, and other components, prevalent in older aircraft, were the radium sources. Heavy metals were attributed to the ordnance used in the destructive testing and refractory brick used in the incineration process.

An investigation was conducted in the cratering area portion of RW-68 during 1995 (B&RE, 1995). This investigation included collection of soil samples at six locations and analysis of samples for explosive compounds, metals, and gross alpha and beta emissions. All metal concentrations, excluding arsenic, which is a naturally occurring compound at Kirtland AFB, were below their respective NMED screening levels. No explosive compounds were detected in the samples. Gross alpha was detected at a range of non-detect to 39 picocuries per gram (pCi/g) (background 16 pCi/g) and gross beta was detected at a range of 12 pCi/g to 36 pCi/g (background 27 pCi/g).

A 1996 to 1997 ICM removed, treated, and disposed of various amounts of contaminated ash, soil, hazardous waste, and radioactive debris (USAF, 1997). During the 1998 Corrective Measures Study (CMS) (USAF, 1998), soil samples were collected from the cratering area during the CMS and analyzed for specific radionuclides. At the same time, an upgradient and an onsite groundwater monitoring well were installed and groundwater samples were collected and analyzed for VOCs, SVOCs, pesticides/herbicides, metals, and radionuclides to determine if the site had impacted groundwater quality. All results were below their respective screening levels. No potential exposure pathways of contaminants from SWMU RW-68 were found using the screening assessments during the RFI.

The results of a chemical risk assessment at SWMU RW-68 showed that all estimated excess lifetime cancer risks were  $10^{-6}$  or lower. None of the hazard indices exceeded one. Consequently, no significant potential cancer risk or chronic toxicity is predicted as a result of exposure to arsenic, beryllium, or manganese under the assumed exposure conditions (USAF, 1998). Radiation model (RESRAD) results showed that, for both sites estimated excess lifetime cancer risks for the radionuclides fell in the  $10^{-4}$  to  $10^{-6}$  range (USAF, 1998).

Ecological risk assessments were conducted and found that SWMU RW-68 poses an acceptable level of risk (USAF, 1998). Only one COPC was identified as requiring possible further evaluation (aluminum). The remaining radionuclides and metals were either below background, below benchmark levels, or had a minimal nature and extent of occurrence indicating that they are not waste-related constituents. Since aluminum is believed to be naturally occurring at SWMU RW-68, there were no contaminants identified that required further remedial activities.

### **Basis for Determination**

In a letter dated June 24, 1999, the NMED's Hazardous Waste Bureau found that SWMU RW-68 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU RW-68 has been characterized and remediated in accordance with 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**

- B&RE, 1995. Written communication. Brown & Root Environmental. November 13.*
- Caputo, Capt. D.F., 1993. Kirtland AFB Radiation Safety Officer, Blast Overpressure Site (BOP) Radioactive Slag Pile Status, written communication. January 7.*
- Caputo, Capt. D.F., 1992. Kirtland AFB Radiation Safety Officer, Radiological Survey of the Blast Overpressure Site (BOP), written communication. July 6.*
- USAF, 1998. Corrective Measures Study Report, Solid Waste Management Unit RW-68, Radium Dump/Slag Piles and Cratering Area (RW-68). December.*
- USAF, 1997. RCRA Facility Investigation Interim Corrective Measures report, Solid Waste Management Unit RW-68.*
- USAF, 1995. Draft Field Investigation Report For the Radium Dump/Slag Piles Site. November.*

## **10. SWMU SS-76, Fuel Tank Burn Area**

### **Location and Current Land Use**

SWMU SS-76 is a relatively flat, open field with a surface elevation ranging from 5,380 and 5,390 ft above mean sea level. Three monitoring wells (WYO-1, WYO-2, TA-1-W-01) are located adjacent to the site. Based upon data from wells, a perched groundwater zone is located at a depth of 272 ft bgs. The regional groundwater is located at approximately 522 ft bgs (USAF, 1997).

### **Projected Future Land Use**

The projected future land use for the SWMU SS-76 area is industrial; however, a residential scenario was used for risk-based screening assessments.

## **History**

SWMU SS-76 encompasses approximately 6 acres that were reportedly used to incinerate World War II aircraft fuel tanks and associated equipment and contains tracts of ash, metallic valves and fittings, partially burned nonmetallic material, and slag that apparently resulted from these activities. The site also contains debris in a northern area that could have been associated with the construction or demolition of Kirtland AFB facilities. The site is bounded by Hardin Road on the north, East Ordnance Road on the south, Wyoming Boulevard on the east, and Pennsylvania Street on the west.

## **Evaluation of Relevant Information**

To facilitate field investigations, the site was divided into a northern and a southern area. The SWMU assessment for the northern area determined that there are no VOCs or SVOCs present and metal concentrations are within the range of background concentrations.

Prior to the ICM, surface soil at southern SWMU SS-76 contained heavy metals and exceeded the TCLP limits for characteristic waste for lead and cadmium.

In 1998, an ICM was performed and included in situ stabilization of approximately 2,000 cubic yards of soil with MAECTITE reagents and revegetation of the entire area (USAF, 1999). The upper 3 to 5 inches of treated soil was removed over designated portions of the treatment grid. Post-remediation soil sample results from 30 confirmatory samples indicated concentrations of lead were between 5.6 to 477 mg/kg and exceedances of the NMED screening level (400 mg/kg) occurred at three samples. Arsenic concentrations ranged from 2.8 to 4.6 mg/kg, all within the range of naturally occurring background concentrations.

Human health based and ecological risk assessments were conducted and determined that risk was acceptably low enough to warrant no further action.

## **Basis for Determination**

In a letter dated November 14, 2000, the NMED's Hazardous Waste Bureau found that SWMU SS-76 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU SS-76 has been characterized and remediated in accordance with 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. *ICM for AOC SS-76, Fuel Tank Burn Area (SS-76)*.

USAF, 1998. *Quality Program Plan Parts 1, 2, and 3 for ICM.*

USAF, 1997. *Solid Waste Management Unit Assessment Report, AOC SS-76 Fuel Tank Burn Area.* June.

## **11. SWMU SS-83, Skeet Range and Landfill Road**

### **Location and Current Land Use**

SWMU SS-83 comprises of three separate locations, or areas of concern, previously contaminated with lead. The areas of concern are the Skeet Range, an adjacent drainage channel/arroyo, and the Landfill Road. The first area of concern, the Skeet Range, consists of a clubhouse building and four skeet shooting stations, and is located along Pennsylvania Avenue in the northwest portion of Kirtland AFB, approximately 1/4-mile southeast of the intersection of Wyoming Boulevard and Pennsylvania Avenue. The Skeet Range is bounded to the southwest by Pennsylvania Avenue and the northeast by the DOE's Technical Area IV (Tech Area IV). Wyoming Boulevard forms the northwestern boundary of the site. The adjacent drainage channel/arroyo runs along the eastern boundary of the Skeet Range and flows into Tijeras Arroyo.

The drainage channel/arroyo is the second area of concern and the most likely contaminant migration pathway. The drainage channel/arroyo is a permitted stormwater runoff outfall, and receives surface water runoff from approximately 450 acres of Tech Area IV, which is mostly covered by pavement. The drainage channel/arroyo is approximately 30 ft wide by 10 ft deep and is lined with sand to gravel sized alluvium. The north end of the drainage channel/arroyo is concrete lined, while an unlined portion extends for approximately 1,500 ft downgradient to an energy dissipater.

Landfill Road is the third area of concern. On at least three occasions, broken clay pigeons, as well as surface soil potentially containing lead shot were removed from the Skeet Range and used as road base material for Landfill Road. This maintained dirt road is 4,130 ft long by 40 ft wide and extends from Pennsylvania Avenue to the base Construction/Demolition Landfill, is bermed, and has shallow drainage ditches along both sides. Landfill Road crosses Tijeras Arroyo, which is the largest surface water drainage feature on the base. Much of the road is within the floodplain of Tijeras Arroyo.

### **Projected Future Land Use**

The projected future land use for the SWMU SS-83 area is industrial; however, a residential scenario was used for risk-based screening assessments.

## **History**

From the late 1960s through May 1998, the Skeet Range was used as a recreational facility for clay pigeon shooting practice. As an operational facility, the range was not subject to the regulations regarding lead for shot accumulation on the range. However, on at least three occasions, the Skeet Club arranged for Kirtland AFB Civil Engineering (CE) personnel to scrape and remove broken clay pigeons from the range. This debris was then used as road-bedding material on the Landfill Road. Kirtland AFB Environmental Management (EM) learned of this practice immediately after CE personnel removed clay pigeons from the range in 1996. EM staff immediately notified the NMED, because it was likely that surface soil removed with the clay pigeons contained lead shot.

Records indicate that 84,000 pounds of lead shot were removed and sent to Illinois for reclamation. Estimates of lead shot accumulation, based on past facility usage, indicated approximately 86,000 pounds of lead were deposited on the range every 3 years.

## **Evaluation of Relevant Information**

Between 1993 and 1995, the drainage channel/arroyo was investigated by SNL and it was concluded that while there were elevated concentrations of lead on the Skeet Range, surface water quality was not affected. An NFA proposal was submitted in June 1995. Since that time, SWMU SS-83 has been extensively investigated and remediated as documented in various memoranda to file and in the RFI report and ICM plan (USAF, 1999a). Response to comments from NMED on the original submittal were prepared and submitted by Kirtland AFB to NMED in October 1996. This submittal is included as Appendix E of the 1999 RFI and ICM report (USAF, 1999a).

In May 1996 EM personnel collected 10 surface soil samples from the Skeet Range and Landfill Road following notification of the broken clay pigeon/soil removal from the Skeet Range in 1996. Seven samples were collected from the Skeet Range and three samples were collected from the entrance to the Landfill Road where some of the broken clay pigeons/soil were reportedly spilled. The maximum lead concentration in soil was 59,600 mg/kg and samples from the entrance to Landfill Road had concentrations below the NMED screening level of 400 mg/kg (USAF, 1999a).

In July 1996, 24 soil samples were collected from the Landfill Road and drainage channel/arroyo. All samples were below the NMED screening level (USAF, 1999a).

In February 1997 TCLP sampling was conducted to assess the worst-case leaching potential. Four samples were collected from anthills where lead shot was visible. Lead concentrations in the TCLP extract ranged from 392 to 1,000 mg/L (USAF, 1999a).

In August 1997, 12 surface samples were collected from six locations immediately downgradient of the energy dissipater. All concentrations were below the NMED screening level (USAF, 1999a).

In January 1999, an RFI was conducted. The RFI sampling performed at the Skeet Range confirmed that lead concentrations were present at the site above the NMED screening level (400 mg/kg). Lead shot was visible on the ground surface and it was possible to make qualitative assessment of lead contamination based on visual observations (USAF, 1999b).

During the RFI, sediment samples were collected from 11 locations in the drainage channel/arroyo at 0- to 6-inch depth along the centerline of the arroyo. Lead concentrations in the samples ranged from 3.6 to 40,500 mg/kg, with three samples exceeding the NMED soil screening level (400 mg/kg). One hundred seventy-five samples were collected from depths of 0 to 6 inches at Landfill Road and analyzed for lead and TCLP lead. All samples were below the NMED screening level (400 mg/kg) and/or RCRA action level 5.0 mg/L. Forty samples were collected on the Skeet Range at depths of 0 to 6 inches. In general, biased samples from anthills had the highest concentrations of lead. All non-biased samples except one that was located near an anthill (SS83-072198-314, 10,200 mg/kg), had lead concentrations below the NMED soil screening level. Biased samples had concentrations ranging from 93.0 mg/kg to 221,000 mg/kg (unsieved) and 30.7 mg/kg to 97,000 mg/kg (sieved). Lead shot accounted for between 32 and 49 weight percent of the soil aliquots collected from the anthills. TCLP sample results also exceeded regulatory standards (USAF, 1999b).

During the 1998-1999 ICM, approximately 10,000 cubic yards of soil were removed and stockpiled from the base, sides, and a 75-ft perimeter on both sides of the drainage channel/arroyo. At Landfill Road the two areas with lead concentrations above NMED-approved background (39 mg/kg) were removed and backfilled with clean soil. In December 1998, broken clay pigeons were scraped from the Skeet Range. In 1999 a commercial lead recycler removed and recycled approximately 174,000 pounds of lead shot from stockpiled soil. After stockpiled soil was remediated, it was resampled and lead concentrations were all below NMED screening levels. The soil was characterized as nonhazardous and was placed and leveled at the Skeet Range. The disturbed area was then reseeded with native grasses and shrubs (USAF, 1999c).

### **Basis for Determination**

In a letter dated June 2, 2000, the NMED's Hazardous Waste Bureau found that SWMU SS-83 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU SS-83 has been characterized and remediated in accordance with 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, 2001. *No Further Action Proposal for Corrective Action Units OT-86, Former Small Arms Ranges (OT-86) and SS-83, Skeet Range and Landfill Road (SS-83)*. April.
- USAF, 1999a. *RCRA Facility Investigation Report and Interim Corrective Measures Plan, Potential SWMU SS-83, Section 2.3. Investigatory Activities. Various investigations dated 1993-1997*. January.
- USAF, 1999b. *RCRA Facility Investigation Report and Interim Corrective Measures Plan, Potential SWMU SS-83*. January.
- USAF, 1999c. *Interim Corrective Measures Report for Solid Waste Management Unit SS-83, Skeet Range and Landfill Road (SS-83)*. September.

## 12. SWMU ST-326, Used Oil Underground Storage Tank

### Location and Current Land Use

SWMU ST-326 is located in the western portion of Kirtland AFB Building 20375, the Auto Hobby Shop. UST ST-326 was utilized for used engine oil and cleaning solvent disposal. It is located beneath the asphalt driveway about 15 ft west of the paint shop bay on the west side of Building 20375. The unit was made of stainless steel and has an estimated 500-gallon capacity. It received waste liquids via a buried pipeline that leads from a disposal drain located in the service bay to the south of ST-256 and was attached to the vertical fill pipe of the UST. Site drawings show that the tank was oriented east-west.

### Projected Future Land Use

The projected future land use for the SWMU ST-326 area is industrial; however, a residential scenario was used for risk-based screening assessments.

### History

A fill pipe was used to pump out the tank when it was full, done typically every 3 to 4 months by contractors. Potential overflow runoff from this unit would have been confined to the service bays and asphalt parking area surrounding the building. It is unknown how long this UST was in service.

### **Evaluation of Relevant Information**

In 1991, a Kirtland AFB environmental contractor sampled materials contained in the OWS. The 1991 samples contained up to 14,100 mg/kg TPH. The 1992 samples contained 219 mg/kg TOX, and a TCLP analysis detected 16.4 mg/kg of lead (USAF, 1993).

The UST at SWMU ST-326 was periodically leak tested and successfully passed a tracer leak test on October 3, 1993. The tracer test was capable of detecting leaks as low as 0.05 gallons per hour with a 97 percent detection probability (USAF, 1994).

SWMU ST-326 was investigated by the USGS during an RFI field investigation between September 1993 and February 1994 (USGS, 1994). Five boreholes, including one background borehole, were drilled and 11 soil samples were collected. These were analyzed for VOCs, SVOCs, TPH, metals, pH, and moisture. Four VOCs were detected including acetone, 1,2-dichloropropane, methylene chloride, and 1,1,1-trichloroethane. Acetone and methylene chloride were detected in almost all USGS samples, including those from the background sampling borehole and the compounds were therefore believed to be from contamination in the analytical laboratory. All concentrations were well below the NMED soil screening levels. No petroleum hydrocarbons were detected.

The UST was removed on June 3, 1996. Soil was sampled several feet beneath the excavation and TPH was not detected. Approximately 29 cubic yards of soil were backfilled in the excavation (USAF, 1996).

### **Basis for Determination**

In a letter dated July 8, 2001, the NMED's Hazardous Waste Bureau found that SWMU ST-326 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU ST-326 has been characterized and remediated in accordance with 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**

- Kearney/Centaur, 1988. *Preliminary Review/Visual Site Inspection, Kirtland Air Force Base, Kearney/Centaur Report.*
- USAF, 2001. *Letter from William P. Moats, re: Replacement Pages—Revised June 15, 2001: IRP NFA Report for Inactive SWMUs 8-53, 8-58, 10-3, ST-66, and ST-326.* July 8.
- USAF, 1996. *U.S. Army Corps of Engineers Closure File, Tank 91, Building 20375.* Brown and Root Environmental. October.

USAF, 1994. *Appendix II, Stage 2B RFI Report*. Halliburton.

USGS, 1994. *Open File Report 94-547, Analytical Results from an Investigation of Six Sites on Kirtland Air Force Base, NM*. Water Resources Division.

### **13. SWMU ST-328, Blast Overpressure (BOP) Site Cesspools**

#### **Location and Current Land Use**

Site SWMU ST-328 is located in the south-central portion of Kirtland AFB and consists of two inactive cesspools north of Building 29042. One cesspool (referred to as the southern cesspool) is approximately 30 ft north of Building 29042 and the second cesspool (referred to as the northern cesspool) is 130 ft north of Building 29042.

#### **Projected Future Land Use**

The projected future land use for the SWMU ST-328 area is industrial; however, a residential scenario was used for risk-based screening assessments.

#### **History**

The southern cesspool accepted sewage from Building 29042 until it was rerouted to a septic tank and leach field (ST-323) at an unknown date. The northern cesspool accepted sewage from a small apartment house that was removed in the 1960s (Sillerud, 1996).

#### **Evaluation of Relevant Information**

The SWMU ST-328 was initially investigated as part of the Appendix III Phase 2 RFI (USAF, 1997).

As part of the July 1998 RFI at SWMU ST-328, five investigative soil borings and one background location soil boring were installed from 7 to 13 ft bgs with a direct-push drill rig in and around the northern cesspool area of SWMU ST-328 (USAF, 1999). The only COPC that was identified was zinc with a concentration of 6,900 mg/kg at borehole ST-323-SB06. This value is well below the NMED screening value for zinc (23,000 mg/kg).

#### **Basis for Determination**

In a letter dated July 14, 2000, the NMED's Hazardous Waste Bureau determined that SWMU ST-328 is appropriate for NFA based upon NMED's NFA Criterion 5: SWMU ST-328 has been

characterized and remediated in accordance with 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**

Sillerud, 1996. Personal correspondence.

USAF, 1999. *Installation Restoration Program RCRA Investigation Report Area of Concern ST-328, Blast Overpressure (BOP) Site Cesspools (ST-328)*. May.

USAF, 1997. *RCRA Facility Investigation Report, Appendix III Phase 2*. July.