



DEPARTMENT OF THE AIR FORCE
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RETURN RECEIPT REQUESTED

James R. Fraser
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8 NOV 1996

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Mr. Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau
NM Environment Department
PO Box 26110
Santa Fe NM 87502



Dear Mr. Garcia

We are submitting two no further action (NFA) documents for SWMUs 6-14, Sewage Effluent Line (ST-51), and 8-6, Silver Recovery Unit (WP-47).

The EPA previously approved NFA for the Silver Recovery Unit based on results of the RFI and completion of an interim corrective measure. We completed the RFI at the Sewage Effluent Line and found no evidence of a release. We will initiate a permit modification upon NMED's approval of the NFA documents.

Please contact me at 846-2751, or my focal point, Mr. Chris DeWitt at 846-0053, if you have any questions regarding these documents.

Sincerely

James R. Fraser
JAMES R. FRASER, Lt Col, USAF
Director
Environmental Management Division

attachments:

1. WP-47 NFA Document, 9/25/96
2. ST-51 NFA Document, 9/25/96

cc:

NMED-HRMB (Mr. Pullen)
EPA Region 6 (Ms. Morlock)



**MILITARY/CIVIL HTW PROJECTS
FOR
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT**

**U.S. AIR FORCE
AIR FORCE MATERIEL COMMAND
KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO**

**FINAL NO FURTHER ACTION DOCUMENT
SWMU 8-6
SILVER RECOVERY
UNIT BUILDING 1000 (WP-47)**

CONTRACT NO. DACW45-93-D-0004

September 25, 1996

Prepared for:

**U.S. ARMY CORPS OF ENGINEERS
Omaha District
215 North 17th Street
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Prepared by:

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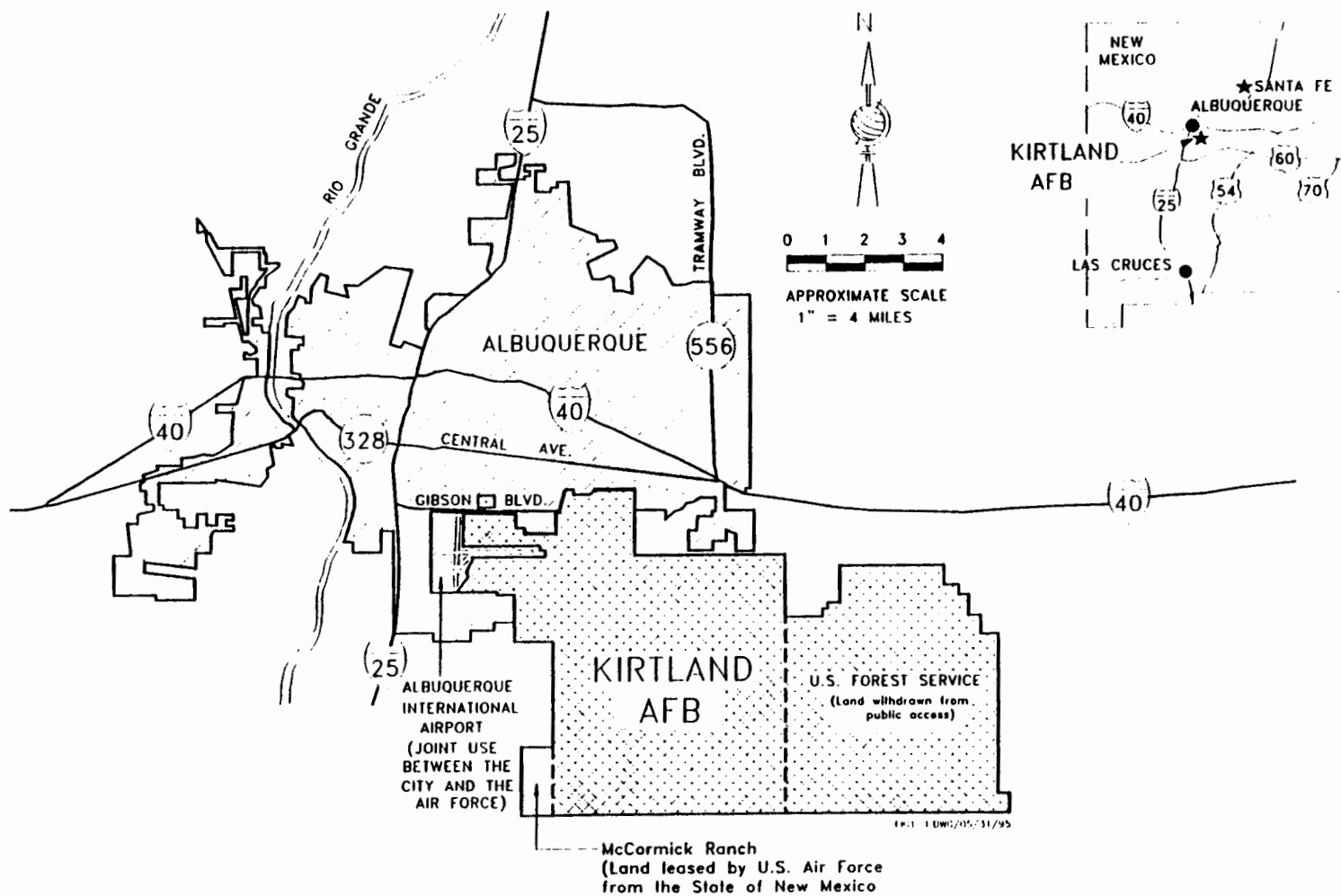
1.0 INTRODUCTION

CDM Federal Programs Corporation (CDM) under its contract with the Department of the Army Corps of Engineers, Omaha District, has been tasked to perform a review of Solid Waste Management Unit 8-6, Silver Recovery Unit, Building 1000, located on Kirtland Air Force Base (KAFB), Albuquerque, New Mexico. The purpose for this review is to summarize both the findings presented in the Halliburton NUS Corporation (1995a, b and c) investigations and the recommendations made for the determination of No Further Action (NFA). NFA requirements are outlined in the Hazardous Waste Permit for KAFB dated October 10, 1990.

1.1 INSTALLATION

Kirtland Air Force Base (KAFB) is located in the southeast heights portion of Albuquerque, New Mexico (Figure 1-1). The east side of KAFB is located on U.S. Forest Service Administered land that has been withdrawn from public access. The Albuquerque International Airport and Sandia National Laboratories are collocated with KAFB. The basic mission of KAFB is to provide research and development for Air Force programs, and training for pararescue medics.

Figure 1-1 Location of Kirtland Air Force Base, Albuquerque, NM (Halliburton NUS Corporation, 1995a)



2.0 SWMU 8-6, SILVER RECOVERY UNIT, BUILDING 1000 (WP-47)

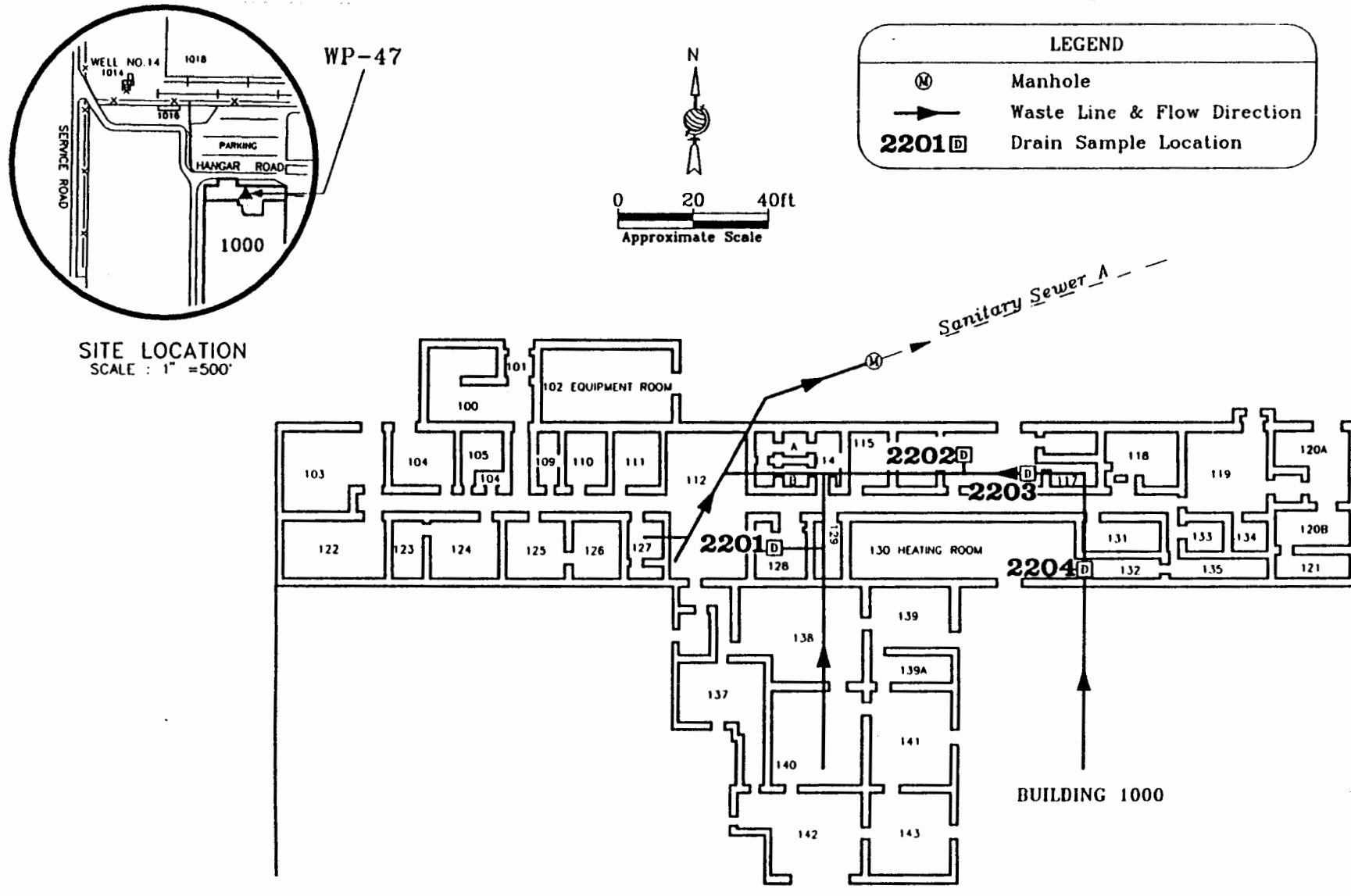
2.1 SITE IDENTIFICATION AND BACKGROUND

Site WP-47 is located in the former KAFB Photographic Laboratory in the northern section of Building 1000 (Figure 2-1). Building 1000 is located in the urban/industrial environmental zone on the northwest portion of KAFB, adjacent to the main Albuquerque International Airport runway. The silver recovery unit electrolytically recovered silver from spent fixer solutions used in the photographic development process, using a special cartridge. Processed fixer fluids included about 10 gallons per year from the Air National Guard Photographic Laboratory, Building 1055, and 10 gallons per month from the Naval Weapons Evaluation Facility Photographic Laboratory, Building 1002. The spent solutions were stored in plastic containers until it was batch processed; the cartridge was periodically replaced. The portable silver recovery unit discharged into four floor drains: one drain located in room 128; two drains in room 116; and one drain in room 132 (USGS, 1993). Although the drain in room 132 was inactive for several years, effluent from the recovery unit was being intermittently discharged via the other three floor drains into the sanitary sewer located on the north side of the building. Discharge from KAFB to the city's sanitary sewer is regulated by a pre-treatment agreement with the City of Albuquerque. It is not known how long the recovery units were in operation at this location (USGS, 1993a). After September 1993, the photographic laboratory was moved to building 20145.

The site was investigated due to a suspected release from the silver recovery unit. If the unit malfunctioned or operated inefficiently, silver-laden solution could potentially be discharged as effluent to the floor drains.

The silver recovery unit at Building 1000 was characterized under the Stage 2B, Appendix II RCRA Facility Investigation (RFI) (Halliburton NUS Corporation, 1995a), and Stage 2C, Appendix III Wasteline Sites RFI (Halliburton NUS Corporation, 1995b). During the Stage 2B,

Figure 2-1 Site WP-47, Silver Recovery Unit, Building 1000, Kirtland AFB (Halliburton NUS Corporation, 1995a)



Appendix II RFI, sediment samples were collected from the traps in each of the four floor drains in September 1993. The sediment sample locations are shown on Figure 2-1 and are designated as 2201, 2202, 2203 and 2204. During the Stage 2C RFI, soil samples were collected on December 27, 1994, through borings drilled through the floor slab adjacent to the drain lines, to determine the presence or absence of soil contamination. The United States Environmental Protection Agency (EPA) reviewed the Appendix II Stage 2B RFI and by correspondence letter dated 30 May 1995, the EPA agreed with KAFB's recommendation for NFA at the site, but recommended continued monitoring (KAFB, 1995).

During the Stage 2B investigation, silver was detected above the Human Health Risk-Based (HHRB) action level of 400 mg/kg in the sediment samples collected from the drains at locations 2201 and 2202 (Figure 2-1). Silver was detected at 412,000 and 241,000 mg/kg in the sediment sample and replicate sample, respectively, from location 2201. The silver concentration in the sediment at sample location 2202 was detected at 6330 mg/kg.

Silver was also detected in the aqueous samples from 2202 and 2203 and the replicate sample at 2201 (Figure 2-1). Concentrations ranged from 0.00065 to 0.0072 mg/l. These concentrations are below the HHRB action level of 0.05 mg/l and also below the Secondary Maximum Contaminant Level (SMCL) of 0.1 mg/l. No drains were receiving wastewater at the time of sampling in September 1993.

During the Stage 2C RFI (Halliburton NUS Corporation, 1995b), three soil samples were collected in the shallow subsurface adjacent to the drain lines to determine the presence or absence of contamination. The samples were analyzed for metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), soil pH, and moisture content. The soil sample results revealed that none of the analytes were above the human health-risk based (HHRB) levels except for arsenic and beryllium. The arsenic concentrations (3.6, 3.3 and 2.4 mg/kg) in all three samples were detected above the arsenic (0.37 mg/kg) HHRB. The beryllium concentrations (0.34 and 0.32 mg/kg) in two samples were

detected above the beryllium (0.15 mg/kg) HHRB. These elements are found to be naturally occurring at concentrations above the HHRB; however, the concentrations were detected below the upper tolerance limits for arsenic (6.5 mg/kg) and beryllium (6.5 mg/kg).

Based on these analytical findings, an interim corrective measure was undertaken to remove the silver contaminated sediments/water. This corrective measure involved hydro-jetting the affected drains and removing the affected sediments/water with a vacuum truck.

2.2 INTERIM CORRECTIVE MEASURE RESULTS

The drains associated with the silver recovery unit at Building 1000, SWMU 8-6, were cleaned out on March 9, 1996, using hydro-jetting equipment and a vacuum truck to collect the effluent. Approximately 1950 gallons of effluent were generated during the cleaning effort. Most of the effluent water, approximately 1700 gallons, was top discharged to the sanitary sewer. The remaining effluent and sludge, approximately 230 gallons, was containerized in 55 gallon drums at the field office. This effort was conducted in accordance with the *Work Plan for Interim Corrective Measures* by Halliburton NUS Corporation (1995c). Jeff Johnston and Karin Crandall of Halliburton NUS Corporation were on-site to supervise the cleaning effort. Mr. Rooter Plumbing and Atlas Pumping Service in Albuquerque, New Mexico, provided the subcontractor support for the drain cleaning services. A project to refurbish the walls and floors in these rooms includes plugging and abandonment of the drains and is scheduled for completion in late 1996.

2.3 RECOMMENDATIONS

The recommendation made in the Stage 2B, Appendix II RFI, proposed NFA contingent on the successful completion of the interim corrective measure. The Air Force Supports the recommendation that NFA is appropriate at WP-47. The EPA has also indicated that further monitoring will not be required upon successful completion of the interim corrective measure (KAFB, 1995).

2.4 COORDINATION WITH REGULATORY AGENCIES

A notification letter for a Class III modification to remove WP-47 from the KAFB Hazardous Waste Permit dated 10 October 1996 will be sent to the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Branch (HRMB) as well as the EPA. The general public will be notified via a letter addressed to members of the Restoration Advisory Board (RAB) and all other persons on KAFB's mailing list, as well as public notices in the area's two major, general circulation newspapers, and posting in the public record in the information repository. A Class III modification also requires a 90-day comment period followed by a public hearing. A Professional Engineer "Clean Closure Certification" is not required under NFA regulatory guidelines.

2.5 CONCLUSIONS

The Air Force recommends that further corrective actions and monitoring will not be necessary at WP-47 because contaminants at or above HHRB action levels were removed and the drains are abandoned. This action is protective of human health and the environment and warrants KAFB to proceed for a Class III permit modification based on NFA requirements.

3.0 REFERENCES

- Halliburton NUS Corporation (NUS). 1995a. Kirtland Air Force Base, Albuquerque, New Mexico, Final RCRA Facility Investigation (RFI) Report, Appendix II, Stage 2B with Notice of Deficiency Response. Prepared for AFCEE/ESR, Brooks AFB, July 5, 1995.
- Halliburton NUS Corporation (NUS). 1995b. Kirtland Air Force Base, Albuquerque, New Mexico, RCRA Facility Investigation Report, Appendix III, Wasteline Sites; Draft Final. Prepared for AFCEE/ESR, Brooks AFB, October 23, 1995.
- Halliburton NUS Corporation (NUS). 1995c. Work Plan For Interim Corrective Measures, Kirtland Air Force Base, Albuquerque, New Mexico. Prepared for AFCEE/ESR, Brooks AFB, August 21, 1995.
- Kirtland Air Force Base (KAFB), 1995. U.S. Air Force Installation Restoration Program (IRP) Decision Document. Prepared by 377th Air Base Wing (ABW) Environmental Management Division (EM) Restoration Branch, KAFB, NM.
- United States Geological Survey (USGS), Water Resources Divison. 1993. Installation Restoration Program Stage 2B Investigative Work Plan for Kirtland Air Force Base, NM, January 1993.

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FOR
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AIR FORCE MATERIEL COMMAND
KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO**

**FINAL NO FURTHER ACTION DOCUMENT
SWMU 6-14
SEWAGE EFFLUENT TRANSMISSION LINE
(ST-51)**

CONTRACT NO. DACW45-93-D-0004

September 25, 1996

Prepared for:

**U.S. ARMY CORPS OF ENGINEERS
Omaha District
215 North 17th Street
Omaha, Nebraska 68102-4978**

Prepared by:

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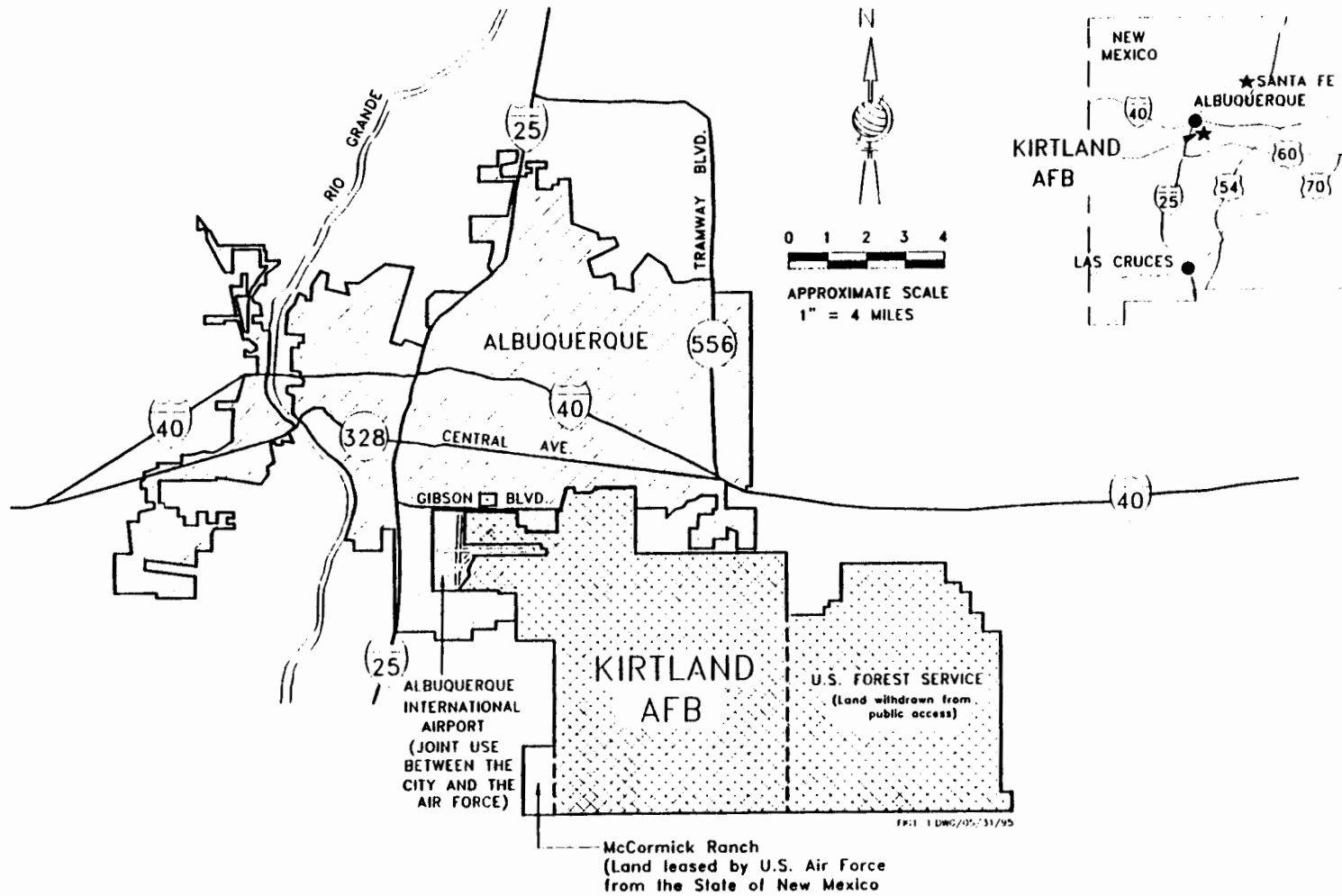
1.0 INTRODUCTION

CDM Federal Programs Corporation (CDM) under its contract with the Department of the Army Corps of Engineers, Omaha District, has been tasked to perform a review of Solid Waste Management Unit 6-14, Sewage Effluent Transmission Line (ST-51), located on Kirtland Air Force Base (KAFB), Albuquerque, New Mexico. The purpose for this review is to summarize findings presented in the Halliburton NUS Corporation (1995) investigation which resulted in a recommendation of No Further Action (NFA). NFA requirements are outlined in the Hazardous Waste Permit for KAFB dated 10 October 1990.

1.1 INSTALLATION

Kirtland Air Force Base (KAFB) is located in the southeast heights portion of Albuquerque, New Mexico (Figure 1-1). The east side of KAFB is located on U.S. Forest Service Administered land that has been withdrawn from public access. The Albuquerque International Airport and Sandia National Laboratories are collocated with KAFB. The basic mission of KAFB is to provide research and development for Air Force programs, and training for pararescue medics.

Figure 1-1 Location of Kirtland Air Force Base, Albuquerque, NM (Halliburton NUS Corporation, 1995)



2.0 SWMU 6-14, SEWAGE EFFLUENT TRANSMISSION LINE (ST-51)

2.1 SITE IDENTIFICATION AND BACKGROUND

The sewage effluent transmission line (ST-51) is the underground pipeline connecting the KAFB Sewage Lagoons with the Golf Course Main Pond (GCMP) (Figure 2-1). The GCMP and the KAFB Sewage Lagoons comprise the Installation Restoration Program (IRP) Site WP-26 which was granted eligibility for clean closure from the New Mexico Environment Department (NMED) in a letter dated 9 July 1996. As raw sewage was discharged into the KAFB Sewage Lagoons, the suspended solids settled out; the supernatant then gravity flowed through the pipeline a distance of 2.5 miles and discharged into the GCMP. The supernatant solution was then diluted with fresh water also contained in the GCMP and was subsequently used to irrigate the KAFB golf course. ST-51 was characterized in the Halliburton NUS Corporation (1995) report.

ST-51 trends southeast from the Sewage Lagoons and crosses the Tijeras Arroyo south and east of the Landfill 2 area. Near the INWS Radioactive Training Site 8, the pipeline crosses part of Arroyo del Coyote and turns east to the GCMP (Figure 2-1). The pipeline is about 12,000 feet long and is constructed of 15-inch diameter reinforced concrete, with one 14-inch diameter PVC pipe section. ST-51 was used from 1965 until 1987 when the KAFB Sewage Lagoons were deactivated. There were no visible indications of releases during the RCRA Facility Assessment (RFA) Visual Site Inspection (VSI) performed in 1988 by Kearney/Centaur (1988). Prior to this inspection, in 1983, erosion undercut a portion of the pipe and caused pipe failure that resulted in a localized release of approximately 110,000 gallons (Halliburton NUS Corporation, 1995). The rupture occurred at a valve near the INWS Radioactive Training Site 8 (Figure 2-2). Sampling and analyses in the release area was conducted on 21 June 1994, by Halliburton NUS Corporation (1995). The area of investigation was limited to soil in the vicinity of the release from the ground surface to 11 feet below grade.

There are two production water wells near ST-51: KAFB-4 is 1,000 feet southeast of the KAFB Sewage Lagoons, and KAFB-7 is 4,100 feet northwest.

Figure 2-1 Site Location Map SWMU 6-14, Sewage Effluent Transmission Line (ST-51) (Halliburton NUS, 1995)

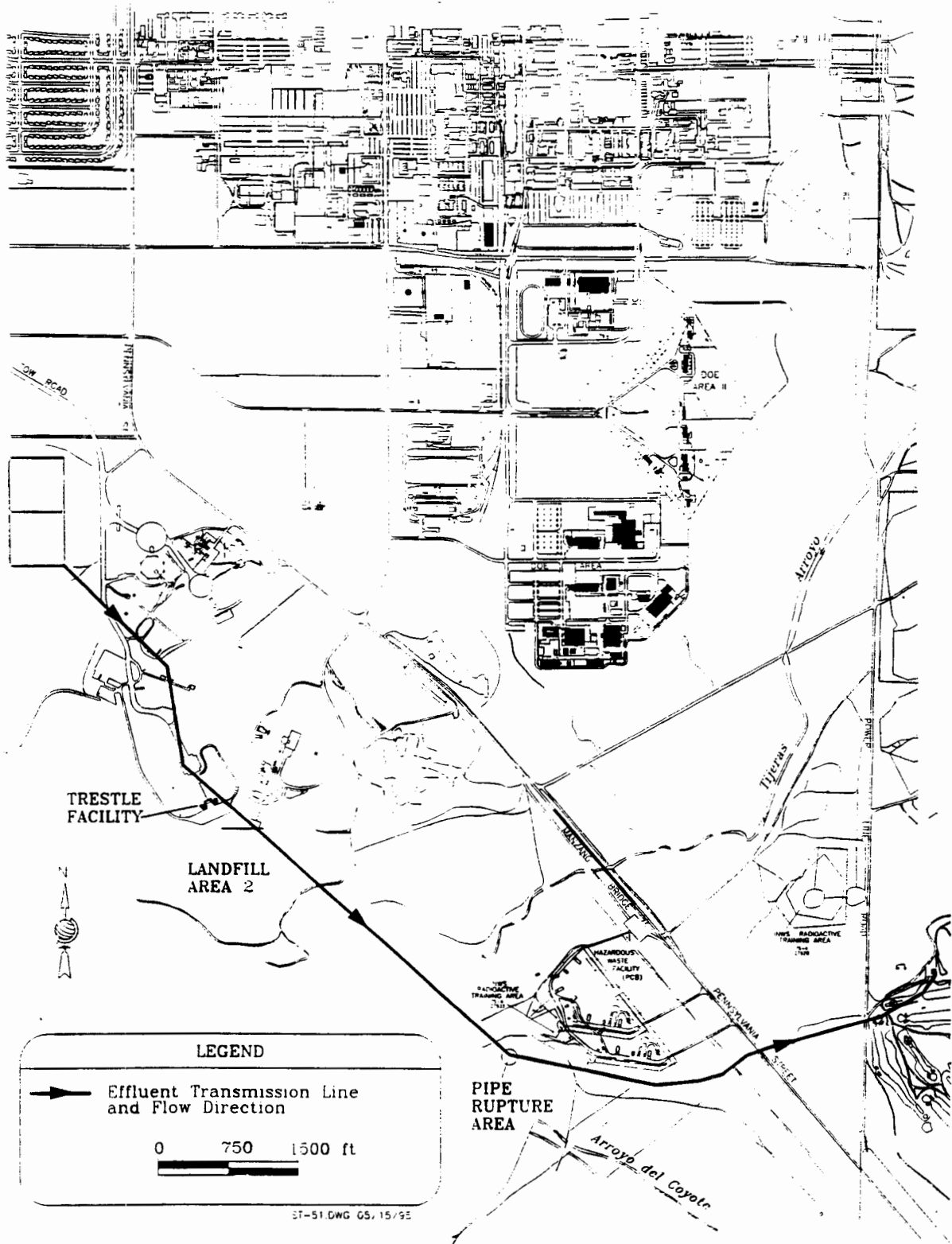
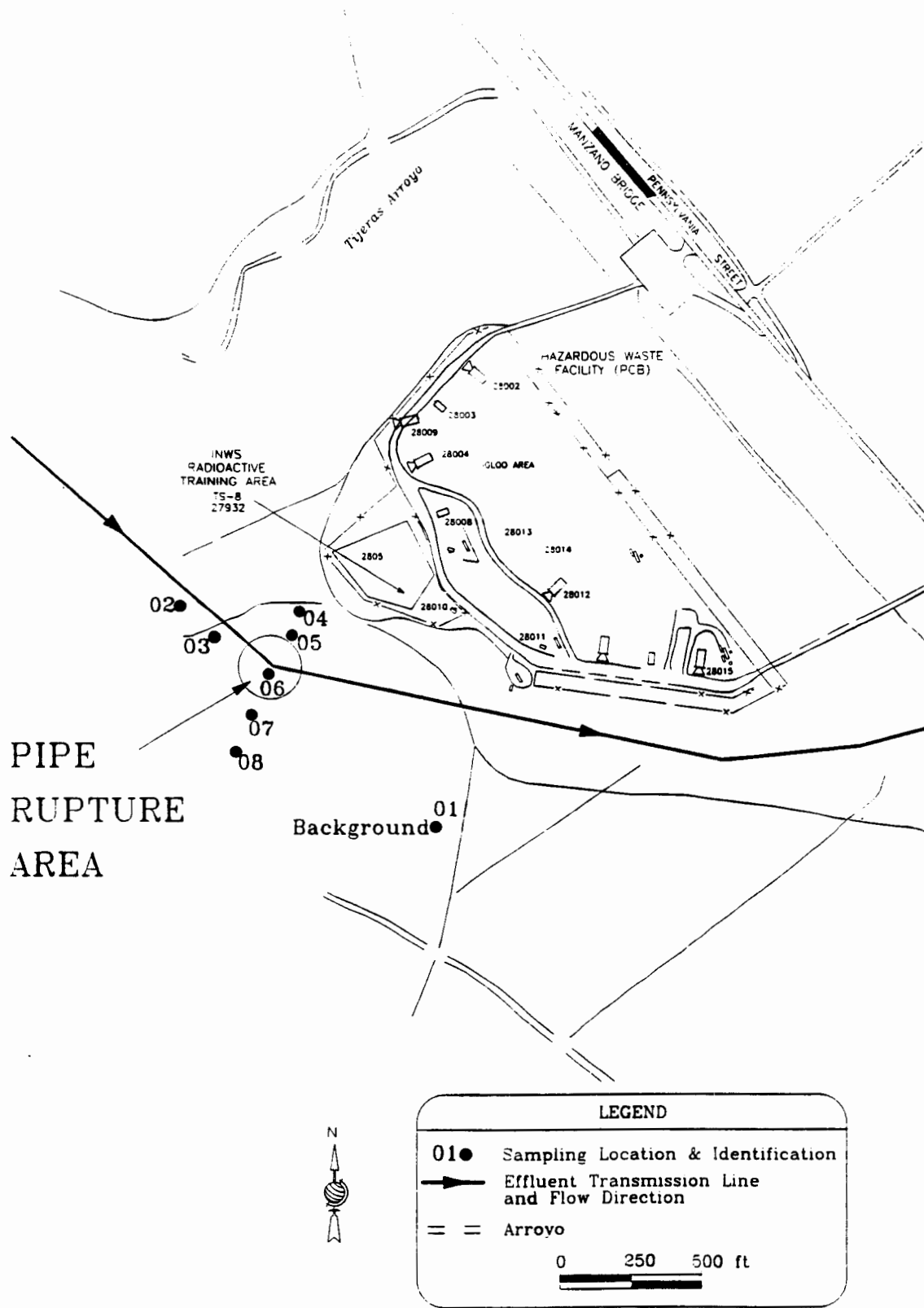


Figure 2-2 Soil Sampling Locations at SWMU 6-14, Sewage Effluent Transmission Line (ST-51) (Halliburton NUS, 1995)



Prior to the June 1994 sampling event, no subsurface investigations had been performed to determine the presence or absence of soil contamination at ST-51. Sampling and analyses for the KAFB Sewage Lagoons indicated the presence of Appendix VIII and RCRA-regulated constituents (i.e., VOCs at concentrations of less than 60 $\mu\text{g}/\text{l}$ and SVOCs ranging in concentration from 0.4 $\mu\text{g}/\text{l}$ to 57 $\mu\text{g}/\text{l}$ at the Lagoon 1 inlet [Engineering Science, 1981]). Because these contaminants were detected and the pipeline had ruptured, the permeable subsurface material potentially received contaminated wastewater.

During the Halliburton NUS Corporation (1995) investigation, eight boreholes were hand-augered in the vicinity of the ST-51 pipeline rupture area (Figure 2-2) to assess the affected area. Soil samples were collected from these boreholes at a depth from 10 to 11 feet below the ground surface. The samples were analyzed for volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), metals, total petroleum hydrocarbons (TPH), nitrate, and soil moisture. The analytical results from this sampling effort showed no residual evidence of a contaminant release at the subject location. No TPH, VOCs, or SVOCs above background or action levels were found; however, nitrate was detected in each sample but was below the human health-risk based (HHRB) action level at concentrations ranging from 2.8 mg/kg to 28 mg/kg. The background concentration for nitrate was detected at 18 mg/kg. Arsenic, beryllium, and manganese were the only metals detected at concentrations exceeding HHRB action levels. These concentrations appear to be naturally occurring throughout KAFB.

2.2 INTERIM CORRECTIVE MEASURES

No interim corrective actions were recommended in the Halliburton NUS Corporation (1995) investigation because initial borehole sampling and analyses revealed no contamination. The site was also not considered to be a threat to human health.

2.3 RECOMMENDATIONS

Because the sampling and analyses effort revealed no petroleum products, VOCs, SVOCs, and

metals above background conditions, the Air Force concurs with the recommendation for NFA as presented in the Halliburton NUS Corporation (1995) report for ST-51.

2.4 COORDINATION WITH REGULATORY AGENCIES

KAFB has performed requirements in its closure plan dated 10 September 1991 for the two sites collocated with ST-51; namely, the Golf Course Main Pond (GCMP) and the KAFB Sewage Lagoons. KAFB prepared a report entitled *Kirtland Air Force Base Sewage Lagoons and Golf Course Main Pond Post Closure Monitoring* dated 18 April 1996, which was accompanied by a letter requesting the Sewage Lagoons and GCMP be considered eligible for clean closure certification. The NMED Hazardous and Radioactive Materials Bureau (HRMB) received these documents for review and comment. Per a letter dated 9 July 1996, the HRMB concluded that the GCMP and the Sewage Lagoons are technically eligible for clean closure certification by KAFB under RCRA.

A notification letter for a Class III modification to remove ST-51 from the KAFB RCRA Part B Permit will be sent to the NMED/HRMB as well as the United States Environmental Protection Agency (EPA). The general public will be notified via a letter addressed to members of the Restoration Advisory Board (RAB) and all other persons on KAFB's mailing list, as well as public notices in the area's two major, general circulation newspapers, and posting in the public record in the information repository. A Class III modification also requires a 90-day comment period followed by a public hearing. A Professional Engineer "Clean Closure Certification" is not required under the NFA regulatory guidelines.

2.5 CONCLUSIONS

Based on sampling and analyses performed by Halliburton NUS Corporation (1995) of the affected areas associated with ST-51 and based on the eligibility for clean closure under RCRA for the Sewage Lagoons and the GCMP, the Air Force concurs with the recommendation for NFA at ST-51.

3.0 REFERENCES

Halliburton NUS Corporation (NUS). 1995. Kirtland Air Force Base, Albuquerque, New Mexico RCRA Facility Investigation Report, Appendix III, Wasteline Sites: Draft Final. Prepared for AFCEE/ESR, Brooks AFB, October 23, 1995.

Kearney / Centaur. 1988. Preliminary Review / Visual Site Inspection, Kirtland Air Force Base, Albuquerque, New Mexico.

Engineering Science Incorporated. 1981. KAFB Installation Restoration Program (IRP) Phase 1 Records Search Hazardous Materials Disposal Sites.