

DEPARTMENT OF THE AIR FORCE
Headquarters 377th Air Base Wing (AFMC)

19 July 1996

MEMORANDUM FOR RECORD

FROM: 377 ABW/EMR
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5659

SUBJECT: Partnering Meeting Minutes

1 PLACE: 377 ABW/EMR, 2000 Wyoming Blvd SE, Kirtland AFB NM 87117-5659

2. TIME/DATE: 1000, 15 May 1996
0800, 16 May 1996

3. CHAIRPERSON: Mr. Chris DeWitt, Chief of Restoration Branch, Environmental Management Division, Kirtland AFB NM

4. ATTENDANCE: See Attachment 1

5. INTRODUCTION: Mr. DeWitt called the meeting to order and asked attendees to introduce themselves. Mr. DeWitt stated that the meeting may not last two days as indicated by the agenda (Attachment 2) because the representation of stakeholder/citizens' groups is less than anticipated. He suggested that the Bernalillo County/Kirtland Air Force Base Environmental Working Group and the Partnering meetings be combined in the future in an effort to increase citizen participation.

TIME/DATE: 1000, 15 May 1996

6. APPENDIX I PHASE 2 RCRA FACILITY INVESTIGATION WORK PLAN:

a. Mr. Larry Janis (U.S. Army Corps of Engineers [USACE], Omaha District) presented information regarding investigation activities proposed in the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Sampling and Analysis Plan (SAP) for the Kirtland AFB Appendix I sites. The Appendix I Phase 2 RFI SAP will be available as draft final next week. The Phase 2 RFI includes all original Appendix I sites in addition to those recently transferred via permit modification. Site descriptions for the 15 sites included in the SAP are provided as Attachment 3. Copies of the presentation material delineating investigation methods to be used at each site are included as Attachment 4. The SAP logic maintains a bias toward trenching in an effort to address the previous Notice of Deficiency (NOD) issued by the U.S. Environmental Protection Agency (EPA) regarding determination of the vertical extent of contamination. A similar approach, incorporating information obtained from previous investigations, is used for each site. Site-specific considerations not included in Attachments 3 and 4 are summarized below.

b. The most prominent topographic feature of SWMU 6-1, Landfill 1 (LF-01) is a modified, naturally occurring drainage channel crossing its cover. The channel serves as part of the runway area drainage system. Plans exist for the construction of an underground drainage culvert to bypass LF-01. An additional disposal area located nearby has been included as part of LF-01 as similar wastes exist at both locations. This additional disposal area has never been covered.

KAFB1789



4/25/96
1/1/96
6/10/96
6/10/96

SS

c. SWMU 6-4, Landfills 4, 5, and 6 (LF-08) is located adjacent to an active landfill area near the Kirtland AFB Eubank gate.

d. SWMU 6-10, Abandoned Landfill (LF-09) is a low relative risk site. The site has been mislabeled as a landfill. Base personnel have indicated the site was a target area for practice bombing competitions during World War II.

e. New Mexico Environment Department (NMED) issued a notice of violation at SWMU 6-8, Landfill B (LF-15) as dumping was occurring in a corner of this unpermitted landfill. The U.S. Army was tasked with capping the entire landfill according to NM state landfill closure requirements.

f. SWMU 6-7, Landfill A (LF-18) is a medium relative risk site. The site has been mislabeled as a landfill. Domestic waste was dumped on the surface only; no burial activities occurred at the site.

g. A soil gas survey is proposed for SWMU 6-29, Manzano Landfill (LF-20), as it was planned as part of the original Appendix I RFI SAP. Soil gas surveys are not proposed for other sites, as they are not considered to be valuable in determining the vertical extent of contamination.

h. SWMU 6-11, Fill Area Southeast of the Sewage Lagoons (LF-44) is a medium relative risk site. The site has been mislabeled as a landfill. Waste, mainly construction debris, located at the site was never buried until arroyo cleanup activities in 1995.

i. Residential future land use issues are considered for SWMU 6-31, McCormick Ranch/Range (OT-28). Mr. Mark Schmidt of the NM State Land Office voiced concerns with respect to the groundwater monitoring network and potential changes in the gradient due to the development of the Mesa del Sol community. The U.S. Geological Survey (USGS) is planning to drill a 1,600-ft well at Mesa del Sol soon. Mr. Stephen Pullen (NMED/Hazardous and Radioactive Materials Bureau [HRMB]) suggested obtaining information regarding water usage predictions for Mesa del Sol from the City of Albuquerque and the NM State Land Commissioner's Office. Mr. DeWitt proposed lengthening the screens (from 25 ft to 40-50 ft) on existing wells to make them usable for a longer period of time should the water level drop due to future land use. Mr. Pullen stated that the current RCRA requirement is for 25-ft screens. As field work is scheduled to begin in July, an addendum to the SAP may be necessary should additional information regarding this issue need to be included.

j. NMEED is currently considering a Class III permit modification to remove SWMU 6-19, Explosives Ordnance Disposal (EOD) Range (OT-29) from the corrective action schedule. This site is active and its clean-up criteria is addressed in the open burn permit. Including it in the SAP is a duplicative effort.

k. Mr. Pullen inquired if any ecological risk assessment is scheduled for SWMU 6-22, Lake Christian (OT-46) or other sites. Mr. Janis stated that currently there are no plans to collect samples for ecological risk assessment purposes. Mr. DeWitt stated that no basis exists at the sites being investigated for suspecting an ecological risk. Ecological risk will be addressed in a risk assessment report for the SAP sites. Mr. Janis and Mr. Pullen agreed that further discussion in this area is necessary. Mr. Pullen recommended that Kirtland AFB be consistent with what is being done by Sandia National Laboratories/NM (SNL/NM) in the Environmental Assessment report. Ms. Nancy Morlock (EPA Region 6) described a computer model being used by SNL/NM to conduct risk assessments. Mr. Mark Gardiner (IT Corporation) added that in addition to chemical parameters the model, called PRECIS, can include radioactive parameters.

l. A previous investigation of WP-16 - Manzano Sewage Treatment Facility (SWMU 6-24) detected beryllium. Mr. DeWitt stated that the sampling performed at this site will be

confirmatory for interim measure work currently in progress at the site. As part of the cleanup, sludge with a high concentration of total petroleum hydrocarbons (TPH) will be shipped to a permitted landfarm facility.

7. LONG-TERM MONITORING PLAN: Mr. Steve Weber (Foster Wheeler Environmental Inc.) presented the general approach for the long-term groundwater monitoring plan proposed for six of the sites. Copies of the presentation material delineating long-term groundwater monitoring activities proposed for each site are included as Attachment 4. The six sites will be monitored for one year using a low-flow sampling pump in dedicated wells. Mr. Pullen stated that the use of low-flow pumps may be controversial as this is not consistent with the NMED's experience with SNL/NM. Mr. DeWitt said he would ask that Mr. Mark Holmes of 377 ABW/EMR discuss this with Mr. Pullen as he has been in contact with the NM Groundwater Bureau. Mr. Pullen stated that monitoring for four quarters (one year) does not constitute "long-term." The NMED encourages a consolidated long-term groundwater monitoring report similar to that done annually by SNL/NM. Mr. DeWitt stated that the monitoring program is called "long-term" because that terminology allows Kirtland AFB to be eligible for cleanup funding. The use of that funding will permit the generation of data from existing wells before they become unusable. After one year, further monitoring activities will be considered.

8. PRESUMPTIVE REMEDY ENGINEERING EVALUATION/COST ANALYSIS (PREECA): Mr. DeWitt asked if PREECA will be on the agenda for the Bernalillo County/Kirtland Air Force Base Environmental Working Group meeting scheduled for tomorrow. Ms. Kari Paseur said that she would add the item to the agenda.

9. FUTURE USE ISSUES: Mr. DeWitt stated that the Management Area 7 Workbook, which includes all Kirtland AFB land owned by the Air Force minus the Manzano and Tijeras Arroyo areas, has been written by the U.S. Department of Energy (DOE) Future Land Use Options Team. Separate workbooks have been prepared for the Manzano and Tijeras Arroyo areas. The Management Area 7 Workbook is available for review upon request and at the Albuquerque Technical Vocational Institute main campus library reference desk. It is currently being reviewed by the DOE Citizens' Advisory Board. As feedback is essential, Mr. DeWitt suggested designating a member(s) of the public to represent citizen groups with respect to Kirtland AFB future use issues. Ms. Ann Newsted (The East Mountain Alliance [TEMA]) asked if the Defense Environmental Restoration Account (DERA) would fund the removal of unexploded ordnance (UXO), should the Cibola National Forest land withdrawn from public access be proposed for recreational future use. Mr. DeWitt stated that a request to DERA for similar funding for McCormick Ranch/Range was rejected. The removal of UXO is labor intensive and costly.

10. TOUR OF LANDFILL 2: At 1545, Mr. DeWitt escorted attendees on a tour of Landfill 2.


TIME/DATE: 0800, 16 May 1996

11. BUDGET DISCUSSIONS: The Kirtland AFB proposed fiscal year (FY) 97 DERA budget requirements are included as Attachment 5. Ms. Paseur stated that project-specific figures are absent from this summary as that information has not been cleared for public release. Twenty-four projects are proposed for the FY97 budget of approximately \$6.5 million. Mr. DeWitt stated he would like input from stakeholders regarding the prioritizing of funded Kirtland AFB projects. Column A of Attachment 5 lists the current base priority assigned to each task. Column F of Attachment 5 indicates a first attempt to prioritize funding apportionment. The numeric notation designates the risk level associated with that task ("1" indicates the highest risk). The alpha notation indicates if a regulatory driver exists for the completion of that task ("A" indicates regulator driver, "B" indicates projects that Kirtland AFB feels will eventually become "A" tasks).

12. TOUR OF SS-69, DRUM STORAGE AREA: At 1000, Mr. DeWitt escorted attendees on a tour of SS-69, Drum Storage Area (within Interservice Nuclear Weapon School [INWS] TS-6).

13. MANAGEMENT ACTION PLAN REVIEW: Mr. DeWitt mentioned that the Management Action Plan (MAP) is outdated. The MAP will be updated to focus on risk assessment and cleanup goals for Kirtland AFB.

MEETING ADJOURNED: 1100, 16 May 1996



CHRISTOPHER B. DeWITT, R.P.G.
Chief, Restoration Branch
Environmental Management Division

Attachments:

1. Attendance Lists
2. Agenda for Partnering Meeting, May 15-16, 1996
3. Presentation of Proposed Appendix I Phase 2 RFI Work Plan and Long-Term Groundwater Monitoring Plan, Site Descriptions
4. Kirtland AFB, Proposed Investigation Activities, Appendix I Sites
5. Kirtland AFB, Proposed FY97 DERA Budget Requirements
6. Fact Sheet: Kirtland AFB Installation Restoration Program (IRP) Sites
7. Map: Kirtland AFB IRP Sites

ATTENDANCE LIST

PARTNERING MEETING
377 ABW/EMR, KIRTLAND AIR FORCE BASE NM

15 MAY 1996

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TELEPHONE</u>
Rodney C. Arnold	AFCEE/ERD	210-536-5288
Roger A. Clark	Brown & Root Environmental	412-921-8415
Harry Davidson	377 ABW/EMR	505-846-9002
Chris DeWitt	377 ABW/EMR	505-846-0053
Mark A. Gardiner	IT Corporation	505-262-8956
Jennifer Hickox	IT Corporation	505-262-8750
Larry Janis	USACE-Omaha	402-221-7674
Bob Kirkpatrick	NMED-Solid Waste Bureau	505-841-9469
Nancy Morlock	EPA Region 6	214-665-6650
Ann Newsted	TEMA	505-281-9448
Kari Paseur	377 ABW/PA	505-846-9003
Stephen Pullen	NMED/HRMB	505-827-1558
Glenn Saums	NMED/SWQB	505-827-2827
Chuck Schick	Fluor-Daniel/GTI	505-242-3113
Mark Schmidt	NM State Land Office	505-827-5738
Jerry Sillerud	377 ABW/EMR	505-846-9004
Mark S. Thacker	Brown & Root Environmental	505-247-2933
Steve Weber	Foster Wheeler Environmental	505-878-8912

16 MAY 1996

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TELEPHONE</u>
Rodney C. Arnold	AFCEE/ERD	210-536-5288
Chris DeWitt	377 ABW/EMR	505-846-0053
Mike Dodyk	HQ AFMC/CEVR	513-257-7053
Mark A. Gardiner	IT Corporation	505-262-8956
Jennifer Hickox	IT Corporation	505-262-8750
Larry Janis	USACE-Omaha	402-221-7674
Nancy Morlock	EPA Region 6	214-665-6650
Kari Paseur	377 ABW/PA	505-846-9003
Stephen Pullen	NMED/HRMB	505-827-1558
Mark Schmidt	NM State Land Office	505-827-5738
Mark S. Thacker	Brown & Root Environmental	505-247-2933
Steve Weber	Foster Wheeler Environmental	505-878-8912

PARTNERING MEETING

May 15-16, 1996

(Your Host: Chris DeWitt)

May 15th

- 10:00a.m.
 - Appendix I Phase 2 Work Plan (Presenter: Larry Janis, USACE)
 - LTM Plan (Presenter: Steve Weber, Foster Wheeler)
- 12:00p.m.
 - Lunch @ Coronado Club (it's pay-as-you-go)
- 1:30p.m.
 - PREECA (Presenter: Chris DeWitt)
- 3:30p.m.
 - Future Use Issues (Presenter: Chris DeWitt)
- 4:00p.m. End of day

May 16th

- 8:00a.m.
 - Special Presentation by the Restoration Branch
- 9:00a.m.
 - Quick tour of Landfill 2
- 10:30a.m.
 - Management Action Plan review (Presenter: C.D.)
- 12:00p.m.
 - Lunch @ Coronado Club
- 1:30p.m.
 - Budget discussions: This year's and the next
- 3:30p.m.
 - Wrap-up and get ready for EWG

**Kirtland AFB Partnering Meeting
May 15, 1996**

**Presentation of Proposed Appendix I Phase 2 RFI Work Plan and
Long-Term Groundwater Monitoring Plan**

55

Site Descriptions

LF-01 - Landfill 1 (SWMU 6-1)

Landfill 1 (LF-01) is located in the northwest corner of Kirtland AFB, east of the old Federal Aviation Administration control tower. It is bounded by Southgate Road on the north, a spur of the Atchison, Topeka, and Santa Fe Railroad on the south, an access road to the munitions storage area on the east, and a line from the southwest corner of the landfill scarp to a prominent turn in Kirtland Road to the west. The east-west runway of the Albuquerque International Sunport is approximately 400 feet from the northern edge of LF-01. Kirtland AFB Production Well No. 2 (not a source of drinking water) is located approximately 150 feet northeast of the landfill.

A modified, naturally occurring drainage channel meandering from north to south is the most prominent topographic feature of the landfill cover. It is usually dry, but carries stormwater runoff during rainfall events (SAIC, 1985). The channel also serves as part of the runway area drainage system. In most rainfall events, the flow infiltrates into the channel bottom before reaching the railroad spur culvert, one mile before reaching the Tijeras Arroyo (SAIC, 1985). There is evidence of erosion where the channel banks have cut into the landfill and uncovered fill material (USGS, 1993).

LF-01 overlies the Santa Fe Group, west of the Hubble Springs Fault, an area characterized by deep, unconsolidated, sedimentary soil covering the graben floor. The depth of the groundwater table ranges from approximately 380 to 430 feet below land surface, sloping to the northeast, toward a production well (Kirtland Production Well No. 2). Hydraulic conductivities ranged from 0.197 to 4.668 feet/day (USGS, 1993).

This general-use landfill was operated between 1965 and 1975 (USGS, 1993). According to the 1988 Kearney/Centaur report, no written records of the quantities or nature of the materials disposed in LF-01 have been recovered. Informal, undocumented interviews conducted during previous investigations implied that the landfill contained general refuse, hardfill, and possibly hazardous materials including chemical drums, oil-soaked insulation, and numerous 5-gallon cans containing unknown liquids (USGS, 1993). Aerial photographs taken in 1971 showed numerous 55-gallon drums at this site (SAIC, 1985). The depths of these materials ranged from 10 to 30 feet over approximately 55 acres (SAIC, 1985). The volume of the landfill's constituents was estimated to be 600,000 cubic yards in the 1981 Phase I report (ESI, 1981).

The landfill was covered with a silty sand of unspecified thickness shortly after operations ended in 1975. However, a large portion of the south bank was either never covered with sand, or the cover was eroded revealing the refuse in that area. Because the old cap has deteriorated, Kirtland AFB placed 5 to 20 feet of clean native soil onto much of this landfill. The south bank was covered by the summer of 1983.

LF-02 - Landfill 2 (SWMU 6-2)

Landfill 2 is located between the Trestle and ARES facilities to the north and the active channel of the Tijeras Arroyo to the south. Its eastern and western boundaries are not as clearly defined. They extend to the "limits of selected man-made surface disturbances" according to the Phase II report (SAIC, 1985). Landfill 2 lies entirely in the Tijeras Arroyo floodplain and ranges in altitude from 5,243 feet on the western edge to 5,278 feet on the eastern edge (SAIC, 1985). Kirtland AFB Production Well No. 8 is approximately 2,100 feet northeast of the landfill, and Production Well No. 4 is 2,400 feet to the north.

Landfill 2 was operated between 1943 and 1967 (ESI, 1981). Operations at the landfill reportedly consisted of trench and fill operations. According to the 1988 Kearney/Centaur report, no written records of the quantities or nature of the materials disposed in Landfill 2 have been recovered. Informal, undocumented interviews conducted during previous investigations implied that the landfill contained general refuse, hardfill, and possibly hazardous material, including 55-gallon drums containing liquid solvents and plastic wastes, with the depths of these materials ranging from nine to 20 feet over approximately 35 acres. The volume of the landfill's constituents was estimated to be one million cubic yards in the 1981 Phase I report (ESI, 1981). The northernmost portion of Landfill 2 was removed and relocated to Landfill 3 to accommodate the construction of the Trestle Facility in the early 1970s.

Two buried sewer pipes cross Landfill 2. The City of Albuquerque's Tijeras Interceptor Sanitary sewer line is a 21-inch line running east-west in the northeast region of Landfill 2, 200 feet south of monitoring well DM-02. The sewage effluent transmission line (ST-51) runs from the corner of the Trestle and ARES fence line through the southeast corner of the landfill and joins the sewage lagoons to the Golf Course Main Pond. The sewage effluent transmission line is known to have failed in the past and soil above both lines is reported to have anomalous, dense plant growth.

The landfill was completely covered with two to six feet of silty sand, but by 1985, widespread litter and exposed debris in the north bank of the Tijeras Arroyo channel was reported (SAIC, 1985). The banks of the active channel have since been stabilized with riprap and wire mesh along the contact with Landfill 2 (USGS, 1993). Kirtland AFB has completed the last phase of riprap construction, which was coordinated with the local flood control district and the USACE.

Landfill 2 rests on recent alluvium of the Tijeras Arroyo which overlies the Santa Fe Group. The depth of this deposit is not certain but has been estimated to be greater than 50 feet. This site lies west of the Hubble Springs Fault. The water table was 395 feet below ground surface in 1990,

but has been falling at a rate of about 2.4 feet per year due to withdrawals from service wells. Groundwater gradient is to the northwest at 10 feet to 20 feet/mile (USGS, 1993).

Surface irregularities have caused ponding in the northern portion of the landfill. The Tijeras Arroyo 100-year floodplain covers all of Landfill 2. In the event of a flood of that magnitude, this site would be covered with two to three feet of water, according to SAIC's 1985 report. This could result in infiltration problems as well as the erosion of large sections of the landfill.

LF-07 - Landfill 3 (SWMU 6-3)

Landfill 3 is located in the northwest region of Kirtland AFB. Its northern, eastern, and western boundaries are natural ridges from the old arroyo, which was filled to make the landfill. The southern boundary is the change in slope between the Tijeras Arroyo floodplain and the steep slopes of the Santa Fe Group and landfill.

Landfill 3 was created when the construction of the Trestle Facility required the partial movement of Landfill 2 (SAIC, 1985). It was operated from 1972 through 1977. According to base personnel, Landfill 3 was mostly filled with burned aircraft parts. The depth of fill is approximately ten feet over the seven acres of the landfill (SAIC, 1985). A large portion of this landfill is on the side of a hill.

Landfill 3 is above the Tijeras Arroyo floodplain; no surface drainage crosses the site. This site lies west of the Hubble Springs Fault (USGS, 1993). The groundwater table depth is about 420 feet with a northern hydraulic gradient of about ten feet per mile (USGS, 1993).

LF-08 - Landfills 4, 5, and 6 (SWMU 6-4)

Landfills 4, 5, and 6 are located adjacent to one another in the northwest region of Kirtland AFB. They are bounded by Tijeras Arroyo to the north, a drainage berm to the south, an unpaved road to the west, and the covered slope of the active base landfill about 150 feet east of Powerline Road to the east.

Because of their close proximity to each other, Landfills 4/5 and 6 (formerly two SWMUs 6-4 and 6-6, respectively) were combined into one SWMU (6-4) via an EPA-approved Class I permit modification in 1994. A decision document (DD) to finish Landfill 6 was completed and signed in 1994.

The landfills were used for general refuse between 1960 and 1989 by the City of Albuquerque and Kirtland AFB (USGS, 1993). Although no written records of the quantities or nature of the materials disposed in Landfills 4 and 5 have been recovered, interviews conducted during previous investigations implied that the landfills contained general refuse, possibly hazardous material (including chemical drums), and a large section of hardfill (ESI, 1981; SAIC, 1985; Kearney, 1988). The depths of the fill are estimated to have been two feet deep on the north and south edges and 40 feet near an east-west centerline (SAIC, 1985). In the 1981 Phase I report,

the surface area and total volume of fill were estimated to be 30 acres and 600,000 cubic yards, respectively.

A 6-foot thick, non-RCRA native soil cap was constructed at this site in the fall of 1992 to comply with state regulations. Long-term monitoring of six monitoring wells is anticipated for 10 years after completion of the Corrective Measures Implementation (CMI).

No surface drainage crosses the landfills. Although it is generally well covered, this site has some topographic depressions on its surface which cause some accumulation and channeling of precipitation (SAIC, 1985). This has resulted in erosion of some of the cover material on the western surface of the landfill. This site lies west of the Hubble Springs Fault. The depth to groundwater is approximately 500 feet (USGS, 1993). Groundwater moves northwest with an unknown hydraulic gradient (USGS, 1993).

LF-09 - Abandoned Landfill (SWMU 6-10)

This landfill is located in the west-central region of Kirtland AFB, adjacent to the Tijeras Arroyo and directly southwest of LF-02. According to base personnel, the landfill was used as a target area for practice bombing competitions during World War II. The debris from these bombing runs was thought to have been picked up to be recycled for the war. The size of this site is unknown. No records show usage after 1945.

The cover is a silty sand of an unspecified thickness. The Tijeras Arroyo lies within 1,000 feet to the north of the site. The depth to the groundwater table is approximately 400 feet (USGS, 1993). This site lies west of the Hubble Springs Fault (USGS, 1993). Groundwater gradient is to the northwest at 10 to 20 feet per mile.

LF-15 - Landfill B (SWMU 6-8)

Landfill B covers approximately 1 acre east of Lake Christian in the south-central region of Kirtland AFB. Landfill B was in operation from the 1960s until mid-1994 (AquaTech Environmental, Inc., 1994 and USGS, 1993). Although the landfill reportedly received mostly demolition debris in the past, general refuse and ITRI Laboratory wastes are also thought to have been disposed in the landfill (USGS, 1993). According to a 1994 report by AquaTech Environmental, Inc., eight to ten trenches, eight to ten feet deep, were used to dispose of laboratory wastes. At the same time the contents of a general refuse pit (within the trench area) were excavated and removed to Kirtland AFB Landfills No. 5 and 6, some trenches may have been excavated and removed as well (AquaTech Environmental, Inc., 1994). The trench area, including the general landfill pit, was backfilled using silty sand and gravel from the Tijeras Arroyo. From 1983 aerial photos of at least three open trenches, field observations of several areas of compacted sand and gravel appearing to have the same geometry and dimension of the trenches, and a five- to six-foot mound of sand and gravel, the AquaTech report concludes that some of the trenches may not have been excavated in 1984. In 1994 a notice of violation (NOV) was issued by the NMED when it was discovered that the northeast corner of the landfill had been recently used for disposal of uncontaminated ITRI lab test waste. The current tenants have

submitted a landfill closure plan for this area to meet the requirements of the New Mexico Solid Waste Disposal Act.

The geologic setting consists of terrace deposits, specifically sand and gravel; silty sand was used as cover material. No surface water crosses the landfill. This site lies east of the Hubble Springs Fault. The groundwater depth is 90 to 100 feet and the regional slope of the water table at Landfill B is to the south-southwest (AquaTech Environmental, Inc., 1994). The hydraulic gradient is unknown.

LF-18 - Landfill A (SWMU 6-7)

Landfill A encompasses 3 acres in the northwest region of Kirtland AFB, approximately 550 yards south of the east-west runway of the Albuquerque International Sunport. A portion of this landfill is outside the boundary of Kirtland AFB. This site lies west of the Hubble Springs Fault (USGS, 1993). The depth to groundwater is approximately 420 feet. The hydraulic gradient is unknown. The regional slope of the groundwater table is to the northeast (USGS, 1993).

From 1941 to 1946, Landfill A received and burned non-medical hospital waste and mess hall general refuse. All disposal appears to be at the surface. Although Landfill A was not used after 1946, it did not officially close until the 1980s.

LF-20 - Manzano Landfill (SWMU 6-29)

The Manzano Landfill is located on the southwest corner of the Manzano Weapons Storage Area (MSWA), outside the fenced area, in the central region of Kirtland AFB. The landfill is approximately 1 to 3 acres in size (USGS, 1993). Previous investigations include a review of historic air photos. Based on this review, it appears that the site was used and covered prior to 1959 (USGS, 1993). In a 1956 photo, however, it appears as a water-filled depression. LF-20 was operated as a disposal area for general refuse from the Manzano base housing area and also used for open burning (USGS, 1993). According to facility representatives, the site was also used for fire training activities prior to its use as a dump. On the basis of current waste management practices at the active landfill on base and observed black oily stains at LF-20, this site may also contain hazardous constituents. The site has a soil cover of unknown thickness and is currently inactive. A softball field has been constructed on a portion of the landfill cover.

This site is located west of the Sandia fault zone. Fractured granite is overlain by the Santa Fe Group. The land surface at this site slopes gently to the west. The depth of the water table is unknown. Groundwater may exist in fractured granite at depths greater than 100 feet (USGS, 1993). Groundwater flow in the region is generally westward; however, because groundwater flow is probably controlled by fractures in granite, the flow direction in the immediate vicinity of the site is unknown (USGS, 1993).

LF-44 - Fill Area Southeast of Sewage Lagoons (SWMU 6-11)

LF-44 encompasses approximately 2 acres and is located in the northwest part of Kirtland AFB about a quarter of a mile northwest of the Trestle Facility and immediately southeast of the Kirtland AFB sewage lagoons. The northern edge is bounded by the fence around the sewage lagoons and on the south by the railroad. The site has been used for the disposal of construction rubble for an unspecified period of time (USGS, 1993). The land surface in the vicinity of the site slopes moderately to the south toward the Tijeras Arroyo. The site is approximately 500 feet from Kirtland AFB Production Well No. 4. This site lies west of the Hubble Springs Fault (USGS, 1993). The depth to groundwater is approximately 480 feet (USGS, 1993). The hydraulic gradient is unknown. The direction of groundwater flow is generally to the northwest (USGS, 1993).

It is unknown when landfill operations began; however, according to base personnel, no further refuse has been added since 1988. The 8-foot-deep landfill contained mainly construction debris, including concrete, asphalt, roofing shingles, metal sheets, motor oil pans, and bottles. These materials were removed from October 1992 through March 1993.

LF-45 - Explosive Test Site/Unnamed Dump (SWMU 6-15)

This site, approximately 3 to 5 acres in size, is located in the northwest region of Kirtland AFB, one mile southwest of Landfill A (LF-18) and about one-half mile south of the east-west runway of the Albuquerque International Sunport. This site lies west of the Hubble Springs Fault (USGS, 1993). The land surface in the vicinity of the site slopes moderately to the southeast towards the Tijeras Arroyo. The site is located at the top of a small mesa and has no surface drainage. The depth to groundwater is approximately 380 feet (USGS, 1993). The hydraulic gradient is unknown and the general direction of groundwater flow is northeastward (USGS, 1993).

This site was used as an explosive test site between 1951 and 1955. Some charred, scattered debris such as bottles and construction rubble were noted in earlier reports, but were later removed from the site. Large steel panels were used in the construction of berms for the test site. These panels are currently the only visible evidence of the explosives testing performed at this site. Kirtland AFB will be responsible for removal and disposal of the steel panels.

OT-28 - McCormick Ranch (SWMU 6-31)

McCormick Ranch is an explosives testing area located adjacent to the southwest corner of Kirtland AFB on land leased from the State of New Mexico. A total of 747.24 acres of McCormick Ranch have been leased for explosives testing. The ground surface of McCormick Ranch gradually slopes southward toward Hell's Canyon Wash, approximately 3.5 miles from this site. There are no surface drainage channels that carry runoff onto McCormick Ranch nor are there any water bodies or significant drainage features. The site is almost featureless with only 30 feet of difference in elevation between its lowest and highest points. The lowest portion

of the site is on the southern boundary which is the location of a large playa. At one time this playa was thought to be 160 acres which collected all of the surface runoff. However, the size of the playa and surface drainage has been significantly altered by the explosive testing activities during the site's operation. This site lies west of the Hubble Springs Fault (USGS, 1993). The depth of the water table ranges from approximately 350 feet in the south to 380 feet in the north (top of casing elevations from the Philips Laboratory (PL) Phase II Environmental Baseline Survey (EBS) were consistently lower, up to 4 feet, than the KAFB, USGS 1993 report). The groundwater flow direction is to the north with the hydraulic gradient of 0.0001 (PL Phase II EBS, 1993).

From 1963 to 1992, explosives testing was conducted at McCormick Ranch for small scale high explosives development, analysis and modeling. The main explosives used were ammonium nitrate, pentaerythritol, and/or trinitrotoluene. The majority of tests were conducted on the surface and shallow subsurface. However, one test was conducted at a depth of approximately 300 feet below land surface. According to the PL Phase I and II EBS, there were 377 tests conducted from 1963 to 1992. Testing has ceased at this site. There are no plans for future testing. These tests resulted in numerous crater-like features (USGS, 1993).

OT-29 - Explosives Ordnance Disposal (EOD) Range (SWMU 6-19)

The EOD Range is located in the south-central region of Kirtland AFB, southeast of the MWSA and northeast of the Solar Thermal Test site. The EOD range is a circular, unvegetated area of 38 acres located on a flat, featureless surface that slopes slightly to the west. The range is an alluvial plain with no surface drainage crossings. The soil is mixed with an asphalt-like material serving as a defoliant. This site lies east of the Hubble Springs Fault (USGS, 1993). Groundwater depth is estimated at 100 feet and the water table slopes to the southwest (USGS, 1993). The hydraulic gradient is unknown.

Operations at this site began in 1972 and continue today. The EOD Range has a radius of 2,500 feet, but most of that area is used as a buffer zone. The area is covered with conical-shaped detonation pits, averaging 20 feet across and eight to ten feet deep. The pits are located as close to the center of the range as possible in order to maximize the buffer zone. Normally, one detonation pit is operated at a time. Once a pit has been used once or twice, a new pit is dug. The ordnance destroyed on the EOD Range includes magnesium flares, percussion grenades, ammunition boxes, firearms, explosive waste, confiscated narcotics, outdated and problematic gas cylinders, and chemical wastes. On the northeast edge of the range, there is a burn pit approximately 15 by 40 feet with a depth reaching eight feet (USGS, 1993). In the pit, small arms ammunition and spent flare casings are burned by igniting scrap wood drenched with kerosene (USGS, 1993).

OT-46 - Lake Christian (SWMU 6-22)

Lake Christian is a manmade lake located in the southeastern region of Kirtland AFB, about 1,000 feet west-northwest of Landfill B (LF-15). Lake Christian is 40 feet deep and 100 feet in diameter. The lake has approximately one foot of freeboard, and an abundance of foliage

surrounds it. An open drainage ditch is located less than 250 feet north of the site. This site lies east of the Hubble Springs Fault. Land surface in the vicinity slopes moderately to the west. The water table at the site is a minimum of about 80 feet below the ground surface (USGS, 1993). The hydraulic gradient is unknown. Groundwater near the site flows generally southwestward; however, the direction of groundwater flow in the immediate vicinity of the site is uncertain (USGS, 1993).

The lake was constructed in the 1950s for use as an underwater explosives testing facility (USGS, 1993). This unit was active until the mid-1960s to study the effects of underwater detonation of explosives such as TNT and pentolite.

FT-13 - Kirtland Fire Training Area (SWMU 6-16)

The Kirtland Fire Training Area (FTA) is located in the northwest region of the base, approximately 600 feet southwest of the old Federal Aviation Administration (FAA) Tower. The site consists of the former FTA (two unlined pits), the deactivated FTA (FT-52, Jet Engine Burn Area--a 200-foot diameter, graded area surrounding a 5-foot 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.

The two storm drains are the former FT-39 (SWMU 6-17); they service the runway and other developed areas to the north (SAIC, 1985). Both are located southeast of the graded area. The easternmost drain discharges into the open ditch east of the FTA (SAIC, 1985). The other drain is partially buried and discharges southeast of the concrete pad area (SAIC, 1985). Because of their proximity and similar use, the EPA approved combining FT-39 with FT-13 and FT-52. The Class I permit modification and finished site DD were completed and signed in 1994.

Prior to 1976, fire training activities were held twice per week in two unlined fire pits located about 110 feet east of the graded area (USGS, 1993). The pits would first be soaked with water 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. These unlined pits were allegedly also used for monthly disposal of one to two 55-gallon drums of waste solvents and oils from the base shops (SAIC, 1985). Since the construction of the new facility in 1976, these unlined pits have been filled with soil and graded flat (USGS, 1993).

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. The AFFF was used to extinguish the fires (USGS, 1993). After an exercise, residual liquids (JP-4, AFFF, and water) were allowed to evaporate (USGS, 1993). No fire training activities have been conducted at the site since March 1990.

After unusually large precipitation events, or when the valves on the drains on the pad are open, discharge from the FTA can flow into the storm drain. Most of the graded area is sandy and

infiltration is likely. Small cracks in the concrete pad probably only resulted in small amounts of infiltration; the rest probably evaporated. The FTA is not presently threatened by surface erosion; however, an unnamed arroyo with an active head cut southeast of the FTA could possibly threaten the site in the future. This site lies west of the Hubble Springs Fault (USGS, 1993). Groundwater is approximately 400 feet deep with a northeasterly hydraulic gradient of about seven feet per mile (SAIC, 1985).

WP-16 - Manzano Sewage Treatment Facility (SWMU 6-24)

This site consists of an Imhoff tank, sludge drying beds, and four sewage lagoons (formerly WP-40, 41, 42, and 43). The Imhoff tank is located about 100 feet west of Sewage Lagoon 1 in the central region of Kirtland AFB. The sludge drying beds are located southwest of the Imhoff Tank on the southwest edge of the MWSA administrative area. This site lies east of the Hubble Springs Fault (USGS, 1993). The water table at this site is approximately 500 feet below land surface. Groundwater at the site generally flows westward (USGS, 1993).

The Imhoff tank is a 30,000-gallon concrete tank used in the sewage treatment process to settle solids out of liquid effluent. The tank and sludge drying beds were in operation from 1969 until 1990, when a pipeline was constructed to transport waste to a municipal treatment plant. The sludges collected in the Imhoff tank were directed to the sludge drying beds. These beds are actually one rectangular unit divided lengthwise into two beds by a 3-foot high, 6-inch thick concrete wall. The total surface area is 1,740 square feet. The bottom of the bed is a 1-foot thick layer of sand over natural soil (USGS, 1993).

In 1984, untreated raw sewage was reportedly dumped into the beds (USGS, 1993). According to the Kearney/Centaur report (1988), samples collected from discharge effluent in the open receiving ditch contained low levels of dichlorobenzene, toluene, and xylenes.

KIRTLAND AFB
PROPOSED FY97 DERA BUDGET REQUIREMENTS

	A	B	C	D	E	F	G	I
1								
2	BASE PRI	PROJECT NUMBER	DESCRIPTION	PHASE	RISK	PRI	PGM AMNT (\$000)	LEGAL/ MILE
3								
4	1	MHMOV97-7000	Manpower	MGT			303	
5	2	MHMOV97-7001	TDY	MGT			13	
6	6	MHMOV97-7002	Update MAP	MGT				
7	13	MHMOV97-7003	Computer Support	MGT				
8	23	MHMOV97-7005	Vehicle Lease	MGT				
9	4	MHMOV97-7007	RAB Support	MGT				
10	5	MHMOV97-7011	Community Relations Support	MGT				
11	3	MHMOV97-7012	IRP Supplies & Equipment	MGT				
12	24	MHMOV97-7021	Final Records Search	MGT				
13					subtotal			
14								
15	7	MHMOV97-7004	RFI for Appendix I SWMUs	RI	H	1A		C/6
16		MHMOV97-7006	RESERVED (ICM FT-14)				0	
17		MHMOV97-7008	RESERVED (CMD RW-06)				0	
18	9	MHMOV97-7009	Long-Term GW Monitoring	LTM		5A		C&H/11
19	15	MHMOV97-7010	Post-Closure Care at WP-26	LTM		5A		H/8
20	11	MHMOV97-7013	RFI at RW-68 and SS-69	RI	H	1A		C/6
21	17	MHMOV97-7014	RFI at AOCs	RI	N/A	2A		C/6
22		MHMOV97-7015	RESERVED (BW Bkgd Study)				0	
23	16	MHMOV97-7016	RFI at RW-06	RI	M	2A		C/6
24		MHMOV97-7017	RESERVED (OEW)				0	
25		MHMOV97-7018	RESERVED (OEW)				0	
26		MHMOV97-7019	RESERVED (OEW)				0	

KIRTLAND AFB
PROPOSED FY97 DERA BUDGET REQUIREMENTS

	A	B	C	D	E	F	G	I
27	BASE PRI	PROJECT NUMBER	DESCRIPTION	PHASE	RISK	PRI	PGM AMNT (\$000)	LEGAL/ MILE
28								
29		MHMOV97-7020	RESERVED (GIS SUPPORT)				0	
30	10	MHMOV97-7022	Continued COE Fees	RI	N/A	1A		
31	12	MHMOV97-7023	ICM at ST-70	IRA	H	1A		C/7
32	22	MHMOV97-7024	CMS at ST-64	FS	M	2A		C/7
33	21	MHMOV97-7025	RFI at WP-58	RI	M	2A		C/6
34	14	MHMOV97-7026	Site Characterization of RW-10	SI	H	1A		Q/6
35	8	MHMOV97-7027	ICM at LF-02	IRA	H	1A		C/8
36	20	MHMOV97-7028	CMS at ST-70	FS	H	1B		C/7
37	18	MHMOV97-7029	ICM at WP-58	IRA	M	2B		C/7
38	19	MHMOV97-7030	ICM at ST-64	IRA	M	2B		C/7
39						subtotal	0	
40	Proposed Budget: 8% Management					TOTAL	6505	
41		62% Cleanup						
42		30% Study						



United States Air Force

Environmental Management, 377th Air Base Wing, Kirtland AFB, New Mexico 87117-5659

Phone: (505) 846-0053

DSN: 246-0053

Fax: (505) 846-0400

KIRTLAND SITES INSTALLATION RESTORATION PROGRAM

<u>IRP*</u> <u>NUMBER</u>	<u>SWMU**</u> <u>NUMBER</u>	<u>APPENDIX</u>	<u>DESCRIPTION</u>	<u>RELATIVE RISK</u>
LF-01	6-1	I	Landfill 1	High
LF-02	6-2	I	Landfill 2	High
RW-04	6A-2	IV	Radioactive Holding Tank 4	High
RW-05	6A-2	IV	Radioactive Holding Tank 5	High
RW-06	6-30	IV	Radioactive Burial Site 11	Medium
LF-07	6-3	I	Landfill 3	High
LF-08	6-4	I	Landfill 4, 5, 6	High
LF-09	6-10	III	Abandoned Landfill	Low
RW-10	N/A	N/A	Radiation Training Sites 1 - 8	High
FT-13	6-16	I	Kirtland Fire Training Area	High
FT-14	6-32	I	Manzano Fire Training Area	High
LF-15	6-8	I	Landfill B	Medium
WP-16	6-24	I	MWSA Sewage Treatment Facility	High
RW-17	6A-2	IV	Radioactive Holding Tank 6	High
LF-18	6-7	II	Landfill A	Medium
RW-19	N/A	IV	Radioactive Holding Tank 8	High
LF-20	6-29	I	Manzano Landfill	High
RW-23	6A-2	IV	Radioactive Holding Tank 9	High
WP-26	N/A	N/A	Golf Course Main Pond & Two Sewage Lagoons	High
OT-28	6-31	I	McCormick Ranch/Range	High
OT-29	6-19	II	EOD Range	Medium
LF-44	6-11	II	Fill Area SE of Sewage Lagoons	Medium
LF-45	6-15	II	Explosive Test Site Unnamed Dump	Medium
OT-46	6-22	I	Lake Christian	High
WP-47	8-6	II	Silver Recovery Unit	Low
ST-51	6-14	III	Sewage Effluent Line	Medium
<u>LF-56</u>	<u>LF-56</u>	II	<u>Landfill D</u>	<u>Medium</u>
<u>WP-58</u>	<u>WP-58</u>	II	<u>East Laundry, Bldg 20451</u>	<u>Medium</u>

-MORE-

<u>ST-59</u>	ST-59	II	ART Drum, Bldg 768	Medium
<u>ST-60</u>	ST-60	II	ART Pit, Bldg 765	Medium
<u>SS-61</u>	8-49	III	Fuel Shop Waste Battery Storage Area, Bldg 20677	Low
<u>SS-62</u>	9-20	III	Inactive Waste Accumulation Area, Bldg 909	Low
<u>SS-63</u>	10-2	III	Jet Engine Test Cell, Bldg 702	Low
<u>ST-64</u>	ST-64	II	USACE Vehicle Maintenance Yard, Bldg 20212, Demolished	Medium
<u>SS-65</u>	SS-65	III	Horizontal Polarized Dipole (HPD) Drum Rack	Low***
<u>ST-66</u>	ST-66	II	Trestle Facility (Vehicle Pit and Aircraft Pit)	Medium***
<u>DP-67</u>	N/A	N/A	Three Mine Shafts	Low
RW-68	RW-68	IV	Radium Dump/Slag Piles & Cratering Area	High
<u>SS-69</u>	SS-69	IV	Drum Storage Area (Within INWS TS-6)	High
ST-70	ST-70	II	KAFB Oil/Water Separators	High
<u>ST-71</u>	8-13	II	Oil/Water Separator, Bldgs 1001/1002	Medium
<u>ST-72</u>	ST-72	II	Oil/Water Separator, Bldg 30146	Medium
<u>ST-73</u>	ST-73	II	CERF Drain, Bldg 57001	Medium
<u>OT-74</u>	OT-74	III	Former Pistol Range	Not Ranked
<u>RW-75</u>	RW-75	IV	South Tijeras Trench	Not Ranked

Total: 45 IRP Sites

* IRP -- Installation Restoration Program (Part of Defense Environmental Restoration Program)

** SWMU -- Solid Waste Management Unit (Regulated under Resource Conservation and Recovery Act)

*** Tentative Ranking, Pending Stakeholder Approval (Sites SS-65 and ST-66)

___ Underlined -- IRP Areas of Concern, not identified as sites on official IRP site list. (WP-58 and ST-64 currently in process of being added.)

(Current as of May 15, 1996)

