

CAFB-4R

**Kirtland Air Force Base
Albuquerque, New Mexico**

**RCRA Facility Investigation
Sampling and Analysis Plan
Solid Waste Management Unit WP-58
East Laundry (Building 20451) (WP-58)**

Final Draft - May 19, 1997



**377 ABW/EMR
2000 Wyoming Blvd. SE
Kirtland AFB, New Mexico 87117-5659**

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**INSTALLATION RESTORATION PROGRAM
KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO**

**FINAL DRAFT
RCRA FACILITY INVESTIGATION (RFI)
SAMPLING AND ANALYSIS PLAN
SOLID WASTE MANAGEMENT UNIT WP-58
EAST LAUNDRY (BUILDING 20451) (WP-58)**

MAY 19, 1997

Prepared For
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PREFACE

This RCRA Facility Investigation (RFI) Sampling and Analysis Plan (SAP) specifies the field sampling activities that will be performed during 1997 at one solid waste management unit in Appendix II to the Module IV of the RCRA Part B Permit for Kirtland Air Force Base (AFB). The plan addresses the requirements of the U.S. Air Force (USAF) statement of work, dated February 13, 1997.

This report was prepared by CH2M HILL in May 1997. Mr. Bassim D. Shebaro of the Air Force Center for Environmental Excellence was the Restoration Team Chief and Mr. Rodney Arnold served as the Contracting Officer's Representative.



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ACRONYMS

AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
bgs	below ground surface
EPA	U.S. Environmental Protection Agency
ft	feet
HHRB	human health risk-based
IRP	Installation Restoration Program
MSD	matrix spike duplicate
NMED	New Mexico Environment Department
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAP	Sampling and Analysis Plan
SE	southeast
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAL	Target Analyte List
USAF	U.S. Air Force
VOC	volatile organic compound

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) describes the additional field activities to be conducted at solid waste management unit (SWMU) WP-58, East Laundry (Building 20451) (WP-58), at Kirtland Air Force Base (AFB) (Figure 1-1). The field activities will further characterize the nature and extent of contaminants present at the site. This SAP will serve as a field guide during the investigation. It contains site background and environmental setting, results of previous investigations, data gaps, and the site-specific work plan and rationale. The New Mexico Environment Department (NMED) and U.S. Environmental Protection Agency (EPA) Region 6 did not require a separate Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan for this site. Rather, this investigation will be conducted in accordance with the Kirtland AFB Base-Wide Plans for the Installation Restoration Program (IRP) (USAF, 1995).

1.1 Description of Investigation

The investigation at this site will characterize the nature and extent of hazardous material releases. The site is located in the industrialized portion of the base and functioned as the former Sandia Army Base laundry facility. Waste generated by the laundry included detergent and water effluent from washers and calcium salts from the water softeners. It is unknown whether the laundry operated a dry-cleaning service. The site is listed in Appendix II to Module IV of the Kirtland AFB RCRA Part B Permit.

The objective of the RFI activities presented in this SAP is to fully delineate the horizontal and vertical extent of contaminants present. The results of this investigation will provide information to be used in determining the need for any additional corrective action at the site.

The current investigation status and the proposed scope of work for this site are in Section 2 of this document.

1.2 Scoping Documents

In addition to this SAP, the Kirtland AFB Base-Wide Plans for the IRP (USAF, 1995) will be used as the scoping document during the investigation. The following modules included in the Base-Wide Plans will be followed during site activities:

- Project Management Plan
- Data Collection Quality Assurance Plan
 - Part I—Field Sampling Plan
 - Part II—Quality Assurance Project Plan
- Data Management Plan
- Site Health and Safety Plan
- Investigation-Derived Waste Management Plan
- Community Relations Plan

The Base-Wide Plans will be adhered to for all aspects of the RFI activities unless they are specifically modified by this SAP or the subsequent site-specific health and safety plan for WP-58.

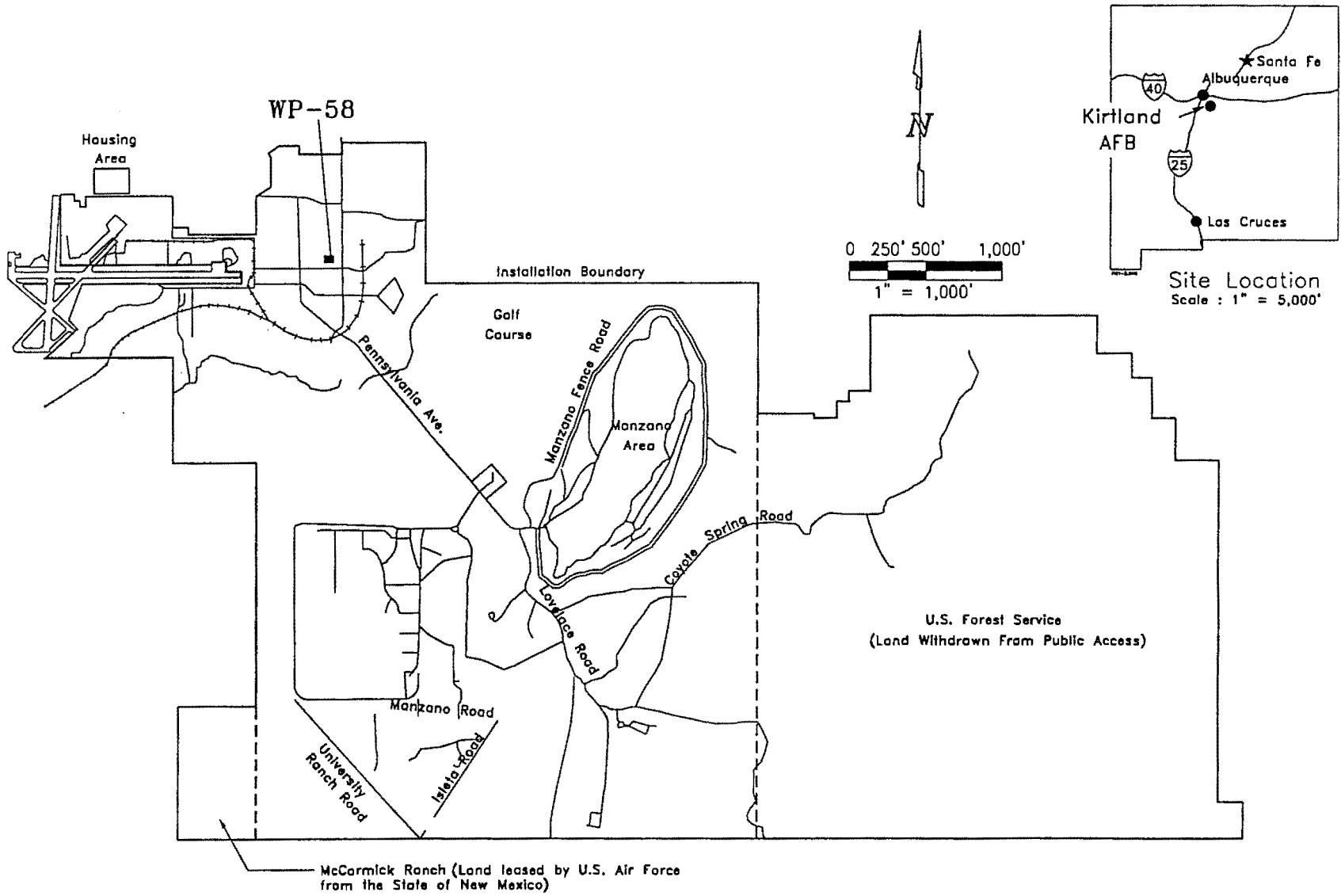


Figure 1-1. Site Location

2. SWMU WP-58, EAST LAUNDRY (BUILDING 20451) (WP-58)

SWMU WP-58, East Laundry (Building 20451) (WP-58), is located at 2251 Wyoming Blvd SE on the east side of Kirtland AFB and functioned as the Sandia Army Base laundry facility (Figure 2-1). Although the exact period of operation is unknown, the building was erected in 1950 and probably operated as a laundry until the mid-1960s.

2.1 Site Background and Environmental Setting

The building was renovated in 1983 and currently is used as an office for the Defense Evaluation Support Activity. The building is a single-story slab-on-grade structure, approximately 17,500 sq ft. Washers, dryers, steam presses, and a water-softening unit were used during the facility operation. Effluent was discharged from the washers to a central concrete drainage trench that drained to a below-grade sump on the east side of the building. The 500-gallon concrete sump discharged to the sanitary sewer via a 6-in discharge line. The sump was removed during the building renovation. A second, smaller sump was located inside the building next to the former water-softening units. This sump also discharged to the sanitary sewer via a 4-in line on the east side of the building.

Waste generated at the site included detergent and water effluent from the washers and calcium salts from the water softeners. It is unknown whether the laundry operated a dry-cleaning service. However, if dry-cleaning was performed at this facility, it is possible that solvents such as carbon tetrachloride or tetrachloroethylene also were used. Herbicides were formerly used for landscape weed control.

2.2 Results of Previous Investigations

Several surveys and investigations have been conducted at this site:

- A site landscaping study identified the herbicides 2,4-D and dicamba in subsurface soil (USAF, 1983).
- A SWMU assessment investigation was conducted to determine if hazardous constituents were released from the sumps. Concentrations of semivolatile organic compounds (SVOCs) anthracene, benzidine, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, and pyrene were detected in subsurface soils on the east side of the building (USAF, 1994).
- The Appendix V RFI report identified 17 SVOCs in surface and subsurface soil at the site (USAF, 1996). Four SVOCs were detected in soil samples at concentrations above human health risk-based (HHRB) action levels. The SVOCs detected above HHRB action levels and the concentration range of each compound, are listed below (USAF, 1996):
 - benzo(a)anthracene (0.91 to 2.9 milligram per kilogram [mg/kg]) (HHRB action level 0.88 mg/kg)
 - benzo(a)pyrene (0.35 to 2.6 mg/kg) (HHRB action level 0.088 mg/kg)
 - benzo(b)fluoranthene (0.96 to 3 mg/kg) (HHRB action level 0.88 mg/kg)
 - indeno(1,2,3-c,d)pyrene (2.1 mg/kg) (HHRB action level 0.88 mg/kg)

The remaining SVOCs were detected at concentrations below HHRB action levels.

2.3 Data Gaps

Data from previous investigations indicated SVOC contamination in the soils at this site. Further characterization is required to fully delineate the horizontal and vertical extent of the contamination. In addition, potential contamination beneath the building has not been investigated. Contamination may exist beneath the building since the main drain for the laundry facility extended beneath the building.

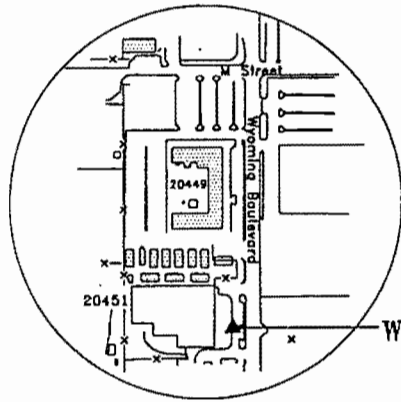
2.4 Work Plan and Rationale

The proposed scope of the field investigation including sample locations is shown in Figure 2-1 and summarized in Table 2-1. Analytical parameters are provided in Table 2-2. The field program has been designed to fully delineate the horizontal and vertical extent of subsurface soil contamination at the site. Field activities will include the advancement of nine boreholes with a direct-push drill rig (Geoprobe). Seven boreholes will be drilled vertically; two boreholes will be drilled at an angle (approximately 15 degrees from the vertical) beneath the building.

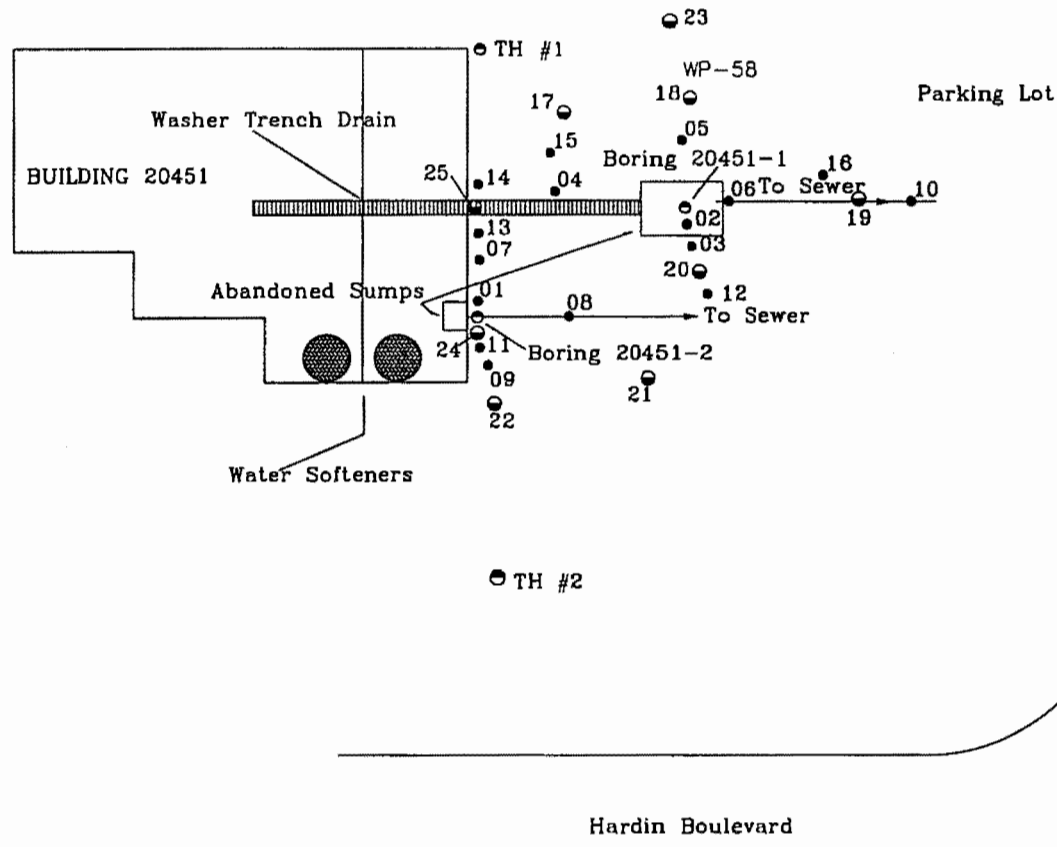
All samples will be field-screened with a photoionization detector. Samples will be analyzed for SVOCs (EPA Method 8270) and target analyte list (TAL) metals (EPA Methods 6010 and 7471). Metals analysis is included so that site-specific concentration data can be compared with recently released data, which redefined background metal concentrations at Kirtland AFB (Sandia National Laboratories, 1996). Additionally, samples collected from the angled borings beneath the building will be analyzed for volatile organic compounds (VOCs) (EPA Method 8260), since this area was not investigated previously.

Five boreholes will be drilled to 27 ft below ground surface (bgs). Four of these will be situated in an arc (boreholes 18, 20, 21, and 22) to define the extent of contamination, resulting from the sump previously located east of the building. One borehole (23) will be installed at the background location. Samples will be collected at intervals of 10 to 12 ft, 15 to 17 ft, 20 to 22 ft, and 25 to 27 ft. If field-screening indicates the presence of contaminants, sampling will continue in 5-ft increments until there are two successive 5-ft intervals free of contaminants.

- Borehole 18 will be 57 ft north of the southeast (SE) building corner, 10 ft north of the center of the former sump, and 8 ft east of the building.
- Borehole 20 will be 25 ft north of the SE building corner and 13 ft east of the building wall, 15 ft south of the center of the former sump.
- Borehole 21 will be 6 ft east of the SE building corner.
- Borehole 22 will be 2 ft south and 2 ft east of the SE building corner.
- Background borehole 23 will be 3 ft north and 8 ft east of the northeast building corner.



Site Location
Scale: 1" = 500'



LEGEND

- Borehole Location & Identification
- ⊙ SWMU Assessment Boring
- Proposed Boring Locations

Not To Scale MAP-3E.DWG

Figure 2-1. Soil Sampling Locations

Table 2-1. Proposed Sampling

Data Needs	Investigative Technique	Number of Samples	Analyses ^a	Selected Analytical Options ^b
Determine horizontal/vertical extent of contaminants found in previous investigations	Drill 5 vertical boreholes; sample at 10- to 12-ft, 15- to 17-ft, 20- to 22-ft, and 25-ft bgs	20 (four samples per borehole)	SVOCs Metals	Level II Level II
Determine horizontal/vertical extent of contaminants found in previous investigations	Drill 2 vertical boreholes; sample at 5- to 7-ft and 10- to 12-ft bgs	4 (two samples per borehole)	SVOCs Metals	Level II Level II
Determine if release occurred from the main drain line and sump in the building	Drill 2 angled boreholes; sample at 5- to 7-ft, 10- to 12-ft, 15- to 17-ft, 20- to 22-ft, and 25- to 27-ft bgs	10 (five samples per borehole)	VOCs SVOCs Metals	Level II Level II Level II

^a SVOCs (EPA Method 8270), metals (EPA Methods 6010 and 7471), and VOCs (EPA Method 8260).

^b Refers to the type of data package from the analytical laboratory. Level II data packages are defined by the AFCEE contract; the Level II report is equivalent to an EPA Contract Laboratory Program report.

Table 2-2. Summary of Analytical Parameters

Sample Designation	SVOCs EPA Method 8270	VOCs EPA Method 8260	TAL Metals EPA Method 6010
WP58-17-0507	•		•
WP58-17-1012	•		•
WP58-18-1012	•		•
WP58-18-1517	•		•
WP58-18-2022	•		•
WP58-18-2527	•		•
WP58-19-0507	•		•
WP58-19-1012	•		•
WP58-20-1012	•		•
WP58-20-1517	•		•
WP58-20-2022	•		•
WP58-20-2527	•		•
WP58-21-1012	•		•
WP58-21-1517	•		•
WP58-21-2022	•		•
WP58-21-2527	•		•
WP58-22-1012	•		•
WP58-22-1517	•		•
WP58-22-2022	•		•
WP58-22-2527	•		•
WP58-23-1012	•		•
WP58-23-1517	•		•
WP58-23-2022	•		•
WP58-23-2527	•		•
WP58-24-1012	•	•	•
WP58-24-1517	•	•	•
WP58-24-2022	•	•	•
WP58-24-2527	•	•	•
WP58-24-3032	•	•	•
WP58-25-1012	•	•	•
WP58-25-1517	•	•	•
WP58-25-2022	•	•	•
WP58-25-2527	•	•	•
WP58-25-3032	•	•	•
QC Samples^a			
Trip Blank ^b	NA	2	NA
Equipment Rinsate ^c	5	5	5
Field Duplicate ^d	4	2	2
MSD Samples ^e	2	1	1

- ^a Estimated field quality control (QC) samples.
- ^b **Trip Blanks**—Samples that originate from analyte-free water taken from the laboratory to the sampling site and returned to the laboratory with the VOC samples. One trip blank will be included per cooler containing VOC samples. Trip blanks are analyzed for VOCs only.
- ^c **Equipment Rinsate Blanks**—The final “analyte-free” water rinse from daily equipment decontamination; these samples are analyzed for the same parameters as the related samples.
- ^d **Field Duplicates**—Duplicate analysis checks sampling and laboratory precision. Field duplicates will be collected at a frequency of 10% per sample matrix and analyzed for the same parameters as the related samples.
- ^e **Matrix Spike Duplicates (MSDs)**—Duplicate analysis checks to determine interference and background concentrations associated with the sample matrix. MSDs are collected at a frequency of 5% per sample matrix and analyzed for the same parameters as the related samples.

Two additional vertical boreholes will be drilled to 12 ft bgs to define the vertical extent of contamination previously identified in the upper 5 ft of soil (USAF, 1996). Boreholes will be sampled at intervals of 5 to 7 ft and 10 to 12 ft. If field-screening indicates the presence of contaminants, sampling will continue in 5-ft increments until there are two successive 5-ft intervals free of contaminants.

- Borehole 17 will be 4 ft east of the building wall and 55 ft north of the SE building corner.
- Borehole 19 will be 45 ft north and 21 ft east of the SE building corner.

Two boreholes will be drilled at a 15-degree angle beneath the building to identify potential contamination, which may have been released from the main wasteline and the former sump located inside the building. These boreholes will be drilled to 25 ft bgs and samples will be collected at intervals of 5 to 7 ft, 10 to 12 ft, 15 to 17 ft, 20 to 22 ft, and 25 to 27 ft. If field-screening indicates the presence of contaminants, sampling will continue in 5-ft increments until there are two successive 5-ft intervals free of contaminants.

- Borehole 24 will be on the east wall 17 ft north of the SE building corner.
- Borehole 25 will be along the same wall, 45 ft north of the SE building corner.

REFERENCES

- Sandia National Laboratories, 1996. *Background Concentrations of Constituents of Concern to the Sandia National Laboratories/New Mexico Environmental Restoration Project and the Kirtland AFB IRP.*
- USAF, 1996. *RFI Report, Appendix V Solid Waste Management Units, Kirtland Air Force Base. Final Draft.*
- USAF, 1995. *Kirtland Air Force Base-Wide Plans for the Installation Restoration Program, Kirtland Air Force Base, Albuquerque, New Mexico.*
- USAF, 1994. *SWMU Assessment Report for WP-58, Building 20451, East Laundry.*
- USAF, 1983. Albuquerque Testing Laboratory, Inc., *Soil Classification and Analysis - Landscaping for Building 20451.*