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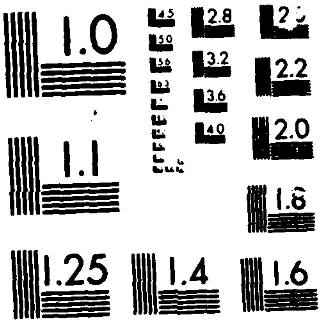
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The Phase II Stage 1 Installation Restoration Program Confirmation/ Quantification Survey for Moody Air Force Base investigated three suspected hazardous waste disposal sites. These included a former landfill site; a construction rubble fill site; and a petroleum, oil, and lubricants (POL) storage area. In addition, testing of all existing water supply (potable and industrial) wells was conducted.

Shallow groundwater monitoring wells were installed at two of the sites. Shallow pits were excavated at the POL site. Shallow groundwater from monitor wells and pits, deeper groundwater from existing wells, and surface water were sampled. Most of these analyses were screening tests [pH, specific conductance, dissolved organic carbon (DOC), total

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organic halogens (TOX), total phenolics, and oil and grease], which are nonspecific indicators of contamination. Samples near waste sites were analyzed for specific constituents [cadmium, chromium, iron, nickel, lead, zinc, dichlorodiphenyltrichloroethane (DDT), and purgeable organics] where prior information indicated they may be present. Samples from base supply wells were tested for selected nonspecific and specific constituents.

At the Southwest Landfill, no significant threat to human health or the environment is indicated by testing results in Phase II Stage 1. Movement of only very small amounts (i.e., fractions of a pound per year) of potentially toxic substances was detected. This indicates the need for additional monitoring to refine estimates of substances moving in groundwater.

At the Lily Pad Pond Fill site, no significant potential impact to human health or the environment is indicated by monitoring data.

At the North POL area, there is significant evidence of fuel and/or fuel-type substances in groundwater and shallow strata. It is reasonable to believe that the storage tanks at the North POL area are the source. Lead, toluene, and ethyl benzene were detected at significant levels. However, there is little chance shallow groundwater would be ingested. Levels found are not expected to harm aquatic life. No information is available regarding potential impacts to plant life.

Additional sampling and analysis are needed to determine the extent of the affected area.

Results of analysis on all Moody AFB supply wells indicate that no significant contamination exists in any well. TOX levels of 120 and 94 ug/l were found in wells MAFB-7 and MAFB-10, respectively. These are above the 40 ug/l which is the level selected to indicate additional testing may be prudent.

Recommended additional work includes installing nine additional wells at the Southwest Landfill and ten wells at the North POL area. Sampling and analysis of existing plus new wells at the landfill, POL area, and wells MAFB-7 and 10 are recommended. No additional activities are recommended for the Lily Pad Pond Fill site.

INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
STAGE 1

FINAL REPORT

FOR

MOODY AIR FORCE BASE
MOODY AIR FORCE BASE, GEORGIA 31601

HEADQUARTERS TACTICAL AIR COMMAND
COMMAND SURGEON'S OFFICE (HQ TAC/SGPB)
BIOENVIRONMENTAL ENGINEERING DIVISION
LANGLEY AIR FORCE BASE, VIRGINIA 23665

DECEMBER 1985

PREPARED BY

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This report has been prepared for the United States Air Force by Water and Air Research, Inc., for the purpose of aiding in the implementation of the Air Force Installation Restoration Program. It is not an endorsement of any product. The views expressed herein are those of the contractor and do not necessarily reflect the official views of the publishing agency, the United States Air Force, nor the Department of Defense.

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PREFACE

This report has been prepared for the United States Air Force by Water and Air Research, Inc. (WAR) under Contract No. F33615-81-D-4007-0014. It constitutes the report of the Phase II, Stage 1 Installation Restoration Program investigation for Moody Air Force Base, Georgia.

WAR's project staff consisted of:

J.H. Sullivan, Ph.D., P.E., Environmental Engineer:
  Project Manager
J.A. Steinberg, Ph.D., P.E., Water Resources Engineer
W.G. Thiess, M.S., Environmental Engineer
W.D. Adams, M.S., Hydrogeologist
C.R. Fellows, M.S., Chemist
R.D. Baker, Chemist

The following U.S. Air Force (USAF) personnel contributed to the successful completion of the project:

Lt. Maria R. LaMagna and Lt. David Gibson--USAF Occupational and
  Environmental Health Laboratory (OEHL)/TSS
Mr. Gil Burnet--HQ TAC, Environmental Planning
Capt. Kenneth Branton, Moody AFB, BES
Sgt. Edward Powers, Moody AFB, BES

Fieldwork for the study was performed between April and September 1984. Lt. Maria R. LaMagna, Technical Services Division, USAF OEHL was the technical monitor.

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SUMMARY

SUMMARY

The Phase II Stage 1 Installation Restoration Program (IRP) Confirmation/Quantification Survey for Moody Air Force Base (Moody AFB) investigated three suspected hazardous waste disposal sites. These included a former landfill site; a construction rubble fill site; and a petroleum, oil, and lubricants (POL) storage area. Site characteristics are summarized in Table S-1. In addition, testing of all existing water supply (potable and industrial) wells was conducted.

Shallow groundwater monitoring wells were installed at two of the sites. Shallow pits were excavated at the remaining site. Shallow groundwater from monitor wells and pits, deeper groundwater from existing wells, and surface water were sampled for the constituents listed in Table S-2. Most of these analyses were screening tests [pH, specific conductance, dissolved organic carbon (DOC), total organic halogens (TOX), total phenolics, and oil and grease], which are nonspecific indicators of contamination. Samples near waste sites were analyzed for specific constituents [cadmium, chromium, iron, nickel, lead, zinc, dichlorodiphenyltrichloroethane (DDT), and purgeable organics] where prior information indicated they may be present. Samples from base supply wells were screened for selected nonspecific and specific constituents.

At the Southwest Landfill, no significant threat to human health or the environment is indicated by testing results in Phase II Stage 1. Movement of only very small amounts (i.e., fractions of a pound per year) of potentially toxic substances was detected. Testing results used as a screening procedure indicate the need for additional monitoring to refine estimates of substances moving in groundwater. There is a small potential for substances moving in groundwater to migrate to Mission Lake and perhaps Well MAFB-7. Because the lake is used for fishing and the well is a potable supply, human health can be impacted if subsequent investigation indicates that significant amounts of wastes migrate from the landfill.

Table S-1. Characteristics of Phase II Stage 1 Sites, Moody AFB, Georgia

Phase I Records Search Site No.	Phase II Stage 1 Site No.	Site Description	Period of Usage	Nearest Drinking Water Well (feet)	Nearest Surface Water Body (feet)	Depth to Groundwater (feet)	Evidence/Quantity of Hazardous Wastes	Possible Hazardous Waste Types
3	1	Southwest Landfill	1955–1972	<3,000	<500	0–10	Known/small	Paints, thinners, solvents, and oils.
8	2	Lily Pad Pond Fill Site	Late 1960s–1979	<5,000	Adjacent	0–10	Known/small	Containerized waste, oils, and solvents.
12	3	North POL Area	Unknown–present	<3,000	2,500	0–10	Suspected/small	Aviation gasoline, and diesel oil.

Source: Installation Restoration Program Records Search for Moody Air Force Base, Georgia (CH2M-Hill, 1983).

Table S-2. Summary of Sampling and Analyses for Phase II Stage 1 Survey, Moody AFB, Georgia

Site Description	Sample Locations	Sample Analyses*
Southwest Landfill	Six monitor wells.	GWCI, metals, oil and grease, COD, pesticide/herbicide scan; VOC at Wells 3 and 6 only.
Lily Pad Pond Fill	Six monitor wells, four surface water samples 100 feet from fill edge.	GWCI, total phenolics, metals, oil and grease, COD; VOC at all wells and two surface water sites.
North POL Area	Two shallow pits.	GWCI, oil and grease, DOC, COD, presence of visible fuel layer, volatile aromatics per EPA method 503.1
Moody Supply Wells	Wells 1, 2, 3, 5, 5a, 7, 10†, 12, 13.	GWCI, metals, oil and grease.
Moody Supply Wells	Wells 4, 6, 8.	GWCI, metals, oil and grease, pesticide/herbicide scan.

*The following sample analyses are used:

GWCI = groundwater contamination indicators: pH, specific conductance, and total organic carbon (dissolved fraction).

Metals = arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

COD = chemical oxygen demand.

Pesticide/herbicide scan = DDT and DDT metabolites, heptachlor, heptachlor epoxide, lindane, chlordane, diazinon, malathion, toxaphene, 2,4-D, and 2,4,5-T.

VOC = volatile organic compounds as specified in EPA Methods 601 and 602.

†Moody Well 10 is located at Grassy Pond Recreational Annex.

Several of the organic compounds detected in Well L-3 near the landfill are more dense than water and may move vertically in groundwater.

At the Lily Pad Pond Fill site, no significant potential impact to human health or the environment is indicated by monitoring data. Toluene and benzene were detected in very small amounts (i.e., 1.8 and 4.7 ug/l, respectively). These levels do not threaten aquatic life in surrounding surface waters. Levels of phenolic compounds cannot be assessed in terms of regulatory criteria because a total phenolic scan was performed. Because the site is remote and because it is reasonable to expect that at least some phenolics detected are naturally occurring compounds, no significant impact is expected due to phenolics.

At the North POL area, there is significant evidence of fuel and/or fuel-type substances in groundwater and shallow strata. It is reasonable to believe that the storage tanks at the North POL area are the source of these substances. There is also an indication that either these substances can be relatively difficult to detect during seasonal periods of higher groundwater (e.g., during April 1984) or that these substances moved into the vicinity of the sampling pits between the times on-site work was performed (i.e., April and September 1984).

Lead was detected at 200 ug/l which exceeds drinking water criteria (i.e., 50 ug/l). Toluene (180 ug/l) and ethyl benzene (690 ug/l) exceeded recommended ambient criteria levels. Detectable amounts were found for several other volatile organic compounds which do not have recommended ambient criteria. However, there is little chance shallow groundwater would be ingested. Levels found are not expected to harm aquatic life. No information is available regarding potential impacts to plant life. Evidence of possible harm to trees was reported in the Phase I IRP report by CH2M-Hill (1983). Seepage would have to persist laterally about 800 feet to reach a surface stream. Main base potable wells are about 2,000 feet away and about 400 feet deep, and they are relatively isolated from surface strata by one or more layers of low permeability. Therefore, there is no apparent immediate threat to human health or the environment.

There is no detailed information regarding the extent of the affected area and additional sampling and analysis would be needed to determine this. There is also no detailed information regarding which tank(s) or line(s) may be leaking. Examination and testing at the North POL area is necessary to develop this information.

Results of analysis on all Moody AFB supply wells indicate that no significant contamination exists in any well. TOX levels of 120 and 94 ug/l were found in wells MAFB-7 and MAFB-10, respectively. These are above the 40 ug/l which is the level selected to indicate additional testing may be prudent.

Well MAFB-10 should be tested for volatile organic compounds to determine whether or not the TOX level found in the well indicates significant contamination. If organics are found, other wells at Grassy Pond should be tested in a similar fashion.

A summary of recommended additional testing is shown in Table S-3.

Table S-3. Summary of Recommended Future Actions

Site	Fieldwork	Analyses
Southwest Landfill	Install: six new wells approximately 25 feet deep; three new wells approximately 100 feet deep. Sample: nine new wells plus existing monitoring Wells L-1, L-2, and L-3, plus existing Moody Well MAFB-7.	All 13 wells for volatile organics, arsenic, and mercury.
Lily Pad Pond Fill	None.	None.
North POL Area	Install: 10 new monitoring wells approximately 15 feet deep. Sample: All 10 wells in wet and dry seasons. Test: All tanks and lines in the storage area for leaks.	All 10 wells for DOC, benzene, xylene, and toluene.
Moody AFB Supply Wells	Sample: Wells 7 and 10.	Well 7 as noted under Southwest Landfill. Well 10 for volatile organics.

Note: Order is as addressed throughout text and not on a priority basis.

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 INSTALLATION RESTORATION PROGRAM BACKGROUND

This report describes Phase II Stage 1 of the IRP for Moody AFB, Georgia. Phase II Stage 1 pertains to confirmation and quantification of suspected contamination at past hazardous waste disposal sites.

The United States Air Force (USAF), due to its primary mission, has long been engaged in a wide variety of operations dealing with toxic and hazardous materials. Federal, state, and local governments have developed strict regulations to require that disposers identify the locations and contents of disposal sites and take action to eliminate the hazards in an environmentally responsible manner. The primary federal legislation governing disposal of hazardous waste is the Resource Conservation and Recovery Act (RCRA) of 1976, as amended. Under Section 6003 of RCRA, federal agencies are directed to assist the U.S. Environmental Protection Agency (EPA), and under Section 3012 state agencies are required to inventory past disposal sites and make the information available to the requesting agencies. To assure compliance with these hazardous waste regulations, the Department of Defense (DOD) developed the IRP. The current DOD IRP policy is contained in Defense Environmental Quality Program Policy Memorandum (DEQPPM) 81-5, dated 11 December 1981 and implemented by USAF message dated 21 January 1982. DEQPPM 81-5 reissued and amplified all previous directives and memoranda on the IRP. DOD policy is to identify and fully evaluate suspected problems associated with past hazardous contamination, and to control hazards to health and welfare that resulted from these past operations. The IRP will be the basis for response actions on USAF installations under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as clarified by Executive Order 12316.

The IRP is implemented in four phases. Phase I is an initial assessment records search designed to identify possible hazardous waste contaminated sites and potential problems that may result in contaminant migration from the installation. The Phase I report, completed for Moody AFB in

February 1983 (CH2M-Hill, 1983), reviews the history of base operations and waste disposal practices, the geological and hydrogeological conditions which may affect contaminant migration, and the ecological setting. All hazardous waste disposal sites identified in the Phase I report are ranked on the basis of a standard evaluation system [Hazardous Assessment Rating Methodology (HARM)], which is applied to all installation record searches (CH2M-Hill, 1983). Site rating forms for the three sites included in Phase II Stage 1 work are reproduced from the Phase 1 report in Appendix K.

Phase II of the IRP, Confirmation and Quantification, is designed to confirm the presence and quantify the extent of contamination caused by migration of hazardous materials from present or abandoned waste disposal sites with HARM rankings indicative of significant environmental contamination. Phase II IRP studies are implemented in two or three parts. Phase II Presurvey, completed for Moody AFB in October 1983 (WAR, 1983), consists of work plan development and costing of hydrogeological and chemical investigations. Phase II Stage 1, described in this report, consists of field surveys, environmental sampling and analyses, data reduction and interpretation, and development of recommendations for remedial action and/or long-term monitoring. Succeeding stages in Phase II, if necessary, provide additional monitoring data upon which design of mitigative actions are based. In Phase III, Technology Base Development, appropriate technology is selected and the engineering design of corrective action options selected for implementation by the USAF is completed. Phase IV, Operations/ Remedial Action, involves construction, operation, and maintenance of the corrective action option designed under Phase III.

Water and Air Research, Inc. (WAR) under contract with the USAF provided geotechnical, field sampling, analytical, and engineering expertise in the implementation of Phase II surveys at selected USAF facilities. The WAR contract, number F33615-81-D-4007, became effective on July 20, 1981. In August 1983, contract order number 0012 was issued to initiate the

Phase II Presurvey at Moody AFB. This action was based on results of the Moody AFB Phase I Records Search Report and HARM rankings of sites investigated. Based on findings of the Phase I records search and the Phase II Presurvey and other USAF assessments, a scope of work was developed for the Moody AFB Phase II Stage 1 survey. Order number 0014 was issued to WAR in January 1984 to initiate this work. The Phase I report also contained recommendations for technical work at another Moody AFB site, the DDT Burial Site. This work was not included in Phase II work. Rather, it was included in a Phase IV assessment under a separate order.

1.2 FACILITY DESCRIPTION AND HISTORY

1.2.1 Introduction

A brief description of Moody AFB and its history is given in the Phase I Records Search Report (CH2M-Hill, 1983). The material presented below is abridged from that report. A summary of the environmental setting is presented in Section 2.0.

1.2.2 Base Location

Moody AFB is located on 5,160 acres of land in Lowndes and Lanier Counties in south-central Georgia. Nearby towns include Valdosta, about 10 miles to the southwest, and Lakeland, about 6 miles northeast (Figure 1-1). The closest large cities include Atlanta, Georgia, 234 miles to the north, and Jacksonville, Florida, about 120 miles to the southeast. Georgia State Highway 125 is the access road to Moody AFB, and U.S. Interstate Highway 75 passes about 10 miles to the west of the base.

The Grassy Pond Recreational Annex is located 25 miles southwest of Moody AFB, just 3 miles north of the Georgia/Florida state line. This site consists of about 500 acres of land originally sold to the United States Government in 1928 for use as a fish hatchery facility. Major surface features at the site include Grassy Pond (160 acres), Lot Pond (30 acres), and over 300 acres of upland forest and developed areas.

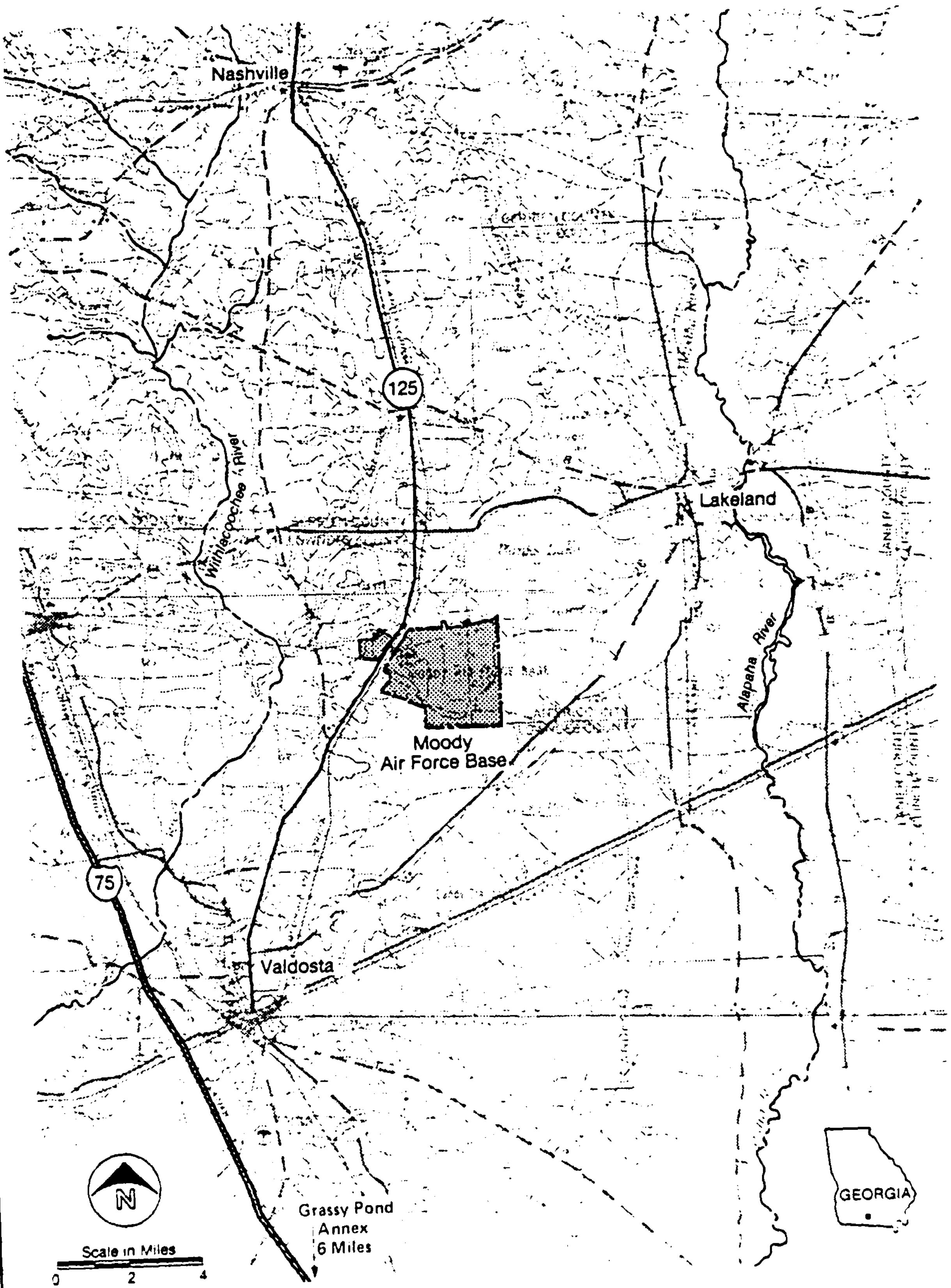


FIGURE 1–1. Location Map of Moody AFB, Georgia

SOURCE: CH2M Hill, 1983.

Grassy and Lot Ponds are natural water bodies that have been slightly modified by the construction of spillways. Drainage is from Lot Pond to Grassy Pond, and then to the aquifer by a natural sinkhole and two drainage wells. Grassy Pond Recreational Annex has been used primarily as a relaxation/recreation site by the USAF since 1952.

1.2.3 Organization and History

Moody AFB was established in 1941 as an advanced pilot training school for Army Air Corps cadets. Original base boundaries included over 9,000 acres of land acquired by use permit from the United States Department of Agriculture (USDA) and by lease. The base was named in honor of Captain George Moody who was a test pilot for the first AT-10, a twin engine trainer used at Moody AFB during World War II. During the war, base population exceeded 40,000 officers, airmen, and cadets.

In 1946, following the end of World War II, Moody AFB was placed on inactive status until it was reopened in 1951 after the outbreak of the Korean conflict. From that time until 1975, Moody AFB was primarily involved in pilot training under the Air Training Command (ATC), with preflight, primary, and basic pilot training programs. In late 1975, ATC deactivated the 38th Flying Training Wing and the base was reassigned to Tactical Air Command (TAC) and the 347th Tactical Fighter Wing (TFW).

Today the mission of the 347th TFW is to deploy overseas during wartime commitments in support of United States or allied ground forces. This mission is fulfilled by three Tactical Fighter Squadrons, the 68th, 70th, and 339th, using F-4E Phantom II aircraft. A otal of 72 of these aircraft are assigned to Moody AFB. Work force presently at Moody AFB numbers approximately 4,000, of whom 3,300 are military personnel and 700 are civilian employees. The major organizations and missions assigned to Moody AFB are listed below:

- 347th TFW
- 68th, 70th, and 339th Tactical Fighter Squadrons
- 347th Combat Support Group and Squadrons

- USAF Hospital Moody
- Detachment 23, 3rd Weather Squadron
- 1878th Communications Squadron
- Detachment 322, 3751st Field Training Unit

1.3 DESCRIPTIONS OF PHASE II STAGE 1 SITES

1.3.1 Introduction

A total of 14 sites were identified during the Phase I records search, three of which were selected for Phase II Stage 1 confirmation. These sites were recommended for further action by CH2M-Hill (1983), and a summary of these three sites is given in Table 1-1. Site descriptions given in this section for sites identified during the Phase I records search are excerpted from the Phase I report (CH2M-Hill, 1983). Phase I site descriptions were updated, as necessary, to incorporate more recent information. General locations of the three Phase II disposal sites are shown in Figure 1-2. Summary information on HARM scores and subscores is given with each site description.

1.3.2 Southwest Landfill

This site occupies nearly 30 acres of USAF fee-owned property along the southwest corner boundary of Moody AFB, west of Mission Lake (Site No. 1 on Figure 1-2). Activity at this site was initiated in 1955 and continued until 1972. The entire area was reported to consist of trenches about 14 feet deep, filled with general base refuse. A small quantity of low-level radioactive waste (electron tubes) was reportedly buried during the 1950s; however, the exact location is not known. No large quantities of hazardous wastes were reported from this site; however, small quantities of oil and solvent wastes are suspected. Tail ditches were dug at the site for collection of leachate and are still evident. No visible contamination was observed. Loblolly pines have been planted over much of the fill area. Some organic debris (leaves, branches, and grass clippings) are deposited at this site and some composting has been done with sludge from the sewage treatment plant.

Table 1-1. Characteristics of Phase II Stage 1 Sites, Moody AFB, Georgia

Phase I Records Search Site No.	Phase II Stage 1 Site No.	Site Description	Period of Usage	Nearest Drinking Water Well (feet)	Nearest Surface Water Body (feet)	Depth to Groundwater (feet)	Evidence/Quantity of Hazardous Wastes	Possible Hazardous Waste Types
3	1	Southwest Landfill	1955–1972	<3,000	<500	0–10	Known/small	Paints, thinners, solvents, and oils.
8	2	Lily Pad Pond Fill Site	Late 1960s–1979	<5,000	Adjacent	0–10	Known/small	Containerized waste, oils, and solvents.
12	3	North POL Area	Unknown–*present*	<3,000	2,500	0–10	Suspected/small	Aviation gasoline and diesel oil.

Source: Installation Restoration Program Records Search for Moody Air Force Base, Georgia (CH2M-Hill, 1983).

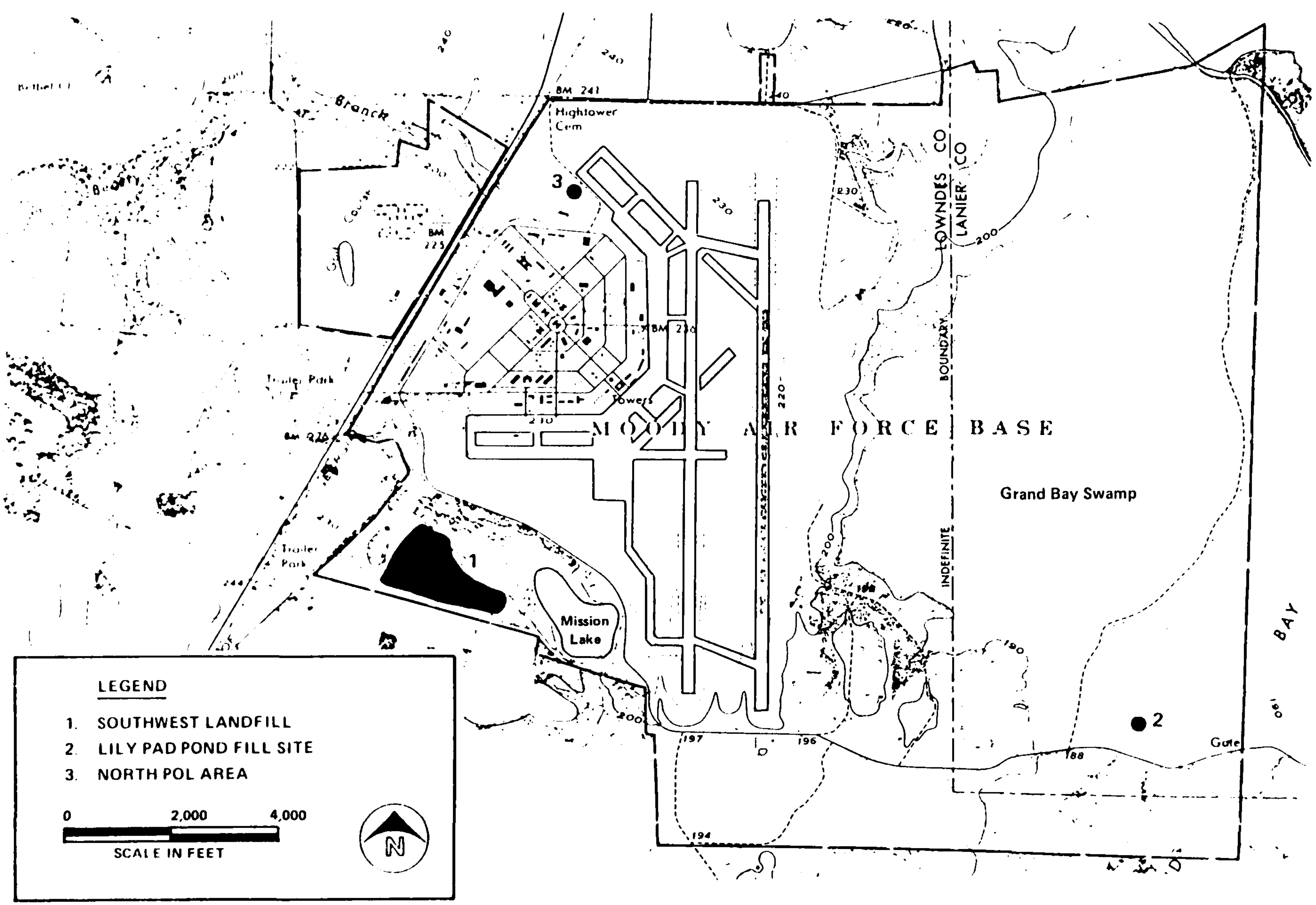


FIGURE 1–2. Location of Phase II Stage 1 Sites at Moody AFB, Georgia

SOURCE: CH$_2$M HILL, 1983.

Due to proximity to Mission Lake and the base boundary, and the presence of a nearby off-base water supply well located about 1,300 feet upgradient from the site, pathways (63) and receptors (64) HARM subscores were fairly high. A total score of 56 for this site resulted from a greater suspected waste quantity than in other landfills.

1.3.3 Lily Pad Pond Fill Site

The Lily Pad Pond Fill site is located on USDA property (USAF use permit) near the southeastern corner of the base (site No. 2 on Figure 1-2). This site was formerly a wetland area which was filled with runway demolition rubble from the late 1960s until 1979. Some unauthorized dumping of industrial type wastes also occurred including drums, metal, lumber, and aircraft tires. Some of this waste material is still visible around the edge of the fill site, and some wastes from the area have produced visible contamination of the pond surface with oily residues. It is not known if any full drums of wastes are buried at this site. The Lily Pad Pond Fill site is currently (since 1979) being used as the Explosive Ordnance Disposal (EOD) area, and a deep pit in the middle of this area contains wood and metal but no cans or drums.

Due to location of this site, in a wetland area near the base boundary and water supply wells, the receptors subscore was 48. The waste characteristic subscore was 40 based on small confirmed quantities of oily wastes, and the pathways subscore was 80 because of indirect evidence for contaminant migration. The site received a total HARM score of 56.

1.3.4 North POL Area

This site is the old POL storage yard located on USAF fee-owned property near the northwestern corner of Moody AFB (site No. 3 on Figure 1-2). At this site, four 25,000-gallon buried tanks were formerly used to store leaded aviation gasoline and are currently used to store diesel heating oil. Although there were no verbal reports of spills at this area, the presence of a small stand of dead loblolly pine trees adjacent to the fence indicates the probability of spills and of fuel-saturated soil.

Due to the proximity of this site to several water supply wells, the base boundary, and populated areas, it received a receptors subscore of 52. The waste characteristics subscore was 40 and the indirect evidence of contamination contributed a parthways subscore of 80. A total score of 55 was computed for this site.

1.4 PROJECT STAFF

Key personnel participating in the Moody AFB Phase II Stage 1 survey are listed below. Resumes of the project staff are included as Appendix G.

J.H. Sullivan, Ph.D., P.E., Environmental Engineer: Project Manager.
J.A. Steinberg, Ph.D., P.E., Water Resources Engineer.
W.G. Thiess, M.S., Environmental Engineer.
W.D. Adams, M.S., Hydrogeologist.
C.R. Fellows, M.S., Chemist.
R.D. Baker, Chemist.

2.0 ENVIRONMENTAL SETTING

2.0 ENVIRONMENTAL SETTING

2.1 INTRODUCTION

A detailed assessment of the environmental setting at Moody AFB is given in the Phase I Records Search Report (CH2M-Hill, 1983). The following descriptions are abridged from that document.

2.2 METEOROLOGY

The climate of Moody AFB is classified as humid subtropical. This results from the relatively low latitude (approximately 31° north latitude) and proximity to the Gulf of Mexico (80 miles) and Atlantic Ocean (100 miles). These water bodies help to produce a climate that is typified by long, humid summers with frequent convectional storms, and short, mild winters interrupted by frontal storm systems and infrequent cold snaps. The spring and fall seasons are generally short and mild.

The average annual temperature for Moody AFB is 68°F and monthly mean temperatures vary from 52°F in January to 82°F in July and August. The average daily maximum in July is 91°F while the highest recorded temperature in 30 years of record is 104°F in June. On the average there are 73 days per year with maximum temperatures greater than 90°F. The average daily minimum temperature in January is 42°F while the lowest recorded temperature at Moody AFB is 9°F. The average number of days with freezing temperatures is 17 per year.

Mean annual precipitation recorded at Moody AFB is 47.0 inches. This rainfall is well distributed throughout the year, although summer is generally the wettest season and fall is the driest. Summer rainfall is often poorly distributed over the base due to the localized nature of thunderstorm activity. Lake evaporation at Moody AFB is estimated to be between 40 and 45 inches per year.

An average of 58 thunderstorms per year are recorded at Moody AFB. Extreme storm events, sometimes accompanied by tornados, occur occasionally in the area; and tropical storms, accompanied by several days of heavy rains, occur with a frequency of about 1 in 5 years. Maximum rainfall recorded in a 24-hour period is 5.6 inches.

Relative humidity is generally high with an annual average of 68 percent. Highest humidities are recorded in the early morning. Mean cloud cover is approximately 60 percent during the summer and 50 percent in winter. On the average, some fog is encountered at Moody AFB 185 days per year.

Wind speed at Moody AFB averages only 4 knots; however, a maximum wind speed of 65 knots has been recorded. Wind direction is generally from the north during the winter, from the west during the spring and early summer, and from the east during the late summer and fall.

2.3 GEOLOGY

2.3.1 Physiography

Moody AFB is located in the Coastal Terraces region of the Atlantic Coastal Plain physiographic province. This region is characterized by flat to sloping plateaus separated by shallow river valleys, broad wetland depressions, and topography for which the dominant geomorphic process is solution (i.e., karst topography).

The base facilities are located on a level plateau between the Withlacoochee River on the west and the Alapaha River on the east. The eastern portion of the base is located in a low area known as Grand Bay Swamp. Land surface elevations vary from approximately 190 feet above mean sea level (msl) on the eastern portion to about 240 feet above msl near the center of the base. Slopes range from 0 to 5 percent. The groundwater table is generally 10 to 20 feet below the ground surface.

2.3.2 Soils

On the high ground western portion of the base, the surface soils are mostly in the Tifton series. The soil profile consists of about 2 to 5 feet of well-drained, moderately permeable loamy fine sands overlying less permeable sandy clays and clayey sands. Permeabilities of the surficial fine sands are moderate to high, ranging from 10^{-4} to 10^{-2} centimeters per second. Permeabilities of the underlying sandy clays are moderate to low, ranging from 10^{-4} to 10^{-6} centimeters per second.

On the eastern portion of Moody AFB, in the Grand Bay Swamp area, surface soils are classified in the Dasher series. These are poorly-drained organic soils formed in association with wetland plant communities. The water table is generally near the ground surface.

2.3.3 Geology

In general, stratigraphy consists of a few feet of sandy deposits of Recent, Pleistocene, and Pliocene age overlying successively older formations including, from youngest to oldest, the Miccosukee, Hawthorn, Suwannee, Ocala, Claiborne, and Wilcox Formations. Each of these formations is essentially flat-lying.

The Miccosukee Formation crops out along the western edge of the base. It is composed of yellow to red-brown clayey sand, clay, silt, and gravel. On the eastern portion of the base, sands and gravels of Pliocene to Pleistocene age lie inconformably on the Miccosukee, acting hydraulically with the Miccosukee as a single unit. The Miccosukee Formation and the Pliocene and Pleistocene deposits attain a maximum thickness of about 100 feet.

Underlying the Miccosukee Formation is the Hawthorn Formation which is approximately 150 feet thick at this location. The Hawthorn (Miocene age) consists of clay, claystone, sand, limestone, and marl, and is locally cherty and commonly phosphatic. The upper part of the formation is made up of clastics while the lower part is a brown cherty, sandy limestone that is highly permeable. This lower unit generally ranges from about 20 to 60 feet in thickness.

The top of the Suwannee limestone (Oligocene age) is found at about 200 feet below ground surface at Moody AFB. This unit is highly permeable, yellow to white fossiliferous, porous, crystalline limestone which is approximately 100 to 200 feet thick.

Beneath the Suwannee limestone is the Ocala limestone of early Eocene age. The top of this formation is approximately 340 feet below land surface, and it is approximately 350 feet thick. This limestone is cream to white in color, is fossiliferous, and contains abundant interbedded dolomite. It includes large solution cavities and caverns. Subsurface permeability is generally greatest at the erosional interface with the overlying Suwannee limestone.

Underlying the Ocala limestone are up to 2,000 feet of marine sedimentary deposits of the Claiborne and Wilcox groups.

Water wells in the Moody AFB area very rarely penetrate below the upper part of the Ocala limestone because ample groundwater is found in the Suwannee and Ocala deposits.

2.4 HYDROLOGY

2.4.1 Surface Water

Moody AFB lies between the Withlacoochee and Alapaha Rivers which flow south from Georgia into Florida. Drainage from this area is ultimately to the Gulf of Mexico by way of the Suwannee River in Florida. The western portion of the base drains to the westerly-flowing Beatty Creek in the Withlacoochee Watershed. Treated effluent from the base sewage treatment plant is discharged to Beatty Creek and, during dry periods, is reported to provide most of the creek flow. The eastern portion of Moody AFB drains into Grand Bay, which is the headwater of Grand Bay Creek, in the Alapaha Watershed.

Surface water features on Moody AFB include Mission Lake, a 31-acre impoundment south of the runway area; a small golf course pond; drainage ditches and storm drains in the runway area; seasonally wet areas of Grand Bay on the eastern portion of the base; and part of Shiner Pond at the northeast corner of the base.

2.4.2 Groundwater

Groundwater occurs under water table or perched water table conditions in the deposits of Miocene to Pleistocene age underlying Moody AFB. The water table is generally 10 to 20 feet below land surface in the western portion of the base and varies from the surface to 10 feet below land surface in the eastern portion. Water levels are expected to vary with seasons in response to variations in rainfall. The surface of the water table is expected to follow the slope of the overlying topography; direction of groundwater flow within the water table aquifer is therefore expected to follow the slope of the ground surface.

Recharge to the water table aquifer is through direct rainfall infiltration, and discharge is primarily to local surface water drainages. The water table aquifer is about 80 to 100 feet thick and is separated from the underlying principal artesian aquifer by a clay layer of relatively low permeability (less than 10^{-6} centimeters per second) which is about 50 feet thick. The clay confining layer is not completely impermeable and does allow some water to pass from the surficial water table aquifer to the principal artesian aquifer.

Sand and gravel beds within the water table aquifer yield small to moderate amounts of water; however, in the vicinity of Moody AFB, there are no known potable water supply wells in the water table aquifer.

Water levels in the principal artesian aquifer are declining in response to long-term withdrawals from the aquifer in the Valdosta area. In the 18-year period from 1957 to 1975, average groundwater levels declined in downtown Valdosta by 8.2 feet, or approximately 0.46 foot per year. Similar water level declines have also been documented in other wells in south-central Georgia.

There are 11 active wells on Moody AFB and three active wells at Grassy Pond Recereational Annex. All tap the principal artesian aquifer. These wells have a combined capacity of more than 2,700 gallons per minute (gpm). Locations of the wells at the main base are shown on Figure 2-1. A summary of well construction details is given in Table 2-1. Figure 2-2 illustrates a representative stratigraphic log and some construction details for the three primary potable water supply wells at Moody AFB, as presented in the Phase I report.

The potential for movement of contaminants to the water table at Moody AFB is high because recharge is directly from rainfall. Pollutants would likely travel vertically downward to the water table, then flow laterally to discharge to adjacent surface waters.

The hydraulic connection between the water table aquifer and the principal artesian aquifer is poor due to the presence of a thick, low-permeability clay layer at a depth of about 100 to 150 feet; therefore, the potential for contaminants to enter the principal artesian aquifer and migrate to major potable water supply wells is low. There are no known direct hydraulic connections between the water table aquifer and the principal artesian aquifer within 8 miles of the base. It is possible that a direct hydraulic connection could occur around poorly constructed or faulty well casings.

A summary of the typical water quality of the principal artesian aquifer of this region is given in Table 2-2. Also shown is a representative water quality analysis for Moody AFB Wells 1, 2, and 3, and the applicable drinking water standards for comparison.

Water quality problems in some wells in the vicinity of Moody AFB arise from naturally high concentrations of sulfate, hydrogen sulfide, iron, and color. No water quality problems have been reported with the base water supply.

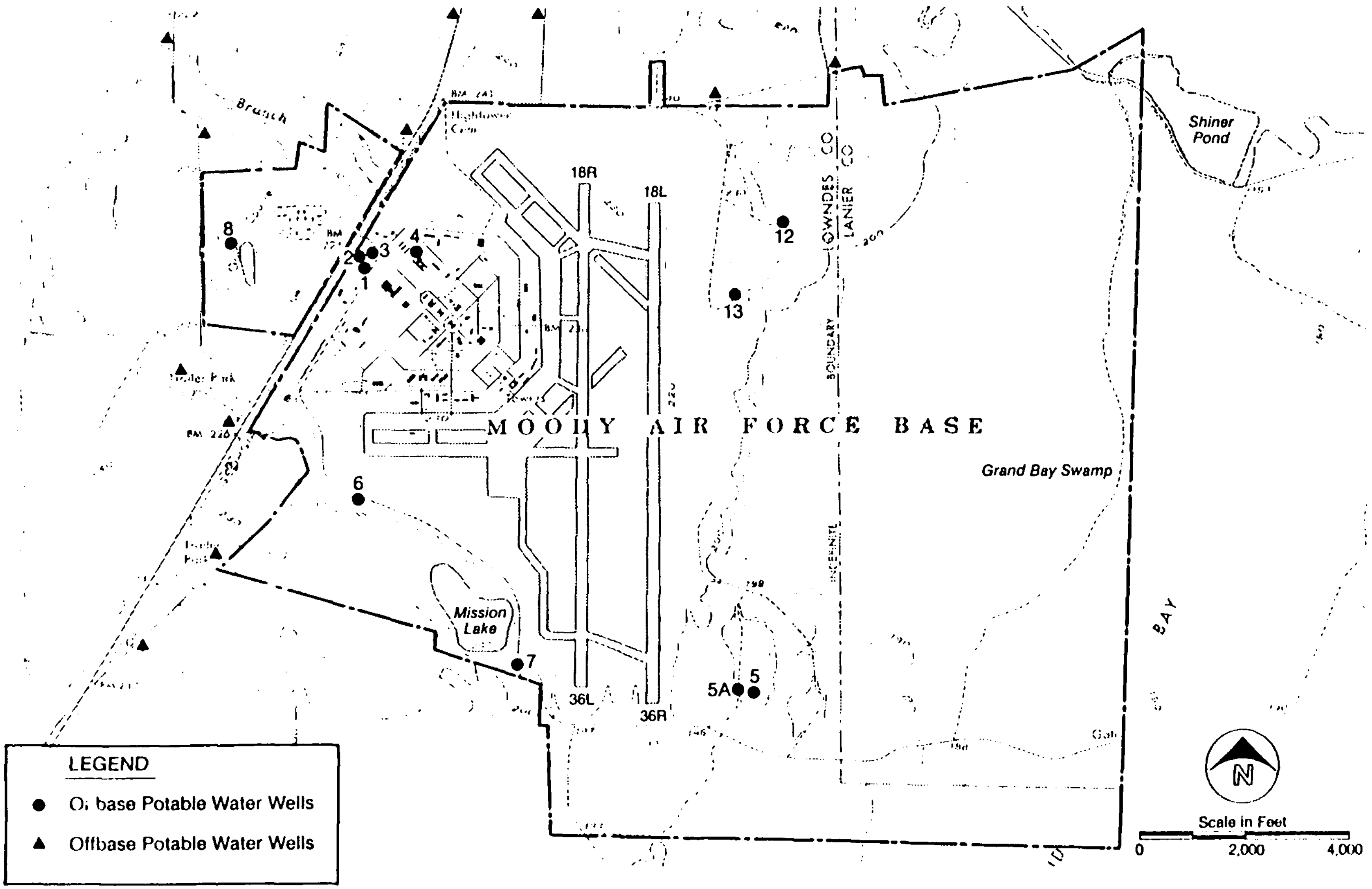


FIGURE 2–1. Location of Water Wells at Moody AFB, Georgia and Vicinity

SOURCE: CH_2M Hill, 1983.

Table 2-1. Well Construction Details of Water Wells at Moody AFB, Georgia and Grassy Pond Recreational Annex

Well	Location	Depth (feet)	Casing Size (inches)	Capacity (gpm)	Remarks
1	Building 913	425	10	700	Potable--Main system.
2	Building 947	425	12	650	Potable--Main system.
3	Building 984	440	10	700	Potable--Main system.
4	100 feet north of Building 205	345	6	250	Nonpotable--Air conditioning currently not in use (Aug. 1984).
5	Building 1114--Ordnance Area	250	6	180	Nonpotable--Fire protection.
5A	40 feet west of Building 1112	150	6	100	Potable--Ordnance area.
6	Building 1702--Former Jet Engine Test Cell	210	4	19	Nonpotable--Fire protection.
7	Building 1705--Mission Lake Recreational Area	195	4	10	Potable--Mission Lake Recreational Area.
8	Golf Course	400	6	220	Nonpotable--Golf course irrigation.
9	Grassy Pond Recreational Annex	--	4	--	Potable.
10	Grassy Pond Recreational Annex	140	1.5	40	Potable.
11	Grassy Pond Recreational Annex	--	10	--	Irrigation supply.
12	Building 1500--Transmitter Site	215	4	20	Potable--Transmitter site.
13	Building 1501--Receiver Site	225	4	20	Potable--Receiver site.

Source: Moody AFB Civil Engineering Squadron.

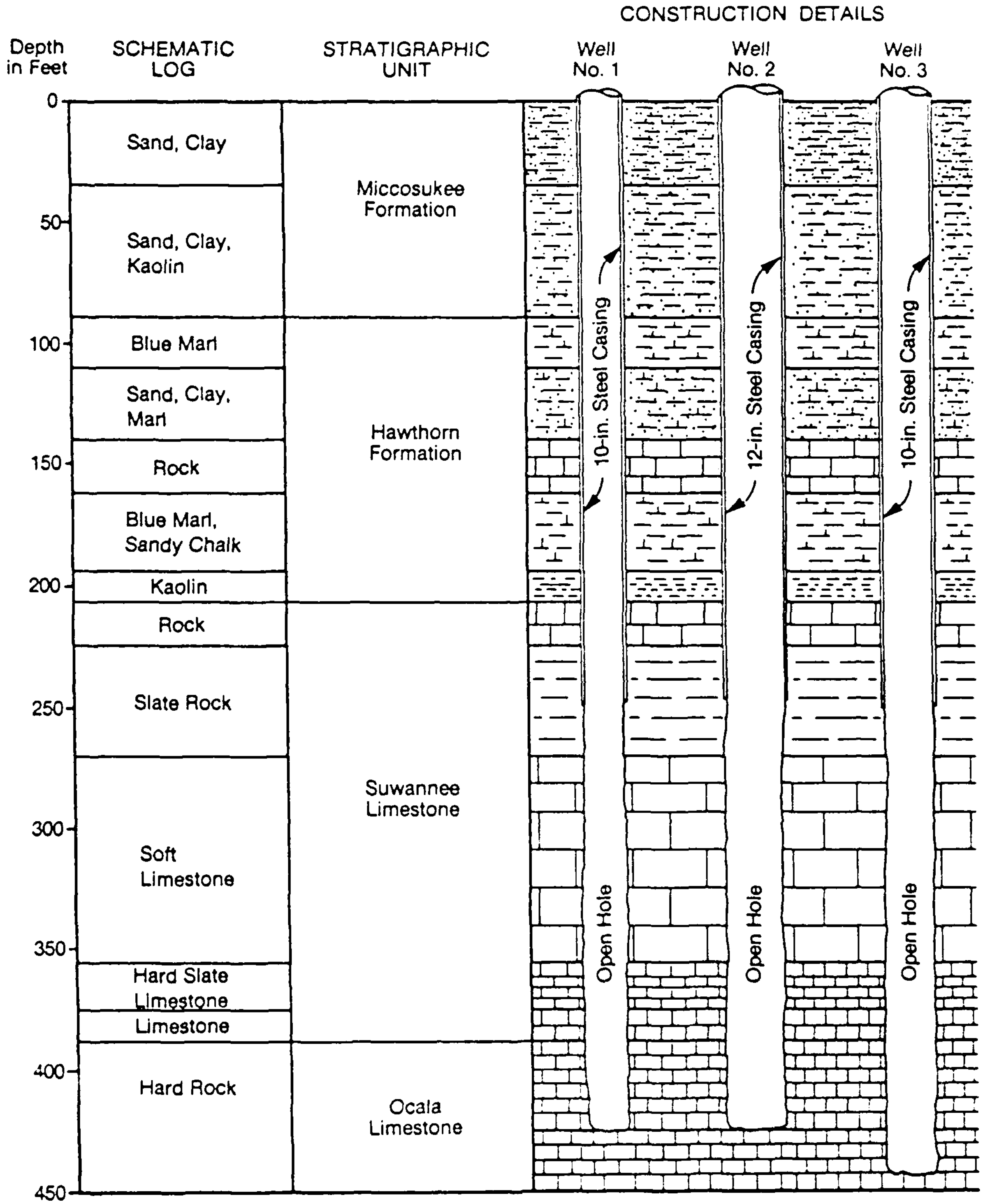


FIGURE 2–2. Schematic of Stratigraphy and Construction of Major Potable Water Wells at Moody AFB, Georgia

NOTE: All wells are located near Georgia State Highway 125 on Moody AFB.

SOURCE: USAF.
CH2M Hill, 1983.

Table 2-2. Water Quality Characteristics of the Principal Artesian Aquifer in the Vicinity of Moody AFB, Georgia

Parameter*	Average for Lowndes County†	Base Wells**			EPA and Georgia Drinking Water Standards
		1	2	3	
Arsenic	0.005	<0.01	<0.01	<0.01	0.05
Cadmium	0.002	<0.01	<0.01	<0.01	0.01
Chromium	0.001	<0.05	<0.05	<0.05	0.05
Copper	0.002	—	—	—	1.0
Lead	0.003	<0.02	<0.02	<0.02	0.05
Mercury	0.0001	<0.002	<0.002	<0.002	0.002
Selenium	0.004	<0.01	<0.01	<0.01	0.01
Strontium	0.086	—	—	—	5.0
Zinc	0.021	<0.05	<0.05	<0.05	—
Silica as SiO_2	27	37.6	36.0	33.2	—
Aluminum	0.026	—	—	—	—
Iron	0.028	0.1	<0.1	0.147	0.3
Manganese	0.015	<0.05	<0.05	<0.05	0.05
Calcium	33	24.6	25.8	28.6	—
Magnesium	8.6	10.2	9.8	10.0	—
Sodium	3.5	2.9	2.8	2.7	—
Potassium	0.7	0.8	—	—	—
Alkalinity as $CaCO_3$	105	108	108	110	—
Hardness as $CaCO_3$	119	103	105	113	—
Sulfate as SO_4	14	17	20	27	250
Chloride	3.6	4	<1	<1	250
Fluoride	0.3	—	—	—	1.6
Nitrate	0.3	<0.1	<0.1	<0.1	10
Dissolved solids	165	158	196	192	500
Specific conductance (umhos/cm)	244	—	—	—	—
Color (platinum-cobalt blue)	10	5	5	15	15

*Data reported in mg/l unless otherwise indicated.
†Sampled 1974-1975.
**Sampled January 1982.

Source: CH2M-Hill, 1983.

2.5 ECOLOGY

Approximately 60 percent, or 3,100 acres, of Moody AFB is considered unimproved, indicating the presence of seminatural to natural ecological conditions. Major habitats found on-base include upland pine forests, pine flatwoods, gum-bay-shrub swamps, and freshwater ponds.

There are 1,431 acres of managed forest lands on Moody AFB. The tree species that are planted and harvested by the United States Forest Service are loblolly and longleaf pine. No timber management is practiced on approximately 1,600 acres of wetland habitat located in Grand Bay. This land has a mixture of plant species characteristic of shallow coastal plain wetland areas, including many evergreen shrubs and vines, sweetbay, black gum, pond pine, and cypress. An interesting component of this unmanaged area is Dudley's Hammock, a mesic hardwood hammock vegetated by magnolia and several species of oak and hickories. Although more common in north and central Florida, this plant association is unusual this far north.

Wildlife is abundant in the unimproved areas of the base. Common mammals include rabbits, squirrels (including fox squirrels), opossums, skunks, raccoons, deer, bobcats, and foxes. Over 100 species of birds are known to occur in the vicinity of the base.

Several aquatic habitats are present on Moody AFB, including Mission Lake, the unnamed golf course lake, and Shiner Pond. These water bodies were formed by impounding water courses and are stocked with game fish for recreational activities. The most popular sport fish in this area are black bass, bluegill sunfish, and bullhead.

Several threatened and endangered plant and animal species are reported to occur on or in the vicinity of Moody AFB. The American alligator is reported to reside in Mission Lake and adjacent wetland areas. Three sightings of Florida panthers have been reported from Moody AFB or its immediate vicinity in the past 10 years. An inactive southern bald eagle nest is present at Grassy Pond Recreational Annex and an active nest is located nearby at Pike Pond. Bald eagles probably feed at Banks Lake adjacent to Moody AFB. An inactive red-cockaded woodpecker colony has been reported from western Lowndes County; however, no breeding sites have been located on Moody AFB. The range of other protected species such as the indigo snake and peregrine falcon includes Moody AFB; however, there are no reported sightings from the base. Several threatened plant species are reported to occur in the wetland portions of the base, including the yellow, hooded, and parrot pitcher plants.

3.0 FIELD PROGRAM

3.0 FIELD PROGRAM

3.1 DEVELOPMENT OF FIELD PROGRAM

3.1.1 Introduction

The Moody AFB Phase II Stage 1 field program was developed by USAF Occupational and Environmental Health Laboratory (OEHL) personnel based on findings and recommendations of the Phase I records search (CH2M-Hill, 1983) and Phase II Presurvey (WAR, 1983). The formal description of work appears in Appendix B. Locations of monitoring wells and sampling points are shown in Figures 3-1 through 3-3. The work scope reflects Phase I and Phase II Presurvey recommendations and includes amendments which reflect changes in contamination assessment or screening strategies and/or budgetary constraints.

3.1.2 Screening as the Basis for the Field Program

The Moody AFB Phase II Stage 1 survey was designed to determine if environmental contamination has resulted from waste disposal practices at three sites. If so, the survey attempts to estimate extent of contamination. In addition to analyses for specific parameters, the survey utilizes general screening parameters such as pH, specific conductance, total phenolics, DOC, and TOX to indicate presence of nonspecific classes of pollutants. In subsequent discussions the parameters pH, specific conductance, total organic carbon (TOC), and TOX are collectively referred to as groundwater contamination indicators (GWCI). For sites where values of screening parameters indicate that a problem may exist, additional sampling and analyses for specific constituents is needed to confirm contamination and/or determine extent of contamination. Upgradient or background wells are included sparingly. If specification of background groundwater quality becomes necessary to assess contamination at a site without upgradient wells, upgradient wells must be installed and sampled.

3.1.3 Summary of the Planned Field Program

Recommendations contained in the Phase I records search included conducting Phase II type work at three sites: Southwest Landfill, Lily Pad Pond Fill site, and North POL area.

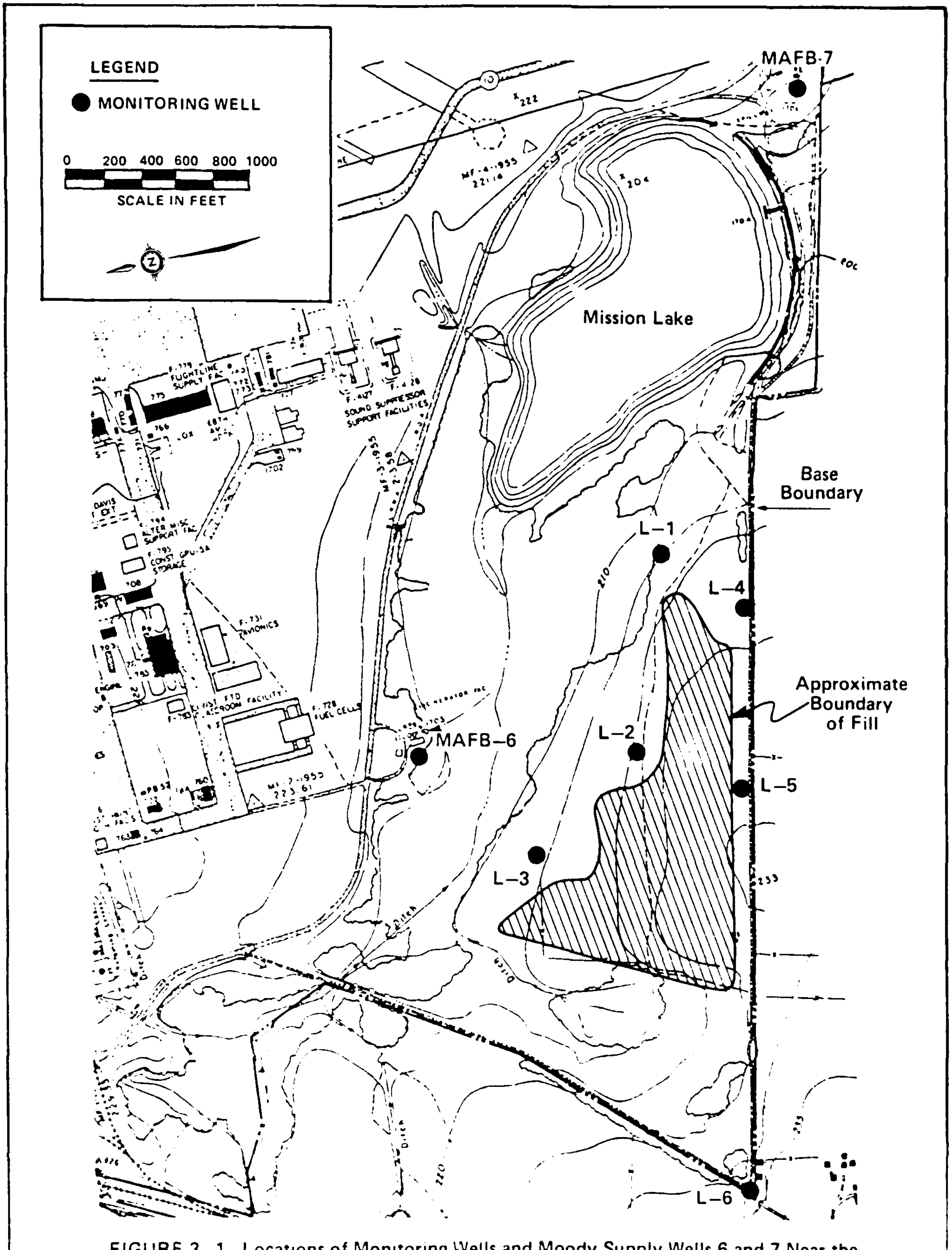
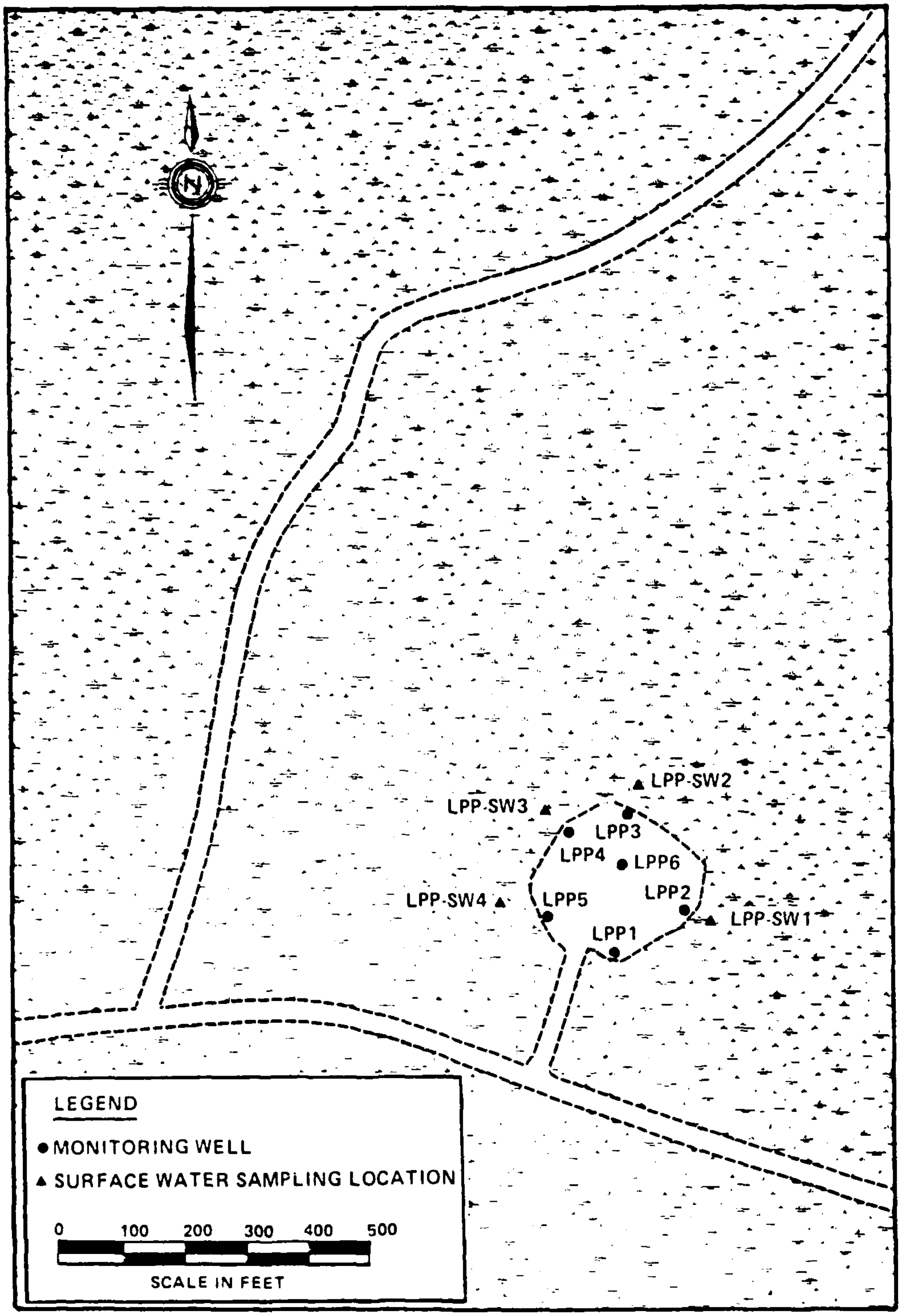


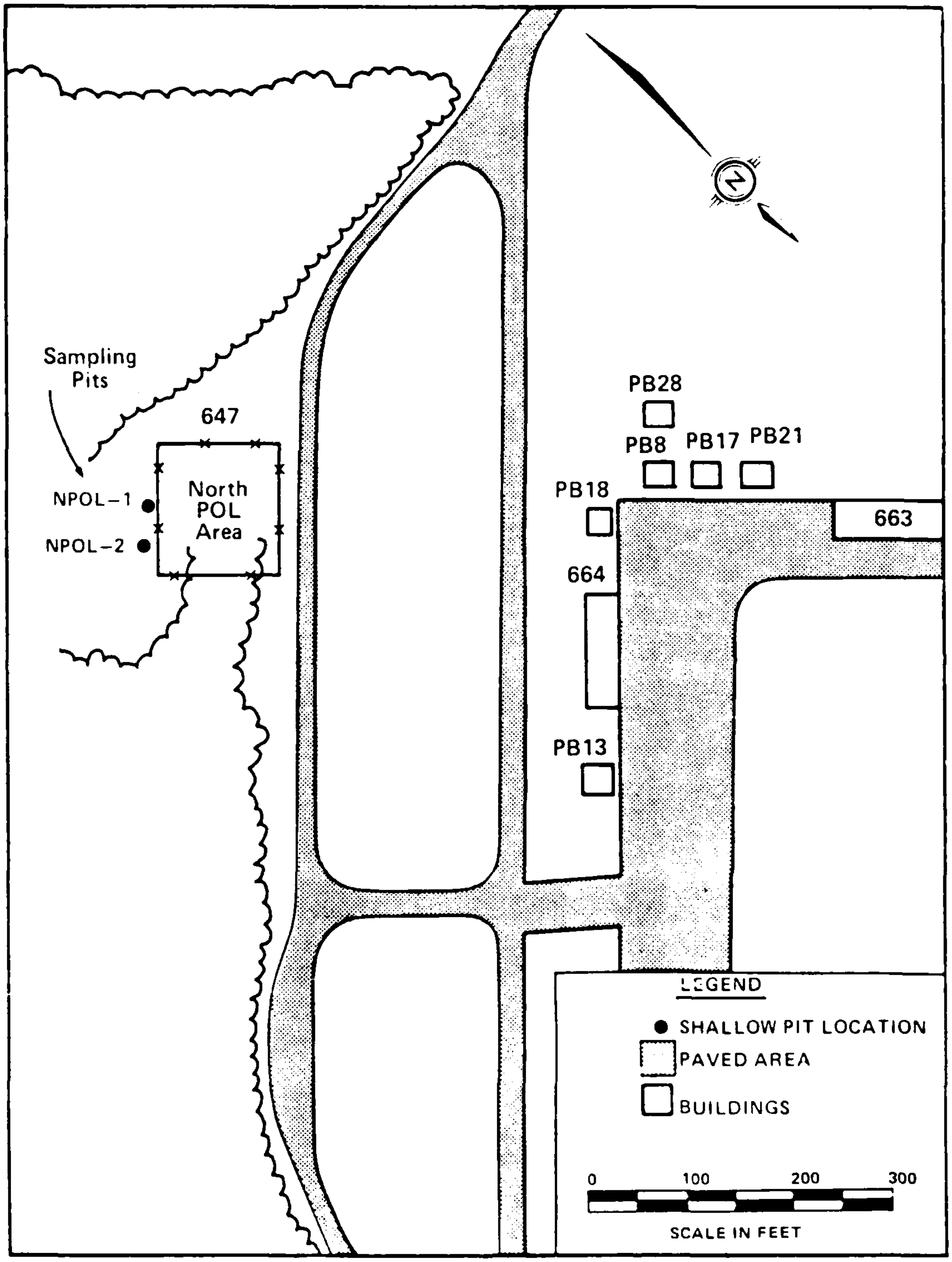
FIGURE 3–1. Locations of Monitoring Wells and Moody Supply Wells 6 and 7 Near the Southwest Landfill, Moody AFB, Georgia

SOURCE: Moody AFB, Master Plan Map (Tab F–1)



SOURCE: Moody AFB Aerial Photograph, 1978.

FIGURE 3–2. Lilly Pad Pond Fill Site, Moody AFB, Georgia



SOURCE Moody AFB Master Plan Map (Tab F–1)

FIGURE 3–3. North POL Area Showing Locations of Sampling Pits, Moody AFB, Georgia

These were the sites judged as highest priority based on application of the USAF HARM (CH2M-Hill, 1983). No significant additional information was developed subsequent to the Phase I work, and the Phase II Presurvey included recommendations for work only at these three sites. Recommended work in both surveys was very similar. Subsequent amendments by the USAF included adding testing at all Moody AFB water supply wells and one well at the Grassy Pond Recreational Annex.

Six wells at the Southeast Landfill were planned including one upgradient well situated between the fill and an off-base water supply well referenced in the Phase I report (CH2M-Hill, 1983, p. IV-32). One sample was to be collected from each of the 25-foot deep wells. Analysis included GWCI; chemical oxygen demand (COD); oil and grease; and eight metals, eight pesticides, and two herbicides. Additional sampling was specified where initial screening detected potential contamination. Finally, to better define local conditions, testing to determine aquifer hydraulic characteristics was specified at one well to be selected during fieldwork.

Six wells at the Lily Pad Pond Fill site were planned surrounding the fill area. One sample was to be collected from each of the approximately 10-foot-deep wells. Surface water samples were to be collected from the wetland area at four locations surrounding the fill. All samples were analyzed for GWCI, COD, oil and grease, total phenolics, and eight metals. Provisions for additional sampling were included if screening indicated possible contamination presence.

At the North POL Area two shallow sampling pits were specified to a depth of about 2 feet below the water table. Soil exposed during excavation was to be inspected for indications of fuel presence. Groundwater samples were to be collected from both pits and tested for GWCI, COD, oil and grease, and lead. Provisions for additional sampling were included if screening indicated possible contamination presence.

Sampling of all 11 Moody AFB (potable and industrial) water supply wells and one well at Grassy Pond Recreational Annex was planned. Testing included GWCI, oil and grease, and eight metals. Samples from three wells were to also be tested for eight pesticides and two herbicides.

3.2 IMPLEMENTATION OF FIELD PROGRAM

3.2.1 Introduction

The Phase II Stage 1 field program was implemented according to the provisions outlined above. Fieldwork consisted of monitoring well installation, digging of shallow sampling pits, collection of groundwater and surface water samples for laboratory analyses, and aquifer testing. These activities are described in the sections below. The safety plan presented in Appendix H was adhered to throughout the field program.

3.2.2 Monitoring Well Installation

Monitoring wells were installed during March 26-31, 1984, by Wright Test Drilling, Inc., of Mobile, Alabama. Wells were installed through 6-inch outer diameter hollow-stem augers. No fluids were introduced into bore holes. Split-spoon samples were collected after every 5 feet of drilling according to American Society for Testing Materials (ASTM) Standard D-1586-67. Soil samples were given visual classifications and descriptions in the field for preparation of a lithologic log for each well. Completion logs for all wells installed during the Phase II Stage 1 survey appear in Appendix C.

Monitor well casings and screen sections consist of 2-inch schedule 40 polyvinyl chloride (PVC) with threaded, flush joints. Slot width of the screen sections is 0.010 inch. Casing and screen sections were cleaned with potable water prior to installation. After augering to the desired depth, the pre-assembled PVC well section was installed through the auger stem. Augers were then withdrawn, allowing soil below the water table to collapse around the screen. Height of the casing top was adjusted to approximately 2.5 feet above the ground surface.

Wells were backfilled with clean sand to approximately 4.5 feet below the ground surface. A bentonite seal approximately 1 foot thick was placed on top of the sand. The remainder of the annular space was filled with sand-cement grout. A 5-foot by 6-inch steel protective casing with hinged, locking lid was installed into the grout until the top was within 2 to 6 inches of the PVC casing top. Above-ground portions of the steel casings were painted. Both steel and PVC casings are vented. Each well was equipped with a 4-foot by 1.25-inch PVC bailer attached by nylon cord to the screw-on PVC casing cap.

Diagrams of well installations are shown on the well completion logs in Appendix C. Wells at the Southeast Landfill were screened between 5.5 and 24.5 feet below ground level, and wells at the Lily Pad Pond Fill site were screened between 5.5 and 9.5 feet below ground level.

Each well was developed by bailing a minimum of five times the volume of water standing in the casing. All tools used within the hole were washed with potable water between wells to minimize the possibility of cross-contamination.

Surveyors licensed by the State of Georgia surveyed all monitoring wells installed at the Southwest Landfill in July 1984. Casing top elevations were determined to within ±0.1 foot and referenced to msl. Horizontal location coordinates were also determined by reference to the Georgia State Plane Coordinate System, Traverse Mercator-West Zone. Well elevations and coordinates were entered on well completion logs (Appendix C).

3.2.3 Sample Collection and Analysis

3.2.3.1 General Sampling and Analysis--Water samples were collected between April 23-26 and between September 6-9, 1984. September sampling was triggered by levels of TOX found at some locations and by quality control concerns detected in some of the laboratory results for samples collected in April.

Quality control issues involved the following:

- o Results of analyses of COD samples collected in April were rejected due to lack of precision in duplicates; one duplicate set showed an order of magnitude difference (i.e., 6.5 vs. 85 mg/l) and the other set showed a marginal, approximately 40 percent difference (i.e., 28 vs. 41 mg/l).
- o Results of analyses of pesticide/herbicide samples collected in April were rejected because recoveries of the malathion, toxaphene, and 2,4,5-T spikes were 0, 2, 4, and 0 percents, respectively; recoveries of DDT isomers ranged from 89 to 126 percent and were judged acceptable, but DDT was repeated to ensure compatibility of results (i.e., among all pesticide/herbicide data).
- o Results of analysis for silver and mercury were rejected because recoveries ranged from 11 to 59 percent for silver and were less than 10 percent for mercury; all metals were reanalyzed to ensure compatibility of results (i.e., between mercury and silver and the other six metals).

Satisfactory quality control was achieved for all analyses performed on the September samples. A listing of samples collected is given in collected is given in Table 3-1. General sampling procedures for each sample type are described below. Sample collection procedures for specific analytes are described in Appendix E. Sample container descriptions, preservation methods, and holding times are listed in Table E-1 of Appendix E. Sample chain of custody forms are reproduced in Appendix F.

3.2.3.2 Well Samples--Prior to collecting well samples, depth to the water surface was measured and the volume of standing water in the well was determined. A minimum of three times the volume of standing water was removed from the well by pumping or bailing. Moody AFB supply wells were purged before sampling. Purging information is included in Table 3-2.

Table 3-1. Summary of Sampling and Analyses for Phase II Stage 1 Survey, Moody AFB, Georgia

Site Description	Sample Locations	Sample Analyses*
Southwest Landfill	Six monitor wells.	GWCI, metals, oil and grease, COD, pesticide/ herbicide scan; VOC at Well 3 and 6 only.
Lily Pad Pond Fill	Six monitor wells, four surface water samples 100 feet from fill edge.	GWCI, total phenolics, metals, oil and grease, COD; VOC at all wells and two surface water sites.
North POL Area	Two shallow pits.	GWCI, oil and grease, DOC, COD, presence of visible fuel layer, volatile aromatics per EPA method 503.1
Moody Supply Wells	Wells 1, 2, 3, 5, 5a, 7, 10†, 12, 13.	GWCI, metals, oil and grease.
Moody Supply Wells	Wells 4, 6, 8.	GWCI, metals, oil and grease, pesticide/ herbicide scan.

*The following sample analyses are used:

GWCI = groundwater contamination indicators: pH, specific conductance, and total organic carbon (dissolved fraction).

Metals = arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

COD = chemical oxygen demand.

Pesticide/herbicide scan = DDT and DDT metabolites, heptachlor, heptachlor epoxide, lindane, chlordane, diazinon, malathion, toxaphene, 2,4-D, and 2,4,5-T.

VOC = volatile organic compounds as specified in EPA Methods 601 and 602.

†Moody Well 10 is located at Grassy Pond Recreational Annex.

Table 3-2. Information on Purging Prior to Sampling Potable Water Wells, Moody AFB, Georgia, September 1984

Well	Location	Well Type	Purge Time (min)	Purge Volume*	
				Gallons	No. of Casing Volumes
1	Building 913	Potable-main system	20	14,000	8.1
2	Building 947	Potable-main system	94	61,100	24
3	Building 984	Potable-main system	18	12,600	7.0
4	100 ft. north of Building 205	Nonpotable, air conditioning	66	16,500	33
5	Building 1114-Ordnance Area	Nonpotable, fire protection	12	2,160	5.9
5A	Building 1112-Ordnance Area	Potable	18	1,800	8.2
6	Building 1702-Test Cell	Nonpotable, fire protection	110	2,090	15
7	Building 1705-Mission Lake Recreation Area	Potable	87	435	3.4
8	Golf Course	Nonpotable, irrigation	75	16,500	28
10	Grassy Pond	Potable	2	80	6.2
12	Building 1500-Transmitter Site	Potable	104	2,080	15
13	Building 1501-Receiver Site	Potable	111	2,220	15

*Purge volumes are estimated from pump capacities or flow measurements and minimum purge times immediately prior to sampling.

Specific conductance, temperature, and pH measurements were taken from a plastic bucket filled with the bailer immediately prior to sample collection. Sample bottles were filled from the bailer with strict adherence to quality assurance procedures described in Appendix E. Bottle numbers and field observations were recorded on field data sheets which are reproduced in Appendices D-1 and D-2 for April and September samplings, respectively.

3.2.3.3 Surface Water Samples--Prior to collecting surface water samples at the Lily Pad Pond Fill site, water depth was estimated and specific conductance, temperature, and pH were measured in situ. Each sample location was marked by driving a numbered PVC stake into the bottom. Grab samples were collected from just below the surface in the appropriate bottles. Bottle numbers and field observations were recorded on field data sheets.

3.2.3.4 Shallow Pits--In April, hand shovels were used to dig two pits to a depth of approximately 4 feet at the North POL area. After sampling, the pits were backfilled. In September, a backhoe was used to dig two shallow sampling pits to a depth of approximately 9 feet, at which point sufficient water had accumulated to obtain a sample. After sampling, the backhoe pits were backfilled. The backhoe pits were larger than the shoveled pits and were located within about 15 feet of them. Grab samples were collected directly from the pits and transferred to appropriate bottles. Specific conductance, temperature, and pH were measured in samples taken in open containers. Exposed soil in the pits was examined for evidence of fuel contamination. Sample bottle numbers and field observations were recorded on field data sheets.

3.2.4 Aquifer Testing

A single well aquifer test was conducted at one well at the Southwest Landfill to determine values of horizontal hydraulic conductivity representative of the surrounding soil. A rising-head test (Naval Facilities

Engineering Command, 1982) was used and is described in Appendix I. The work was completed in early May 1984.

This test was performed at the Southwest Landfill in Well L-4 because this well was easily accessible and believed to be representative of the local hydrogeology. The following steps were taken:

1. Determine the static water level by taking a series of preliminary water level measurements,
2. Rapidly remove water from the well, and
3. Measure the rise in water level (i.e., recovery) as a function of time.

4.0 DISCUSSION OF RESULTS AND SIGNIFICANT FINDINGS

4.0 DISCUSSION OF RESULTS AND SIGNIFICANT FINDINGS

4.1 RELEVANT WATER QUALITY CRITERIA AND STANDARDS

4.1.1 Introduction

Numerical groundwater and/or surface water standards can provide a direct basis for contamination assessment. Analytical results which exceed, or in some instances approach, regulatory maxima indicate a need for attention. Standards applicable to water resources in the vicinity of Moody AFB are described below. Also discussed are water quality criteria which, while not directly applicable, may indicate levels of substance below which there is a minimal need for further action.

4.1.2 EPA Interim Drinking Water Regulations

Drinking water maximum contaminant levels (mcls) established by regulations are not directly applicable to groundwater sampled during the Moody AFB Phase II Stage 1 survey since the regulations pertain to public water systems. They do, however, provide a means of determining potential adverse effects on deeper potable water supplies downgradient from the shallower groundwaters sampled. Primary and secondary drinking water mcls established by EPA for constituents analyzed during the Moody AFB Phase II Stage 1 survey are given in Table 4-1.

4.1.3 EPA Water Quality Criteria

EPA has established water quality criteria for 64 toxic pollutants or pollutant categories (EPA, 1980). Criteria exist for freshwater and saltwater aquatic life and human health. A summary of criteria for parameters analyzed in the Moody AFB Phase II Stage 1 survey is given in Appendix J, Table J-1. Criteria for saltwater aquatic life are not listed in Table J-1 since there are no saltwater systems impacted by disposal sites at Moody AFB.

Human health criteria are derived from animal toxicity data and are given as ambient criteria for noncarcinogenic pollutants and concentrations estimated to cause a specified level of incremental cancer risk for carcinogens. Human health criteria assume that lifetime intake of the

Table 4-1. Relevant EPA MCLs for Drinking Water

Parameter	MCL Established by EPA Interim Drinking Water
	Primary Standards, ug/l
METALS	
Arsenic	50
Barium	1000
Cadmium	10
Chromium	50
Lead	50
Mercury	2
Selenium	10
Silver	50
CHLORINATED HYDROCARBONS	
Endrin	0.2
Lindane	4
Methoxychlor	100
Toxaphene	5
CHLOROPHENOXYS	
2,4-D	100
2,4,5-TP Silvex	10
	Secondary Standards
pH	6.5 - 8.5 pH units

Source: EPA National Interim Drinking Water Regulations, 40 CFR 143 (as amended through March 12, 1982).

pollutant comes from two sources: (1) drinking an average of 2 liters of water per day, and (2) ingesting an average of 6.5 grams of fish per day. Concentrations shown for incremental cancer risk in Appendix J, Table J-1 indicate those which are estimated to cause a lifetime carcinogenic risk of 10^{-6}, or one cancer in a population of 1 million. These concentrations are conservative (low) and are often well below analytical detection limits. Methods for determining human health criteria are discussed in detail by EPA (1980).

EPA water quality criteria are intended as guidelines and have no direct regulatory impact. Ambient criteria provide guidelines for potable water and consumption of aquatic organisms.

4.1.4 State of Georgia Ambient Water Quality Criteria

Georgia Water Quality Regulations (GWQR) contain specific water quality standards only for parameters such as bacteria, solids, dissolved oxygen, pH, and temperature. Standards for these parameters are given for drinking water supplies and all categories of surface waters. Ambient criteria for specific chemical contaminants are not established by GWQR. Chemical contamination of groundwater and surface water is addressed in the regulations by the following general statement:

> "All waters shall be free from toxic, corrosive, acidic, and caustic substances discharged from municipalities, industries or other sources in amounts, concentrations or combinations which are harmful to humans, animals, or aquatic life."

EPA drinking water standards and water quality criteria are applied to drinking water supplies and surface waters within the state to determine what levels of contamination are harmful (Fernstrom, 1984; Winn, 1984).

4.2 ANALYTICAL RESULTS

Field measurements and laboratory analysis results are presented in Tables 4-2 through 4-12. Data for the six wells at the Southwest Landfill are shown in Table 4-2 (GWCI, DOC, COD, oil and grease, and

Table 4-2. Results of Analyses of Environmental Samples Collected in the Vicinity of the Southwest Landfill, Moody AFB, Georgia, April and September 1984

Constituent (and units)	Well Locations					
	L-1	L-2	L-3	L-4	L-5	L-6
pH (S.U.) (April)	4.3	4.4	5.0	5.2	4.8	6.2
(September)	3.8	3.8	5.0	4.2	4.2	5.6
Specific conductance (April)	23	27	730	62	39	92
@ 25°C (umhos/cm) (September)	27	39	480	54	52	87
TOX (ug Cl/l) (April)	27	26	110	42	32	36
DOC (mg/l) (April)	<1.0	<1.0	<1.0	13.4	<1.0	<1.0
(September)	<0.5	<0.5	2.1	<0.5	<0.5	<0.5
COD (mg/l)	2.9	3.9	9.3	6.2	1.0	2.9
Oil and grease (mg/l) (April)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic (ug/l)	<2	<2	<2	<2	<2	<2
Barium (ug/l)	9	12	69	22	14	14
Cadmium (ug/l)	<6	<6	<6	<6	<6	<6
Chromium (ug/l)	<15	<15	<15	<15	<15	<15
Lead (ug/l)	<10	<10	<10	<10	<10	<10
Mercury (ug/l)	0.1	0.2	0.1	0.2	0.2	0.3
Selenium (ug/l)	<4	<4	<4	<4	<4	<4
Silver (ug/l)	<6	<6	<6	<6	<6	<6

Unless otherwise noted, samples collected in September 1984.

Table 4-3. Pesticide and Herbicide Concentrations in Samples Collected at the Southwest Landfill, Moody AFB, Georgia, September 1984

Constituent (and units)	Detection Limit	Well Locations					
		L-1	L-2	L-3	L-4	L-5	L-6
Heptachlor (ug/l)	0.005	BDL*	BDL	BDL	BDL	BDL	BDL
Heptachlor epoxide (ug/l)	0.005	BDL	BDL	BDL	BDL	BDL	BDL
Lindane (ug/l)	0.002	BDL	BDL	BDL	BDL	BDL	BDL
Chlordane (ug/l)	0.005	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene (ug/l)	0.01	BDL	BDL	BDL	BDL	BDL	BDL
Diazinon (ug/l)	0.005	BDL	BDL	BDL	BDL	BDL	BDL
Malathion (ug/l)	0.01	BDL	BDL	BDL	BDL	BDL	BDL
2,4-D (ug/l)	0.03	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-T (ug/l)	0.02	BDL	BDL	BDL	BDL	BDL	BDL
DDT-R (ug/l)†	0.03	BDL	BDL	BDL	BDL	BDL	BDL

*BDL = Below detection limit.

†DDT-R represents the total of the following six isomers: o,p DDE; p,p DDE; o,p DDD; p,p DDD; o,p DDT; and p,p DDT. Detection limit (0.02 ug/l) is for each isomer.

Table 4-4. Concentrations of Volatile Organic Compounds Found in Samples Collected at the Southwest Landfill, Moody AFB, Georgia, September 1984

Compound	Detection Limit*	Well Locations	
		L-3	L-6
METHOD 601			
Bromodichloromethane	1.0	BDL†	BDL
Bromoform	1.0	BDL	BDL
Bromomethane	1.0	BDL	BDL
Carbon tetrachloride	1.0	BDL	BDL
Chlorobenzene	1.0	9.2	BDL
Chloroethane	1.0	BDL	BDL
2-Chloroethylvinyl ether	1.0	BDL	BDL
Chloroform	1.0	BDL	BDL
Chloromethane	1.0	BDL	BDL
Dibromochloromethane	1.0	BDL	BDL
1,2-Dichlorobenzene	1.0	BDL	BDL
1,3-Dichlorobenzene	1.0	BDL	BDL
1,4-Dichlorobenzene	1.0	8.8	BDL
Dichlorodifluoromethane	1.0	BDL	BDL
1,1-Dichloroethane	1.0	BDL	BDL
1,2-Dichloroethane	0.1	BDL	BDL
Trans-1,2-Dichloroethene	1.0	BDL	BDL
1,2-Dichloropropane	1.0	BDL	BDL
Cis-1,3-Dichloropropene	1.0	BDL	BDL
Trans-1,3-Dichloropropene	1.0	BDL	BDL
Methylene chloride	1.0	BDL	BDL
1,1,2,2-Tetrachloroethane	1.0	BDL	BDL
Tetrachloroethene	1.0	BDL	BDL
1,1,1-Trichloroethane	1.0	BDL	BDL
1,1,2-Trichloroethane	1.0	BDL	BDL
Trichloroethene	1.0	2.1	BDL
Trichlorofluoromethane	1.0	BDL	BDL
Vinyl chloride	1.0	BDL	BDL
METHOD 602			
Benzene	0.5	3.7	BDL
Ethyl benzene	1.0	BDL	BDL
Toluene	1.0	BDL	BDL
Xylenes	1.0	BDL	BDL

*All values in ug/l.
†BDL = Below detection limit.

Table 4-5. Results of Analyses of Environmental Samples Collected in the Vicinity of the Lily Pad Pond Fill Site, Moody AFB, Georgia, April and September 1984

Constituent (and units)	Well Locations					
	LPP-1	LPP-2	LPP-3	LPP-4	LPP-5	LPP-6
pH (S.U.) (April)	5.5	6.0	4.7	4.9	5.8	6.3
(September)	6.1	5.8	5.7	5.4	6.3	6.1
Specific conductance (April)	1,750	1,390	240	230	940	1,470
@ 25°C (umhos/cm) (September)	1,790	1,100	340	290	960	220
TOX (ug Cl/1) (April)	120	120	74	74	92	81
DOC (mg/1) (April)	34	49	66	41	86	26
(September)	52	58	50	45	60	19
COD (mg/1)	140	190	180	110	190	85
Oil and grease (mg/1) (April)	<0.5	<0.5	<0.5	<0.5	0.8	<0.5
Phenolics (ug/1)	9	20	12	32	12	16
Arsenic (ug/1)	<2	<2	<2	<2	<2	3
Barium (ug/1)	200	220	84	130	140	330
Cadmium (ug/1)	<6	<6	7.6	10	<6	<6
Chromium (ug/1)	<15	<15	22	27	<15	<15
Lead (ug/1)	14	<10	<10	<10	<10	<10
Mercury (ug/1)	<0.1	<0.1	<0.1	0.12	0.2	<0.1
Selenium (ug/1)	<4	<4	<4	<4	<4	<4
Silver (ug/1)	<6	<6	<6	<6	<6	<6

Unless otherwise noted, samples collected in September 1984.

Table 4-6. Concentrations of Volatile Organic Compounds Found in Samples Collected in Wells at the Lily Pad Pond Fill Site (Site 2), Moody AFB, Georgia, September 1984

Compound	Detection Limit*	Well Locations					
		LPP-1	LPP-2	LPP-3	LPP-4	LPP-5	LPP-6
METHOD 601							
Bromodichloromethane	1.0	BDL†	BDL	BDL	BDL	BDL	BDL
Bromoform	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Bromomethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Chloroethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
2-Chloroethylvinyl ether	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	0.1	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Trans-1,2-Dichloroethene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloropropane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Cis-1,3-Dichloropropene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Trans-1,3-Dichloropropene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Methylene chloride	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl chloride	1.0	BDL	BDL	BDL	BDL	BDL	BDL
METHOD 602							
Benzene	0.5	BDL	BDL	BDL	BDL	4.7	BDL
Ethyl benzene	1.0	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	1.0	BDL	BDL	BDL	1.8	BDL	BDL
Xylenes	1.0	BDL	BDL	BDL	BDL	BDL	BDL

*All values in ug/l.
†BDL = Below detection limit.

Table 4-7. Results of Analyses of Surface Water Samples Collected in the Vicinity of the Lily Pad Pond Fill Site, Moody AFB, Georgia, April and September 1984

Constituent (and units)	Surface Water Locations			
	LPP-SW1	LPP-SW2	LPP-SW3	LPP-SW4
pH (S.U.) (April)	3.5	3.8	4.1	4.5
(September)	4.0	4.4	4.1	4.1
Specific conductance (April)	23	20	20	20
@ 25°C (umhos/cm) (September)	34	30	32	32
TOX (ug Cl/l) (April)	72	61	44	41
DOC (mg/l) (April)	15	12	7	7
(September)	16	15	12	14
COD (mg/l)	59	51	50	49
Oil and grease (mg/l) (April)	<0.5	<0.5	<0.5	<0.5
Phenolics (ug/l) (April)	8	5	10	11
Arsenic (ug/l)	<2	<2	<2	<2
Barium (ug/l)	11	12	10	8
Cadmium (ug/l)	<6	<6	<6	<6
Chromium (ug/l)	<15	<15	<15	<15
Lead (ug/l)	<10	<10	<10	<20
Mercury (ug/l)	<0.1	<0.1	<0.1	<0.1
Selenium (ug/l)	<4	<4	<4	<4
Silver (ug/l)	<6	<6	<6	<6

Unless otherwise noted, samples collected in September 1984.

Table 4-8. Concentrations of Volatile Organic Compounds Found in Samples Collected in Surface Water at the Lily Pad Pond Fill Site, Moody AFB, Georgia, September 1984

Compound	Detection Limit*	Surface Water Locations LPP-SW1	 LPP-SW2
METHOD 601			
Bromodichloromethane	1.0	BDL†	BDL
Bromoform	1.0	BDL	BDL
Bromomethane	1.0	BDL	BDL
Carbon tetrachloride	1.0	BDL	BDL
Chlorobenzene	1.0	BDL	BDL
Chloroethane	1.0	BDL	BDL
2-Chloroethylvinyl ether	1.0	BDL	BDL
Chloroform	1.0	BDL	BDL
Chloromethane	1.0	BDL	BDL
Dibromochloromethane	1.0	BDL	BDL
1,2-Dichlorobenzene	1.0	BDL	BDL
1,3-Dichlorobenzene	1.0	BDL	BDL
1,4-Dichlorobenzene	1.0	BDL	BDL
Dichlorodifluoromethane	1.0	BDL	BDL
1,1-Dichloroethane	1.0	BDL	BDL
1,2-Dichloroethane	0.1	BDL	BDL
1,1-Dichloroethene	1.0	BDL	BDL
Trans-1,2-Dichloroethene	1.0	BDL	BDL
1,2-Dichloropropane	1.0	BDL	BDL
Cis-1,3-Dichloropropene	1.0	BDL	BDL
Trans-1,3-Dichloropropene	1.0	BDL	BDL
Methylene chloride	1.0	BDL	BDL
1,1,2,2-Tetrachloroethane	1.0	BDL	BDL
Tetrachloroethene	1.0	BDL	BDL
1,1,1-Trichloroethane	1.0	BDL	BDL
1,1,2-Trichloroethane	1.0	BDL	BDL
Trichloroethene	1.0	BDL	BDL
Trichlorofluoromethane	1.0	BDL	BDL
Vinyl chloride	1.0	BDL	BDL
METHOD 602			
Benzene	0.5	BDL	BDL
Ethyl benzene	1.0	BDL	BDL
Toluene	1.0	BDL	BDL
Xylenes	1.0	BDL	BDL

*All values in ug/l.

†BDL = Below detection limit.

Table 4-9. Results of Analyses of Environmental Samples Collected in the Vicinity of the North POL Area, Moody AFB, Georgia, April and September 1984

Constituent (and units)	Well Number	
	NPOL-1	NPOL-2
pH (S.U.) (April)	3.8	3.7
(September)	4.8	4.2
Specific conductance (April)	32	29
@ 25°C (umhos/cm) (September)	120	55
DOC (mg/l) (April)	1.2	1.4
(September)	9.6	2.3
COD (mg/l)	55	18
Oil and grease (mg/l)	50	3.4
Lead (ug/l)	200	28

Unless otherwise noted, samples collected in September 1984.

Table 4-10. Concentrations of Volatile Organic Compounds Found in Water Samples Collected in Shallow Pits Near the North POL Area, Moody AFB, Georgia, September 1984

Compound*	Pit #1	Pit #2
Benzene	120	32
1,1,2-Trichloroethylene	24	2.6
a-Trifluorotoluene	<10	<10
Toluene	180	<1.0
1,1,2,2-Tetrachloroethylene†	9.1	5.8
Ethyl benzene	690	33
1-Chlorocyclohexene-1	<10	<1.0
p-Xylene	1,600	26
m-Xylene	1,700	<1.0
o-Xylene	520	2.2
Isopropylbenzene	<10	4.8
Styrene	<10	<1.0
p-Bromofluorobenzene	<10	<1.0
n-Propylbenzene	29	13
t-Butylbenzene	<10	<1.0
Bromobenzene	<10	<1.0
sec-Butylbenzene	<10	<1.0
1,3,5-Trimethylbenzene	129	20
p-Cymene	<10	<1.0
1,2,4-Trimethylbenzene	<10	<10
Cyclopropylbenzene	<10	6.7
n-Butylbenzene	<10	2.8
2,3-Benzofuran	<10	<1.0
Hexachlorobutadiene	<10	<1.0
Naphthalene	14	6.2

*Excluding chlorinated benzenes (all units ug/l).
†Nonconfirmable-coelutes with benzene on the confirmation column.

All compounds having a concentration greater than 10 ug/l (ppb) have been confirmed using the second column in the Method.

Table 4-11. Results of Analyses of Environmental Samples Collected from Existing Wells, Moody AFB, Georgia, April and September 1984

Constituent (all units)	Well Locations											
	MAFB-1	MAFB-2	MAFB-3	MAFB-4	MAFB-5	MAFB-5a	MAFB-6	MAFB-7	MAFB-8	MAFB-10	MAFB-12	MAFB-13
pH (S.U.) (April)	7.8	7.0	7.2	7.3	7.3	6.6	7.2	7.1	7.4	6.5	7.6	7.8
(September)	7.2	7.2	7.2	7.3	6.9	7.2	7.7	7.4	7.4	6.7	7.2	7.4
Specific conductance (April)	230	230	260	250	220	180	210	230	240	110	230	240
@ 25°C (umhos/cm) (September)	240	240	260	290	200	240	240	250	230	100	250	250
TOX (ug Cl/l) (April)	25	23	48	45	35	28	32	120	50	94	30	29
DOC (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.9	<1.0	<1.0
Oil and grease (mg/l) (April)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic (ug/l)	<2	<2	<2	<2	<2	<2	<2	4	<2	<2	<2	<2
Barium (ug/l)	18	20	23	18	7	14	12	11	21	23	29	44
Cadmium (ug/l)	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Chromium (ug/l)	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
Lead (ug/l)	<20	20	<20	20	20	20	<20	<20	<20	<20	<20	<20
Mercury (ug/l)	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	0.1	<0.1	0.1	0.1
Selenium (ug/l)	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (ug/l)	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6

Unless otherwise noted, samples collected in September 1984.

Table 4-12. Pesticide and Herbicide Concentrations in Samples Collected from Existing Wells at Moody AFB, Georgia, September 1984

Constituent (and units)	Detection Limit	Well Locations		
		MAFB-4	MAFB-6	MAFB-8
Heptachlor (ug/l)	0.005	BDL*	BDL	BDL
Heptachlor epoxide (ug/l)	0.005	BDL	BDL	BDL
Lindane (ug/l)	0.002	BDL	BDL	BDL
Chlordane (ug/l)	0.005	BDL	BDL	BDL
Toxaphene (ug/l)	0.010	BDL	BDL	BDL
Diazinon (ug/l)	0.005	BDL	BDL	BDL
Malathion (ug/l)	0.010	BDL	BDL	BDL
2,4-D (ug/l)	0.03	BDL	BDL	BDL
2,4,5-T (ug/l)	0.02	BDL	BDL	BDL
DDT-R†	0.03	BDL	BDL	BDL

*BDL = Below detection limit.

†DDT-R represents the total of the following six isomers: o,p DDE; p,p DDE; o,p DDD; p,p DDD; o,p DDT; and p,p DDT.

metals); Table 4-3 (pesticide/herbicide scans); Table 4-4 (volatile organic compounds at Wells L-3 and L-6 only). Data for the six wells at the Lily Pad Pond Fill site are shown in Table 4-5 (GWCI, DOC, COD, oil and grease, total phenolics, and metals) and Table 4-6 (volatile organic compounds). Data for four surface water samples near the Lily Pad Pond Fill site are shown in Table 4-7 (GWCI, DOC, COD, oil and grease, total phenolics, and metals) and Table 4-8 (volatile organic compounds at two locations).

Results of analysis on samples collected at the North POL area are shown in Table 4-9 (pH, specific conductance, DOC, COD, oil and grease, and lead) and Table 4-10 (volatile aromatics). Data for Moody AFB water supply wells are shown in Table 4-11 (GWCI, DOC, oil and grease, and metals) and Table 4-12 (pesticide/herbicide scans at Wells 4, 6, and 8).

Values for total phenolics and TOX are for samples collected in April 1984. Values for oil and grease at the North POL area are for samples collected in September 1984, and all other oil and grease data are for April samples.

Metals, pesticide/herbicide scans, and COD results for April did not meet quality control requirements as noted in Section 3.2.3.1. September sampling results did meet quality control checks and these are the data reported for these constituents. Because COD was reanalyzed, DOC was also reanalyzed. It would be difficult to compare COD and DOC results for samples collected at different times. DOC data for April samples met quality control requirements and are included.

Both April and September field data (i.e., pH and specific conductance) are reported.

4.3 HYDROGEOLOGIC RESULTS

4.3.1 Introduction

Static water levels in each well were measured in April and September 1984. This information and elevations of the shallow groundwater surface at the Southwest Landfill are presented below.

Aquifer testing was completed in Well L-4 in May 1984, and results of that work are also presented in this section.

4.3.2 Shallow Groundwater Surface at Southwest Landfill

Static water levels measured at the time of sampling and surveyed well head elevations for each well at the Southwest Landfill are shown on Table 4-13. Elevations of the surface for the shallow aquifer are indicated on Figures 4-1 and 4-2 for April and September, respectively. Water table surface elevations were typically 4 feet higher in April than in September. These data confirm water table slopes inferred from land surface slopes. Well L-6 is clearly upgradient from all other wells.

It is not possible to accurately define lines of equal water surface elevation using only the six measurements shown on Figures 4-1 and 4-2. However, the data demonstrate that, in general, shallow aquifer flow is to the east and north (i.e., toward the upper left in the figures). The data indicate that it is more easterly in September than in April.

4.3.3 Depths to Water at Lily Pad Pond Fill Site

Depths to water from top of casing for each well at the Lily Pad Pond Fill site are shown on field sheets in Appendices D-1 and D-2 for April and September samplings, respectively. These depths varied between 3.1 feet and 5.2 feet in April and 4.1 feet and 6.2 feet in September. All wells recovered slowly and were bailed almost dry before being allowed to recover for sampling.

Well heads were not surveyed and no groundwater surface data were developed for this site. It was possible to identify direction of groundwater movement because of the small area and the mounded topography

Table 4-13. Static Water Levels and Surveyed Well Head Elevations for Each Well at the Southwest Landfill, Moody AFB, Georgia, April and September 1984

Well	Well Head Elevation (ft msl*)	April		September	
		Depth to Water (ft)	Elevation of Water Surface (ft msl)	Depth to Water (ft)	Elevation of Water Surface (ft msl)
L-1	218.39	5.00	213.4	9.48	208.9
L-2	222.85	7.12	215.7	11.33	211.5
L-3	218.60	5.04	213.6	7.17	211.4
L-4	222.29	5.75	216.4	10.33	212.0
L-5	227.53	9.17	218.4	14.38	213.2
L-6	237.47	5.81	231.7	14.02	223.4

*Mean sea level.

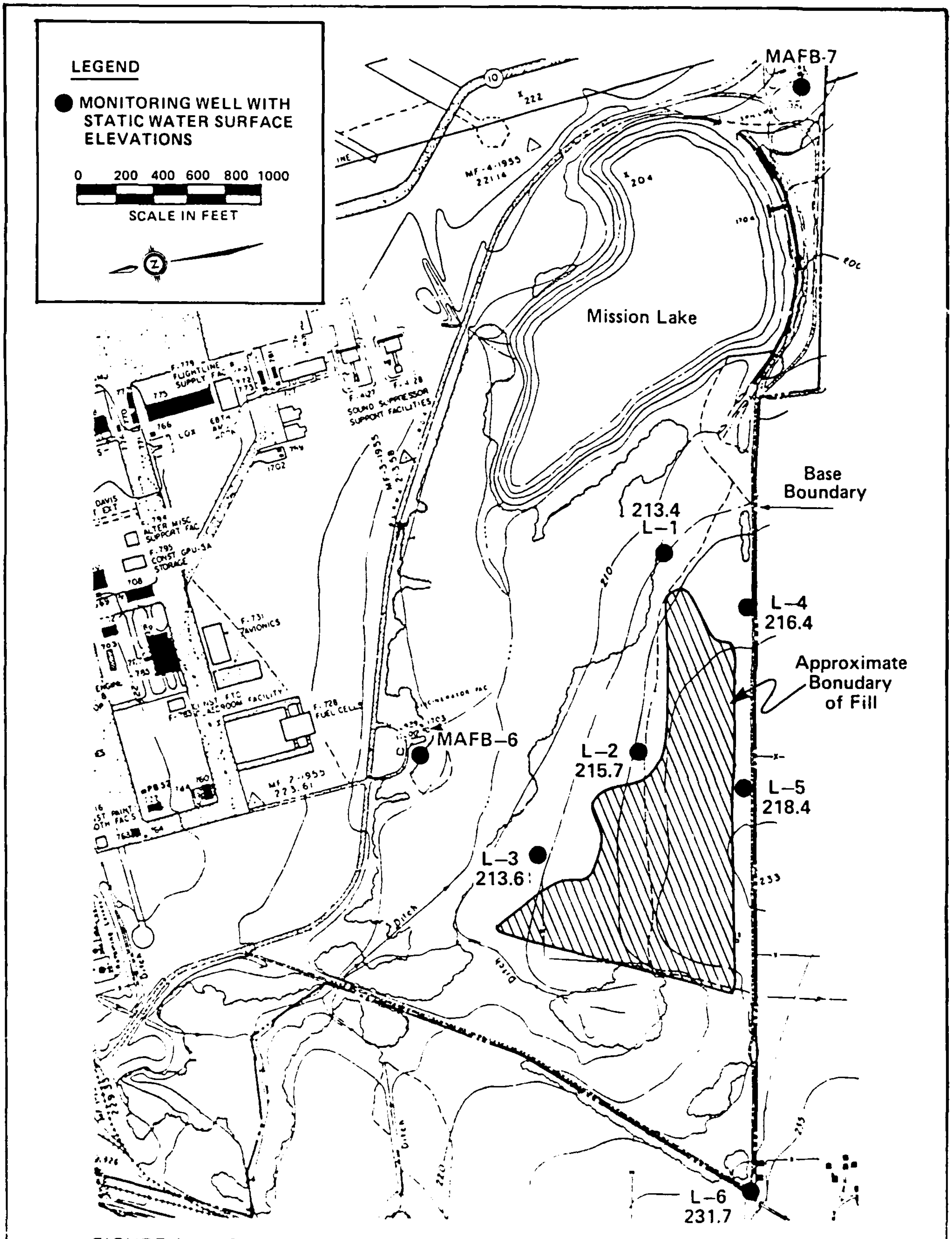


FIGURE 4–1. Groundwater Levels in Feet MSL in Monitoring Wells at Southwest Landfill, Moody AFB, Georgia, April 1984

SOURCE: Moody AFB, Master Plan Map (Tab F–1)

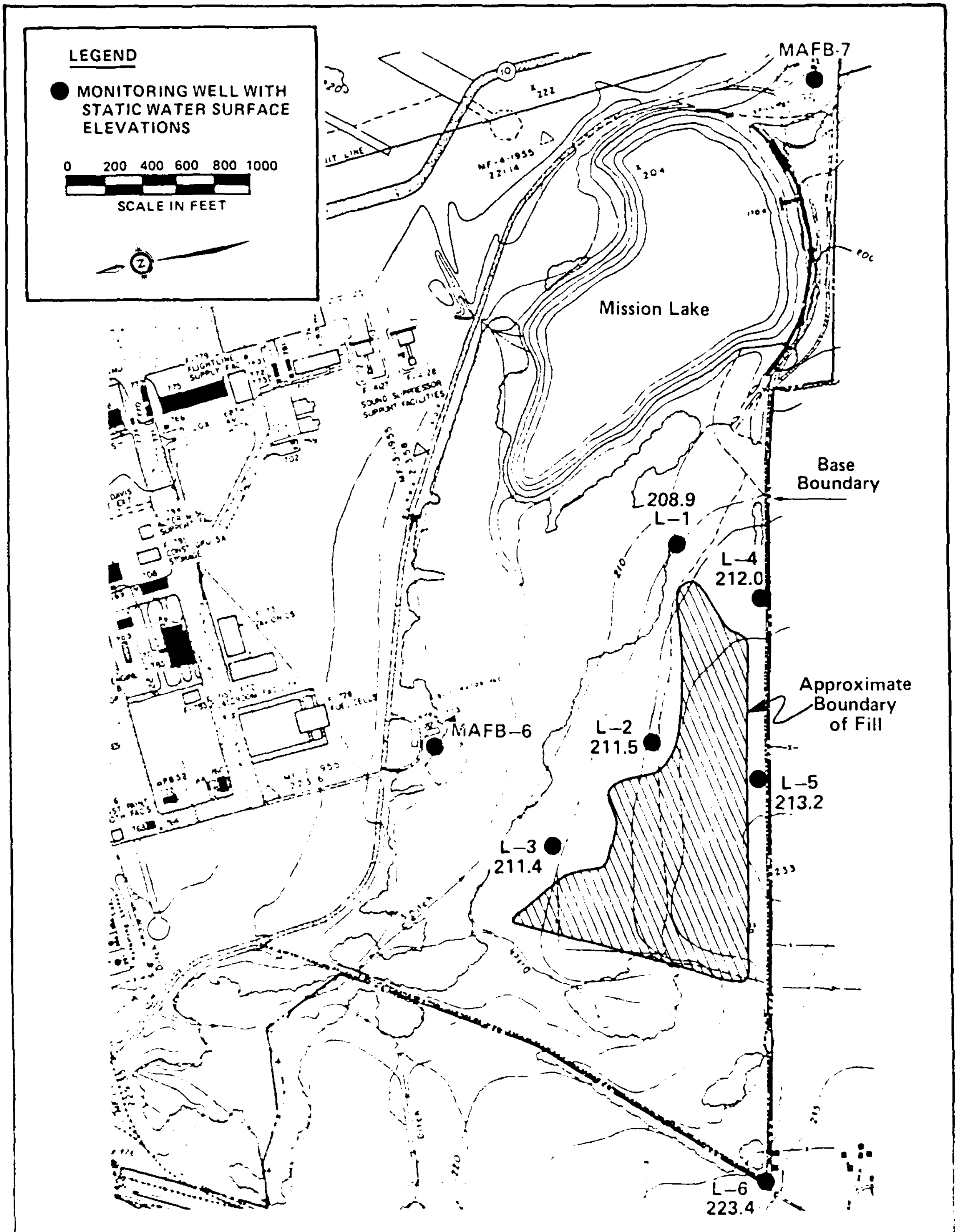


FIGURE 4–2. Groundwater Levels in Feet MSL in Monitoring Wells at Southwest Landfill, Moody AFB, Georgia, September 1984

SOURCE: Moody AFB, Master Plan Map Tab F–1 of the fill site, and because the adjacent surface water provided a horizontal water table surface surrounding the fill.

4.3.4 Aquifer Testing at Southwest Landfill

The shallow aquifer in the vicinity of the Southwest Landfill was tested by means of a rising head test in Well L-4. Results of the test are plotted in Figure 4-3. The well was drawn down approximately 2 feet and allowed to recover over a period of 100 minutes. Figure 4-3 shows drawdown ratio (H_t/H_o) versus time.

Straight line approximations were drawn for portions of the curve between 1 and 40 minutes. Slopes of these lines were used with the method referenced in Section 3.2.3 to calculate estimates of hydraulic conductivity. The two values calculated are 8.1 x 10^{-6} centimeters per second (cm/sec) and 1.1 x 10^{-5} cm/sec. Therefore, 1 x 10^{-5} cm/sec is a useful estimate of average aquifer hydraulic conductivity throughout the upper 25 feet. Details of the calculations are given in Appendix I.

4.4 DISCUSSION OF RESULTS

4.4.1 Introduction

Results of fieldwork are presented in two contexts. First, narrative explanations of some of the more salient numerical findings are presented. This information is presented for each sampling site. Second, results are interpreted with respect to potential significant impacts to human health and/or environment. This information is presented in Section 5.4.

The following paragraph explains the rationale for data assessment. It pertains to both the narrative description of results and the discussion of significance of results.

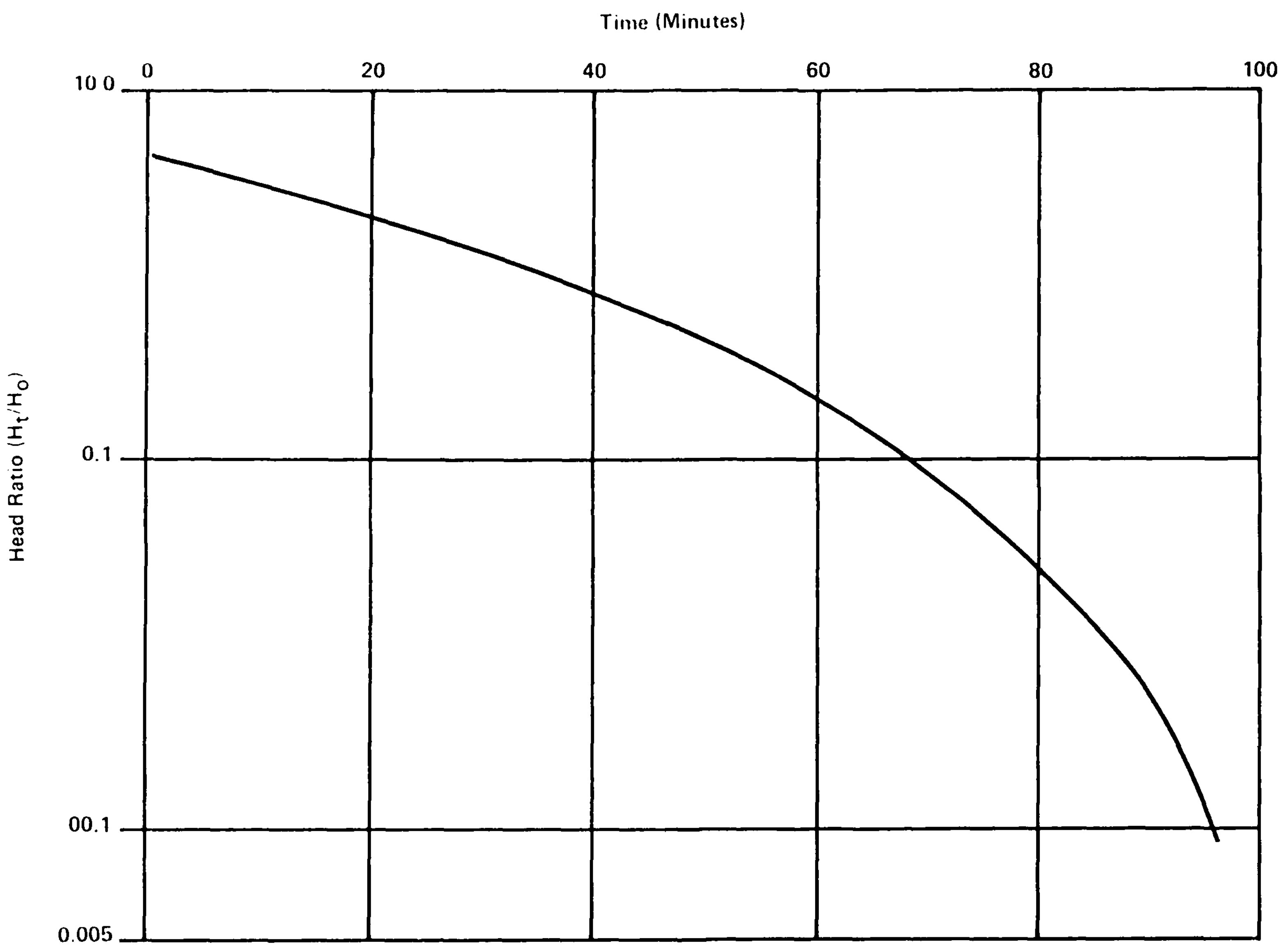


FIGURE 4–3. Results of Rising Head Aquifer Test in Well L–4, Moody AFB, Georgia, May 1984

4.4.2 General

Results of analyses on environmental samples collected during the Moody AFB Phase II Stage 1 survey are discussed in terms of relevant water quality standards and criteria whenever possible.

Where groundwater standards are not available for assessing groundwater quality, Georgia or EPA criteria for surface water nearest the site can be used as an indirect comparison. In order to estimate potential impact of groundwater quality on receiving surface water, the following factors must be taken into account:

1. Rate of migration of the contaminant from shallow groundwater to the adjacent surface water; and
2. Fate of the contaminant once it reaches the surface water (i.e., degree of dispersion or mixing, degree of dissolution, adsorption on sediments or vegetation, etc.).

With the limited data available, these factors cannot be quantified. Thus, if groundwater concentrations of a particular pollutant exceed adjacent surface water criteria it cannot be said with certainty that the surface water will be adversely impacted. However, if groundwater parameters are within adjacent surface water criteria, it can be stated with certainty that the surface water criteria will not be exceeded due to local groundwater discharge.

EPA has established water quality criteria for 21 specific phenolic compounds, as listed in Appendix J, Table J-1. These criteria can be used for comparison with total phenolic data only to determine whether the potential exists for criteria to be exceeded. If the total phenolic concentration of a water sample exceeds a criterion for a specific phenolic compound or group of phenolic compounds, then the potential exists for that criterion to be exceeded.

EPA water quality criteria are listed in Table J-1 for metals, purgeable organics, and phenolic compounds. EPA water quality criteria are not established for all purgeable organic compounds analyzed in this survey.

For detected compounds without criteria, published toxicity data (also shown in Table J-1) are used to assess potential environmental and human health hazards.

There are no criteria or standards for direct evaluation of TOX data. If used in a rigorous manner (e.g., RCRA groundwater compliance monitoring), extensive background and monitoring data are required to determine statistically whether monitoring well levels are significantly higher than background well levels. When used as a screening indicator, as is the case in this survey, such data are not available. For the purposes of interpreting TOX data reported in this survey, a TOX concentration of approximately 40 micrograms of chloride per liter (ug Cl/l) was selected as being sufficiently high to indicate the potential for significant groundwater contamination. This concentration is based on the EPA mcl for trihalomethanes (THMs) which is 100 micrograms per liter (ug/l) for the sum of bromoform, chloroform, bromodichloromethane, and dibromochloromethane concentrations. Molecular weights for these species range from 119.4 for chloroform to 252.8 for bromoform. A chloroform concentration of 100 ug/l would be equivalent to 89 ug Cl/l reported as TOX, the ratio of the chloride weight (3 x 35.5 = 106.5) to the molecular weight (119.4). A bromoform concentration of 100 ug/l would be equivalent to 42 ug Cl/l reported as TOX, the ratio of the halogen weight reported as chlorine (3 x 35.5 = 106.5) to the molecular weight (252.8). The cut-off level for TOX, 40 ug Cl/l, was based on the concentration of bromoform that could be present in a sample without exceeding the 100 ug/l THM standard. A TOX concentration of 40 ug Cl/l corresponds to a range of 45 ug/l (all chloroform) to 95 ug/l (all bromoform) total THMs and is four times the reported detection limit for the analysis. These comparisons are based on molecular weight considerations only and assume 100 percent accuracy of analytical methods.

Similarly, there are no criteria or standards for direct evaluation of COD and DOC data. Background COD and DOC concentrations in natural water samples can vary widely, depending primarily on decomposition of organic matter in the soil. COD and DOC data for this survey are evaluated subjectively as an indication of general organic contamination.

4.4.3 Southwest Landfill

TOX levels varied from 27 to 110 ug/l with the highest level at Well L-3. TOX in the upgradient Well L-6 was 36 ug/l. The level found in L-3 was enough above the level in Well L-6 to indicate more detailed volatile organics analysis. Specific conductance in Well L-3 [728 micro mhos per centimeter (umhos/cm) in April] was the highest of all wells at the site. Values in other wells were much lower ranging from 23 to 92 umhos/cm. Similar values were found in September.

Measurements in both April and September showed all wells to have pH levels below neutral (i.e., acidic). No indication of oil and grease was found. DOC and COD results showed little variability among wells. September values were (slightly) highest in Well L-3.

Metals were generally not detected at significant levels at any well. Very low concentrations (i.e., well below regulatory maxima) of barium and mercury were found with levels in the upgradient and downgradient wells being within one order of magnitude. Levels of other metals were below detection limits.

No detectable levels of pesticides or herbicides were found in any well at the site.

Detailed analysis of volatile organic compounds indicate detectable amounts of four compounds: chlorobenzene, 1,4-dichlorobenzene, trichloroethene, and benzene. All concentrations were less than 10 ug/l.

4.4.4 Lily Pad Pond Fill Site

Results of analysis of well samples are shown in Tables 4-5 and 4-6, and results of analyses of surface water samples are shown in Tables 4-7 and 4-8.

TOX levels in wells varied between 74 and 120 ug/l. Two surface water samples were near 40 ug/l (i.e., 44 and 41 ug/l) while two were higher (61 and 72 ug/l). Based on these values, volatile organic scans were run on additional samples collected from all wells and the two higher surface water locations. No organic compounds were detected in the surface water samples. Toluene in Well LPP-4 and benzene in Well LPP-5 were detected at levels well below 10 ug/l (i.e., 1.8 and 4.7 ug/l, respectively). These were the only organic compounds detected in wells.

Measurements of pH indicated slightly acidic conditions in wells and surface water. Specific conductance in wells varied between over 200 umhos/cm to over 1,700 umhos/cm. Values in respective wells were similar for both sampling periods except for well LPP-6, which showed specific conductances of 1,470 and 220 umhos/cm. The reason for the large difference in well LPP-6 is not known and could be attributable to equipment error. Values in surface water were much lower (i.e., 20 to 35 umhos/cm) than values in wells..

Levels of DOC and COD were both consistent in wells and also consistent, and lower, in surface waters. DOC values varied between 19 and 60 milligrams per liter (mg/l) in wells and between 12 and 16 mg/l in surface waters. Corresponding ranges for COD were 85 to 190 mg/l and 49 to 59 mg/l, respectively.

Only one sample (Well LPP-5) showed any measurable amount of oil and grease (i.e., 0.8 mg/l). Total phenolics concentration ranged in wells from a high of 32 ug/l (LPP-4) to a low of 9 ug/l (LPP-1) and in surface water from a low of 5 ug/l to a high of 11 ug/l.

Barium was detected in very small amounts (i.e., less than 350 ug/l) in all samples. Lead (14 ug/l) was found in Well LPP-1. Detectable amounts of cadmium (7.6 ug/l) and chromium (22 ug/l) were found in Well LPP-3. Cadmium (10 ug/l), chromium (27 ug/l), and mercury (0.12 ug/l) were found in Well LPP-4. Lead at 0.2 ug/l was detected in Well LPP-5 and arsenic at 5 ug/l was found in Well LPP-6.

4.4.5 North POL Area

At the North POL area, samples were taken from two open pits. During digging, fuel or fuel-type substances were detected by odors and sheens on standing water in the pits.

Sampling results shown in Tables 4-9 and 4-10 show acidic pH levels. Specific conductance and DOC increased between the April and September measurements. COD levels were 55 and 18 mg/l in respective pits. Oil and grease was detected in both pits with substantially more found in one pit (i.e., 50 versus 3.4 mg/l). Lead results were similar: 200 ug/l was found in one pit and 28 ug/l found in the other.

Levels of DOC and oil and grease were found at levels which triggered additional testing for volatile organics as shown in Table 4-10. Results indicate detectable amounts of several compounds, including benzene; 1,1,2-Trichloroethylene; toluene; 1,1,2,2-tetrachloroethylene; ethyl benzene; xylenes; isopropylbenzene; propylbenzene; 1,3,5-trimethylbenzene; cyclopropylbenzene; butylbenzene; and napthalene. Generally, amounts were higher in Pit 1 which also showed the higher concentrations of DOC, COD, oil and grease, and lead.

Results indicate a difference between conditions in April and September which was confirmed by field observation. In April, groundwater levels were 3 or 4 feet higher than in September, and no fuel odors or sheens were detected.

4.4.6 Moody AFB Supply Wells

Field measurements indicated relatively uniform levels of pH in all wells. Levels varied between 7 and 8 standard units. Specific conductance varied between 200 and 290 umhos/cm for all main base wells. Well MAFB-10 at Grassy Pond showed lower specific conductance (100 to 110 umhos/cm).

TOX levels varied between 23 and 120 ug/l with Wells MAFB-1, 2, 5, 5a, 6, 12, and 13 all showing levels under 40 ug/l. Wells MAFB-3, 4, and 8 ranged between 40 and 50 ug/l. Only Wells MAFB-7 and 10 showed TOX concentrations much higher than 40 ug/l (i.e., 120 and 94 ug/l, respectively). MAFB-10 at Grassy Pond is 25 miles south of MAFB-7 at Mission Lake.

Only one well (MAFB-10) showed any amount of DOC (i.e., 4.9 mg/l). Oil and grease was not detected in any well. Barium was found in levels below 44 ug/l. No cadmium, chromium, selenium, or silver was detected. Arsenic at 4 ug/l was indicated in Well MAFB-7 and lead was found at the detection limit (20 ug/l) in Wells MAFB-4, 5, and 5a. Detectable amounts of mercury were found in Wells MAFB-2 (0.2 ug/l), MAFB-7 (0.5 ug/l), MAFB-8 (0.1 ug/l), MAFB-12 (0.1 ug/l), and MAFB-13 (0.1 ug/l).

No detectable amounts of pesticides or herbicides were found.

4.5 SIGNIFICANT FINDINGS

4.5.1 Introduction

Significance of field and laboratory observations and measurements are presented for each site in this section.

4.5.2 Southwest Landfill

In general, no direct evidence of environmental degradation or harm to public health was found at the Southwest Landfill. Levels of metals found were well below acceptable levels in drinking water. Allowable levels of barium are approximately 15 times more than those found at the site. Concentrations of mercury were typically one-tenth the concentrations allowable in drinking water. Concentration of other metals were below detection limits.

Levels of volatile organics are generally below levels which are expected to adversely impact biota. The concentration of chlorobenzene found (9.2 ug/l) is about one-fifth the level expected to be toxic to aquatic life (50 ug/l). The concentration of 1,4-dichlorobenzene detected was 8.3 ug/l which is only a fraction of the concentration expected to harm aquatic life (763 ug/l). The amount of trichloroethene measured (2.1 ug/l) is very small when compared with the amount expected to harm biota (21,900 ug/l), and the 3.7 ug/l of benzene detected is small when compared to 5,300 ug/l, the amount causing toxic effects in aquatic life.

In general, the levels of organics found are also small when compared to ambient and human health criteria. No such criteria exist for chlorobenzene. The concentration of 1,4-dichlorobenzene is well below the 400 ug/l recommended as an ambient criterion. The concentration of trichloroethane falls below the estimated one in one million cancer risk level of 2.7 ug/l. Only benzene was found at a level which exceeds the one in one million cancer risk level (i.e., 3.7 ug/l versus 0.66 ug/l).

It is possible to estimate the rate of mass or substance moving through the shallow portion of the aquifer. This can be accomplished by using results of aquifer tests at Well L-4 and approximations to Darcy's Law. Darcy's Law relates rate of water movement (Q) through porous media under an unconfined situation as:

$$Q = A\ K\ dh/dx$$

where A is area of flow through the aquifer in a vertical plane perpendicular to the hydraulic gradient dh/dx, dh/dx is approximated as the slope of the potentiometric surface in the direction of water movement, and K is hydraulic conductivity.

The value of A is calculated by first estimating the horizontal distance along the north edge of the landfill, generally perpendicular to shallow groundwater movement as 1,800 feet. Then, by using a depth of saturated shallow aquifer of 25 feet, A equals 45,000 square feet. Shallow groundwater surface measurements can be used to estimate a gradient of 0.005 feet of water table decline per foot of horizontal distance. The value of K estimated from aquifer tests is 1×10^{-5} cm/sec. Using these values, Q is estimated as 2.3×10^{3} cubic feet per year.

If 10 ug/l of some substance is found in groundwater, the amount moving through the aquifer, using the value of Q estimated above, is about one one-thousandth of a pound per year. Since those organic substances detected were all found at levels less than 10 ug/l, the amount of substance moving away from the landfill is less than 0.001 pound in a year.

No significant environmental impact is indicated by the data recorded at the Southwest Landfill because: (1) estimates of substance moving through the upper portion of the aquifer are very small; (2) levels of organics detected are well below levels expected to be harmful to biota; and (3) only long-term, direct ingestion of shallow groundwater can even be considered a potential threat to human health. Sampling results do not rule out the potential for further examination of groundwater near the landfill. This is because the substances detected were typically used at Moody AFB and it is not known if higher or lower levels of substances exist nearby (vertically or horizontally) in groundwater.

4.5.3 Lily Pad Pond Fill Site

The limited sampling results confirm the presence of industrial-type substances at this site in amounts which are not expected to pose a threat to human health or the environment. Most substances detected in the wells inserted at the fill were not detected in surface water samples.

The level of toluene detected (1.8 ug/l) in Well LPP-4 was approximately one-tenth of the level recommended as an ambient water criterion (14.3 ug/l). Benzene (4.7 ug/l) was found in Well LPP-5 at a level which is one-thousandth of the level found to cause harm to aquatic life. This level exceeds the level estimated to cause cancer in one person in a million (0.66 ug/l). However, water from Well LPP-5 would have to be ingested daily for many years to result in significant human exposure. In summary, the levels of these two substances are not expected to pose a significant threat to human health or the environment.

Metals were detected at relatively small concentrations. For example, lead in Well LPP-1 was found at 14 ug/l or approximately one-third the recommended level for water being ingested. The largest barium concentration, 350 ug/l, is one-third the recommended maximum level in drinking water. Mercury found in Wells LPP-4 and LPP-5 is present at about one-tenth maximum drinking water levels. Likewise, the highest concentrations of chromium are well below potable water maxima. Cadmium was found in Well LPP-4 at 10 ug/l, which is the maximum level allowed in drinking water. Therefore, levels of metals detected in all wells are considered low and can be expected to pose no threat to human health or the environment.

Levels of total phenolics indicate the presence of compounds which may be natural organic substances, residues from waste disposal, or a combination of both sources. Comparing levels to regulatory criteria is difficult because individual phenolic compounds were not identified in the scan.

4.5.4 North POL Area

Direct evidence of contamination from fuel and/or fuel-type substance was found. Odors, sheens, and analytical results confirm the presence of nonnatural substances in both test pits.

The preponderance of organic compounds found are benzene, benzene-related, xylene, and toluene. All of these are major components of fuels typically used at Moody AFB. The level of toluene found in one pit (180 ug/l) substantially exceeds the recommended ambient criterion (14.3 ug/l). Benzene levels in both pits exceed the one in one million cancer risk level (0.66 ug/l) but are substantially lower than the level which harms freshwater aquatic life (5,300 ug/l).

An important finding during field testing was the difference between conditions in April and September. No evidence of contamination was found in April, a period of higher groundwater conditions. The contrast between April and September results is significant. This could indicate that fuel contamination remains below several feet of overlying seasonal groundwater, or it could indicate that fuel substances had not yet migrated to the sampling points in April.

4.5.5 Moody AFB Supply Wells

No directly measured contamination was found in any of the water supply wells. Five wells have levels of TOX above 40 ug/l, which may or may not represent contamination. Values detected include 48, 45, 120, 50, and 94 ug/l in wells MAFB-3, 4, 7, 8, and 10, respectively. Of these wells, MAFB-3, 7, and 10 are used as potable supplies. Wells 7 and 10 are located at recreation areas and do not contribute to the main drinking water system. Wells 7 and 10 are also the only wells which showed TOX levels substantially above 40 ug Cl/l. These two wells are among the shallowest at Moody AFB (195 and 140 feet deep, respectively). Well 5a is also shallow (150 feet deep), yet showed low TOX. The significance of shallowness may be that the higher strata contains naturally occurring substances which caused the higher TOX results. On the other hand, shallowness may indicate a greater susceptibility for contaminants from the surface to reach the well. In either case, TOX results do not directly indicate contamination.

Specific conductance levels (i.e., 100 to 290 umhos/cm) are typical for other wells in the area, as shown in Table 2-2 (i.e., 244 umhos/cm). Metals concentrations were at or near detection limits which are substantially lower than applicable drinking water standards. No significant impact on human health or the environment is indicated by any metals concentration.

Although levels of arsenic and mercury found in Well MAFB-7 are very low (i.e., 4 and 0.5 ug/l, respectively) and do not indicate any significant contamination, these levels and the level of TOX were the highest found in any well. Because of these findings and because the well is relatively shallow, used as a potable supply, and downgradient from the Southwest

Landfill, the potential for limited impact of waste disposal activities on Well MAFB-7 cannot be ruled out. The higher TOX and DOC levels in Well MAFB-10 also means the potential for contamination cannot be ruled out. That well is also relatively shallow and used as a potable supply.

No other significant indication of contamination is shown by the data. TOX levels in Wells MAFB-3, 4, and 8 (i.e., 48, 45, and 50 ug/l, respectively) are not believed to be significant when compared to the level found in monitoring Well L-6 (i.e., 36 ug/l), the background well at the Southwest Landfill.

5.0 ALTERNATIVE MEASURES

5.0 ALTERNATIVE MEASURES

Three alternatives are possible for the sites investigated: (1) correct the contamination; (2) conduct further monitoring to determine the need, if any, of cleanup; or (3) take no further action.

Alternative 1 is appropriate where there is clear indication that present or future human or environmental problems will exist. The priority for actions would depend on the magnitude of the threat and whether that threat was current or future.

Alternative 3 is appropriate for sites where there is little, if any, evidence to indicate that the site is or will ever be a source of significant contamination. This is a difficult decision in that one can never be absolutely sure that no problem will ever exist at a site. However, reasonable judgments must be made so that resources can be allocated to sites that have the highest potential for adverse environmental impact.

Alternative 2 is appropriate where insufficient evidence exists to place a site in either the Alternative 1 or 3 categories. This alternative should be utilized with care since there is some risk that delay could allow contamination to spread and worsen a problem. The goal should be to gather enough evidence in a timely manner to resolve the question of whether or not the site requires cleanup actions.

At Moody AFB, all three types of alternative measures are indicated by Phase II Stage 1 monitoring results. Data for the North POL area show fuel or fuel-type substances have entered the environment. Alternative 1 type action is required to at least address and locate the source of these substances (i.e., leaking fuel tanks or lines). Since extent of contamination is not known at the North POL area, Alternative 2 actions are also appropriate.

Results at the Southwest Landfill indicate further monitoring to be appropriate. Results at the Lily Pad Pond Fill site indicate Alternative 3 is appropriate. Finally, monitoring of Moody AFB supply wells indicate Alternative 3 for most wells and Alternative 2 for two wells (i.e., MAFB-7 and 10).

Possible future actions are discussed in Section 6.0.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

Results of field monitoring and on-site experience have been presented and discussed. Comments regarding significant aspects of results have been presented. This information forms the basis for technical conclusions included in this section. In turn, these conclusions form the basis for recommendations for further actions or no further actions. Each site is addressed.

In general, technical assessments relate to perceived environmental or public health risk assessment. No attempt is made to address risk management practice, or policy. No attempt has been made to compare potential risk to potential assessment costs or remediation costs.

Based on limited assessment of potential environmental risks and magnitude and extent of potential contamination, the following order of priority for work is recommended:

- Southwest Landfill including Well MAFB-7;
- Well MAFB-10; and
- North POL area.

No established procedure has been applied to arrive at this ordering. No measure of relative priority is available (i.e., the first is slightly versus substantially more important than the second). The order presented represents technical judgment based on field observation, monitoring results, and potential risk to humans and/or environment.

Brief summaries of each site and recommended future actions are shown in Table 6-1 and described in the sections which follow.

6.2 SOUTHWEST LANDFILL

6.2.1 Conclusions

No significant threat to human health or environment is indicated by the Phase II Stage 1 testing results. Movement of only very small amounts

Table 6-1. Summary of Recommended Future Actions

Site	Fieldwork	Analyses
Southwest Landfill	Install: six new wells approximately 25 feet deep; three new wells approximately 100 feet deep. Sample: nine new wells plus existing monitoring Wells L-1, L-2, and L-3, plus existing Moody Well MAFB-7.	All 13 wells for volatile organics, arsenic, and mercury.
Lily Pad Pond Fill	None.	None.
North POL area	Install: 10 new monitoring wells approximately 15 feet deep. Sample: All 10 wells in wet and dry seasons. Test: All tanks and lines in the storage area for leaks.	All 10 wells for DOC, benzene, xylene, and toluene.
Moody AFB Supply Wells	Sample: Wells 7 and 10.	Well 7 as noted under Southwest Landfill. Well 10 for volatile organics.

Note: Order is as addressed throughout text and not on a priority basis.

(i.e., fractions of a pound per year) of potentially toxic substances were detected. Testing results used as a screening procedure indicate the need for additional monitoring to refine estimates of substances moving in groundwater. Substances moving in groundwater may migrate to Mission Lake and perhaps Well MAFB-7. Because the lake is used for fishing and the well is a potable supply, human health can be impacted if subsequent investigation indicates that significant amounts of wastes are migrating from the landfill.

Several of the organic compounds detected in L-3 are more dense than water and may move vertically in groundwater. To better determine if substances are migrating in groundwater, additional shallow and deeper groundwater sampling is needed.

6.2.2 Recommendations

A total of nine additional monitoring wells are needed to determine if waste substances are impacting shallow and deeper groundwater near the landfill. Also, Wells MAFB-7, L-1, L-2, and L-3 should be sampled along with the new monitoring wells. Six new wells should be installed to depths of approximately 25 feet. Four of these should be located along a line between existing Wells L-2 and L-3 approximately 200 feet apart. Two others should be placed 200 and 400 feet west of Well L-3.

Three other new wells should be installed into deeper strata to test for potential downward movement of waste. These wells should be approximately 100 feet deep and carefully cased to avoid inducing vertical movement of groundwater. These wells should be located near existing Wells L-1 and L-3 and about halfway between L-2 and L-3. Strata should be carefully characterized with specific regard for confining layers and with regard for occurrence (or lack) of uniformity among the three bore holes.

All wells (i.e., nine new plus four existing) should be tested for volatile organics, arsenic, and mercury.

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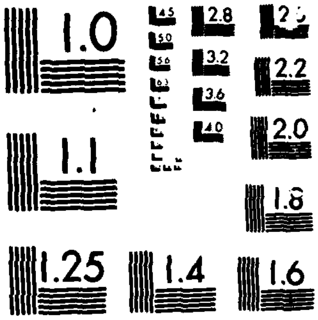
RESEARCH INC GAINESVILLE FL J A STEINBERG ET AL.
UNCLASSIFIED DEC 85 F33615-81-D-4007 F/G 13/2 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

6.3 LILY PAD POND FILL SITE

6.3.1 Conclusions

No significant potential impact to human health or environment is indicated by monitoring data. Toluene and benzene were detected in very small amounts (i.e., 1.8 and 4.7 ug/l, respectively). These levels do not threaten aquatic life in surrounding surface waters. Levels of phenolic compounds cannot be assessed in terms of regulatory criteria because a total phenolic scan was performed. Analysis for individual phenolic compounds would be necessary to permit comparisons to regulatory criteria. Because the site is remote and it is reasonable to expect that at least some phenolics detected are naturally occurring compounds, no significant impact is expected due to phenolics.

6.3.2 Recommendations

No additional testing is proposed at the Lily Pad Pond Fill site.

6.4 NORTH POL AREA

6.4.1 Conclusions

There is strong evidence of fuel and/or fuel-type substances in groundwater and shallow strata. It is reasonable to believe that the storage tanks at the North POL area are the source of these substances. There is also an indication that either these substances can be relatively difficult to detect during seasonal periods of higher groundwater (e.g., during April 1984) sampling or that these substances moved into the vicinity of the sampling pits between the times fieldwork was performed (i.e., April and September 1984).

Lead was detected at 200 ug/l which exceeds drinking water criteria (i.e., 50 ug/l). Toluene (180 ug/l) and ethyl benzene (690 ug/l) exceeded recommended ambient criteria levels. Detectable amounts were found for several other volatile organic compounds which do not have recommended ambient criteria. However, there is little chance shallow groundwater would be ingested. Levels found are not expected to harm aquatic life. No information is available regarding potential impacts to plant life. Evidence of possible harm to trees was reported in the Phase 1 IRP report (CH2M-Hill, 1983). Seepage would have to persist laterally about 800 feet to reach a surface stream. Main base potable wells are about 2,000 feet away and about 400 feet deep and they are relatively isolated from surface strata by one or more layers of low permeability. Therefore, there is no apparent immediate threat to human health or the environment.

There is no detailed information regarding the extent of the affected area and additional sampling and analysis is needed to determine this. There is also no detailed information regarding which tank(s) or line(s) may be leaking. Examination and testing at the North POL area is necessary to develop this information.

6.4.2 Recommendations

Field testing is needed to determine the extent of groundwater affected by the substances detected in the two sampling pits. Additional shallow monitoring wells are needed downgradient to sample groundwater. Ten additional wells should be installed to depths of approximately 15 feet. Wells should be located between radials extending south and southwest from the North POL area at distances of approximately 50, 100, 150, and 200 feet from the perimeter fence. Well samples should be collected in wet and dry seasons. Analysis should include DOC, benzene, xylene, and toluene.

Testing is needed to determine how fuels are entering the ground. Therefore, fuel tanks and lines should be tested using routine procedures equivalent to those given by the National Fire Protection Association (NFPA) Standard 329 (1983), "Underground Leakage of Flammable and Combustible Liquids".

6.5 MOODY AFB SUPPLY WELLS

6.5.1 Conclusions

Results of analysis indicate that no significant contamination exists in any well sampled. However, levels of TOX in Wells MAFB-7 (120 ug/l) and 10 (94 ug/l) indicate additional testing would be prudent. Well MAFB-7 is discussed in recommendations for further work at the Southwest Landfill. Well MAFB-10 is a potable use well and therefore should be tested further.

6.5.2 Recommendations

Well MAFB-10 should be tested for volatile organic compounds to determine whether or not the TOX level found in the well indicates significant contamination. If organics are found, other wells at Grassy Pond should be tested in similar fashion.

7.0 REFERENCES

7.0 REFERENCES

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APPENDICES

APPENDIX A

LIST OF ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASUREMENT

APPENDIX A

LIST OF ACRONYMS, ABBREVIATIONS, AND UNITS OF MESUREMENT

(Page 1 of 2)

AFB	Air Force Base
ATC	Air Training Command
ASTM	American Society for Testing Materials
AFFFs	Aqueous film forming foams
AAFES	Army and Air Force Exchange Service
avgas	Aviation gasoline
BOD	Biochemical oxygen demand
COD	Chemical Oxygen Demand
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DEQPPM	Defense Environmental Quality Program Policy Memorandum
DFSP	Defense Fuels Supply Point
DPDO	Defense Property Disposal Office
DOD	Department of Defense
DDT	Dichlorodiphenyltrichloroethane
DOC	Dissolved organic carbon (analysis for total organic carbon on a filtered water sample)
EOD	Explosive Ordnance Disposal
FAC	Florida Administrative Code
FDER	Florida Department of Environmental Regulation
FWQS	Florida Water Quality Standards
gpd	Gallons per day
gpm	Gallons per minute
GC	Gas chromatograph
GWQR	Georgia Water Quality Regulations
GWCI	Groundwater contamination indicators
HARM	Hazardous Assessment Rating Methodology
ICP	Inductively Coupled Plasma Spectrometry
IR	Infrared
IRP	Installation Restoration Program
JP	Jet petroleum
mcl	Maximum contaminant level
msl	Mean sea level
ug Cl/l	Micrograms chloride per liter
ug/kg	Micrograms per kilogram
ug/l	Micrograms per liter
umho/cm	Micro mho per centimeter
mg/kg	Milligrams per kilogram
mg/l	Milligrams per liter

APPENDIX A

LIST OF ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE
(Page 2 of 2)

NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
OEHL	Occupational and Environmental Health Laboratory
OSHA	Occupational Safety and Health Administration
PCP	Pentachlorophenol
POL	Petroleum, oil, and lubricants
PCB	Polychlorinated biphenyl
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
TAC	Tactical Air Command
TFW	Tactical Fighter Wing
TSI	Technical Services, Inc.
TDS	Total dissolved solids
TOC	Total organic carbon
TOX	Total organic halogens
TCE	Trichloroethane
THM	Trihalomethanes
UBTL	Utah Biomedical Testing Lab
USAF	United States Air Force
USDA	United States Department of Agriculture
EPA	U.S. Environmental Protection Agency
VOA	Volatile aromatics
VOC	Volatile Organic Compounds
VOH	Volatile halocarbons
WAR	Water and Air Research, Inc.

APPENDIX B

FORMAL SCOPE OF WORK

84 JAN 04

INSTALLATION RESTORATION PROGRAM
Phase IIB Field Evaluation
Moody AFB GA

I. Description of Work

The purpose of this task is to determine if environmental contamination has resulted from waste disposal practices at Moody AFB GA; to provide estimates of the magnitude and extent of comtamination, should comtamination be found; to identify potential environmental consequences of migrating pollutants; to identify any additional investigations and their attendant costs necessary to properly evaluate the magnitude, extent and direction of movement of discovered contaminants.

The presurvey report (mailed under separate cover) and Phase I IRP report (mailed under separate cover), incorporated background and description of the sites for this task. To accomplish the survey effort, the contractor shall take the following steps:

A. General

1. The areal extent of each site shall be determined by reviewing available aerial photos of the base, and by field reconnaissance.

2. Each location where surface water samples are collected shall be marked with a permanent marker, and the location recorded on a project map for the site.

3. A total of 12 monitoring wells shall be installed. The exact location of wells shall be determined in the field.

4. Ground-water monitoring wells shall comply with U.S. EPA publication 330/9-81-002 NEIC Manual for Groundwater/Subsurface Investigations at Hazardous Waste Sites, and State of Georgia requirements for monitoring well installation. Only screw type joints shall be used. Glue fittings are not permitted.

5. Monitoring wells shall be of sufficient depth to collect samples representative of aquifer quality and to intercept contaminants if they are present. All wells shall be developed, water levels measured, and locations surveyed and recorded on a site map, unless surveying is excluded in following sections.

6. All water samples shall be analyzed on site by the contractor for pH, temperature, and specific conductance. Sampling, maximum holding time, and preservation of samples shall comply strictly with the following references: Standard Methods for the Examination of Water and Wastewater, 15th Ed. (1980), pp 35-42; ASTM, Part 31, pp 72-82, (1976), Method D-3370; and Methods for Chemical Analysis of Waters and Wastes, EPA Manual 600/479-020, pp xiii to xix (1979). All water samples shall be analyzed using minimum detection levels, as specified in Attachment 1.

7. Field data collected for each site shall be plotted and mapped. The nature of contamination and the magnitude and potential for contaminant flow within each site to receiving streams and ground waters shall be determined or estimated. Upon completion of the sampling and analysis, the data shall be tabulated in the next R&D Status Report, as specified in Item VI below.

8. Analysis for all metals and TOC shall be for the dissolved fraction of these substances in both ground-water and surface water samples.

B. In addition to items delineated in A above, conduct the following specific actions at sites identified on Moody AFB GA.

1. Monitoring of Existing Wells

a. The contractor shall collect one ground-water sample from existing Moody wells nos. 1,2,3,4,5,5a,6,7,8,12, and 13. The contractor shall also collect one ground-water sample from one of the three existing wells (nos. 9,10,11) at the Grassy Pond Recreational Annex.

b. The Air Force will provide access to pump raw water (i.e., a sampling stream) at a location prior to any treatment. The Air Force will activate pumps at all sites to purge wells for a sufficient time to be agreed upon between contractor and base personnel.

c. Each ground-water sample shall be analyzed for pH, specific conductance, oil and grease-infrared method (O&G/IR), Total Organic Halogens (TOX), Total Organic Carbon (TOC), arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The ground-water samples from wells nos. 4, 6, and 8 shall also be analyzed for the pesticides listed in Attachment 1.

2. Site 1. Southwest Landfill

a. Install six ground-water monitoring wells. One well shall be up-gradient. One well shall be located east of the landfill; two wells shall be located north of the landfill; two wells shall be located between the landfill and the base boundary to the south.

b. Each well shall be drilled to a depth of 25 feet. Wells shall be screened from two feet above the water table to the bottom of the well.

c. Collect one ground-water sample from each well.

d. Each sample shall be analyzed for O&G/IR, TOX, COD, TOC, pesticides specified in Attachment 1, arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

e. Results of these analyses shall be included in the next R&D Status Report.

(1) For those wells where TOX and TOC results justify another round of sampling, the contractor will be directed to resample and analyze for volatile organics, using EPA Methods 601 and 602 (VOC).

(2) For those wells where O&G/IR, COD, pesticides, or metals justify another round of sampling, the contractor will be directed to resample for that (those) parameter(s).

f. If second round sampling is performed, the up-gradient well shall be resampled for that (those) parameter(s).

g. Any second round sampling shall be performed three to six months after the first round.

h. The contractor shall conduct aquifer testing in one well at this site, using a mini-rate pumping test, or a slug test, as appropriate, to determine values of horizontal hydraulic conductivity representative of surrounding soil.

3. Site 2. Lily Pad Pond Fill Site

a. Install six ground-water monitoring wells along the edge surrounding the fill. Well locations shall not be surveyed.

b. Each well shall be drilled to a depth of ten feet. The lower five feet of each well shall be screened.

c. Collect one ground-water sample from each well.

d. Collect one standing water sample from each of four locations 100 feet from the edge of the fill.

e. Ground-water and surface water samples shall be analyzed for O&G/IR, TOX, COD, TOC, phenols, arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

f. Results of these analyses shall be included in the next R&D Status Report.

g. For those wells and surface water sampling locations where TOX and TOC results justify another round of sampling, the contractor will be directed to resample and analyze for VOC.

h. Any second round sampling shall be performed three to six months after the first round.

4. Site 3. North POL Area

a. Excavate two soil borings to a depth of one foot below the water table. Total depth per boring shall not exceed six feet. The two borings shall be separated by a minimum of 30 feet.

b. During augering, soil shall be inspected for fuel contamination.

c. Collect two ground-water samples from each hole.

d. One ground-water sample from each hole shall be temporarily archived. The contractor shall pay strict attention to preservation method and holding time.

e. One ground-water sample from each hole shall be analyzed immediately for O&G/IR, COD, TOC, and lead.

f. For either or both holes where O&G/IR exceeds 600 ug/L, and/or TOC exceeds 3 mg/L, the contractor will analyze the archived sample(s) using Method 503.1 for volatile aromatics, to exclude chlorinated benzenes. Results of all analyses shall be included in the next R&D Status Report.

C. Well Installation and Clean-up

The well and boring area shall be cleaned following the completion of each well and boring. Drill cuttings shall be removed and the general area cleaned. If hazardous waste is generated in the process of well installation, the contractor shall be responsible for proper containerization (according to local Civil Engineering office requirements) for eventual government disposal. Disposal of drill cuttings is not the responsibility of the contractor.

D. Data Review

Results of sampling and analysis shall be tabulated and incorporated into the monthly R&D Status Reports and forwarded to the USAF OEHL for review as soon as they become available, as specified in Item VI below. Total results of sampling and analysis shall be tabulated and incorporated into the Informal Technical Information Report (Sequence 3, Attachment 1 as reflected in Item VI below), and forwarded to USAF OEHL/CVT for review.

E. Reporting

1. A draft report delineating all findings of this field investigation shall be prepared and forwarded to the USAF OEHL, as specified in Item VI below, for Air Force review and comment. This report shall include a discussion of the regional hydrogeology, well logs of all project wells, data from water level surveys, water quality analysis results, available geohydrologic cross sections, ground-water surface and gradient vector maps, available vertical and horizontal flow vectors, and laboratory quality assurance information. The report shall follow the USAF OEHL supplied format (mailed under separate cover).

2. Estimates shall be made of the magnitude and direction of movement of contaminants discovered. Potential environmental consequences of discovered contamination shall be identified or estimated. Where survey data are insufficient to properly determine or estimate the magnitude and direction of movement of discovered contaminants, fully justified specific recommendations shall be made for additional efforts required to properly evaluate contamination migration.

3. Specific requirements, if any, for future soil borings or for future ground-water and surface water monitoring must be identified.

F. Cost Estimates

The contractor shall provide cost estimates for all additional work recommended to permit proper determination of contaminants. The recommendations provided shall include all efforts required to determine the magnitude and direction of movement of discovered contaminants along with an estimate of the time required to accomplish the proposed effort. This information shall be provided in a separately bound appendix to the draft final report.

II. Site Location and Dates

Moody AFB GA
USAF Hospital/SGPB
Dates to be established

III. Base Support: None

IV. Government Furnished Property: None

V. Government Points of Contact:

1. 1Lt Dulcie Weisman
USAF OEHL/ECQ
Brooks AFB TX 78235
(512)536-3305
AV 240-3305

2. Capt Kenneth Branton
USAF Hospital/SGPB
Moody AFB GA 31699
(912)333-3503
AV 460-3505

3. Col Jerry Dougherty
HQ TAC/SGPAE
Langley AFB VA 23665
(804)764-2180
AV 432-2180

VI. In addition to sequence numbers 1, 5 and 11 which are applicable to all orders, the reference numbers below are applicable to this order. Also shown are data applicable to this order.

Sequence Nr	Block 10	Block 11	Block 12	Block 13	Block 14
3	ONE/T	**	**		
4	ONE/R	84JUL27	84AUG27	84DEC30	*

*A minimum of two draft reports will be required. After incorporating Air Force comments concerning the first draft report, the contractor shall supply the USAF OEHL with a second draft report. The report will be forwarded to the applicable regulatory agencies for their comments. The contractor shall supply the USAF OEHL with 20 copies of each draft report and 50 copies plus the original camera ready copy of the final report.

**Upon completion of all analyses.

VII. The ceiling price of Items 0001 and 0002, as contemplated by the payment clause, is $65,956.86.

Levels of Detection Required

VOC	*
volatile aromatics	**
phenol	1 μg/L
TOCa	1 mg/L
TOXa	5 μg/L
O&G/IR	0.1 mg/L
cadmium	10 μg/L
chromium	50 μg/L
lead	20 μg/L
mercury	1 μg/L
selenium	10 μg/L
silver	10 μg/L
barium	200 μg/L
arsenic	10 μg/L

*As specified in EPA Methods 601 and 602

**As specified in EPA Method 503.1

a Detection limits for TOX and TOC must be at least three times the noise levels of the analytical instrumentation. Laboratory water used as a blank must show a level less than three times the noise level, or be corrected for before reporting of results. TOC samples must be treated to remove inorganic carbon and results reported as nonpurgeable TOC.

Pesticide Analyses (μg/L)

DDT Isomer	0.02
heptachlor	0.02
heptachlor epoxide	0.02
lindane	0.01
chlordane	0.02
diazinon	0.02
malathion	0.10
toxaphene	1.00
2,4-D	0.06
2,4,5-T	0.06

APPENDIX C

MONITORING WELLS COMPLETION LOGS

SHEET 1 OF 1

Boring No. L-1

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 3/29/84 1640 Finish 3/29/84 1715

Contractor WAR/WTD

Driller P. Wright

Location Coordinates [illegible]

[illegible]

Filter Materials 20-30 Sand

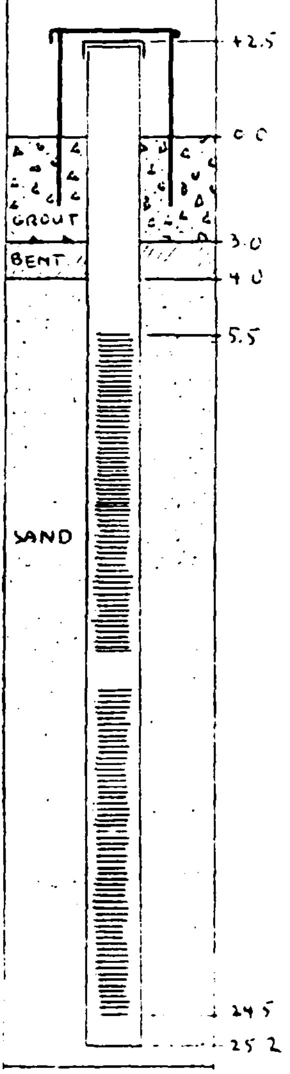
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation 219.33' msl.

Drill Type 6-in. Hollow Stem Auger



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		Surface	Clayey sand, very fine, some organics, black (10YR 2/1), saturated	SC	
		5-6.5 ft	Sandy Clay, 15% sand, brownish yellow (10YR 6/6) 50%, white (10YR 8/1) 10%, Red (10YR 4/3) 40%, moist	CL	5+15
		9-10.5 ft	Clay, 15-20% sand, coarse to fine, light gray (5YR 7/1), yellowish brown (10YR 5/3) and red (10R 4/5), moist, v stiff	CL	17+21
		15-16.5 ft	Clay, 10-15% sand, fine to v fine, yellowish brown (10YR 5/8) with strong brown (7.5YR 4/6)	CL	13+30
		20-21.5 ft	Clay, 10-15% sand, fine - v fine, yellow (10YR 7/6) 90%, yellowish red (5YR 4/6) 10%, saturated		15+32
		25-26.5 ft	Clay, 10% sand, pale yellow (2.5Y 8/4), saturated	CL	5+13

Boring No. L- 2

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 2/20/84 1000 Finish 2/[illegible]/84 [illegible]

Contractor WAR/WTD

Driller P. Wright

Location Coordinates [illegible]

Filter Material 20-30 Sand

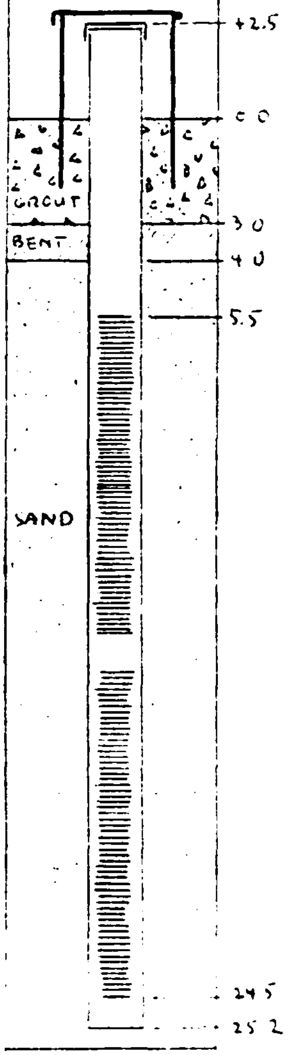
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation 222.35' msl

Drill Type 6-in. Hollow Stem Auger



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		Surface	Clayey sand, 30% clay, fine-V fine sand, some organic material, dark gray (10YR 4/1) 50%, brownish yellow (10YR 6/6), saturated	SC	
		5-6.5 ft	Sandy clay, 10-15% sand, white (7.5YR 8/0) 70%, light brown (7.5YR 6/4) 10%, red (10R 4/6) 20%, slightly moist to dry	CL	20+23
		10-11.5 ft	Sandy clay, 10-15% sand, white (10YR 8/1), saturated	CL	14+17
		15-16.5 ft	Sandy clay, 10% sand, white (10YR 8/1), saturated	CL	9+12
		20-21.5 ft	Sandy clay, 20% sand, white (10YR 8/1) 80%, brownish yellow (10YR 6/8) 20%, very moist	CL	4+8
		25-26.5 ft	Sandy clay, 20% sand, med to fine, white (10YR 8/1), saturated		[illegible]

Sheet 1 of 1

Boring No. L-3

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 2/20/84 [illegible] Finish 2/21/84 [illegible]

Contractor WAR/WTD

Driller P. Wright

Location Coordinates [illegible]

Filter Material 20-30 Sand

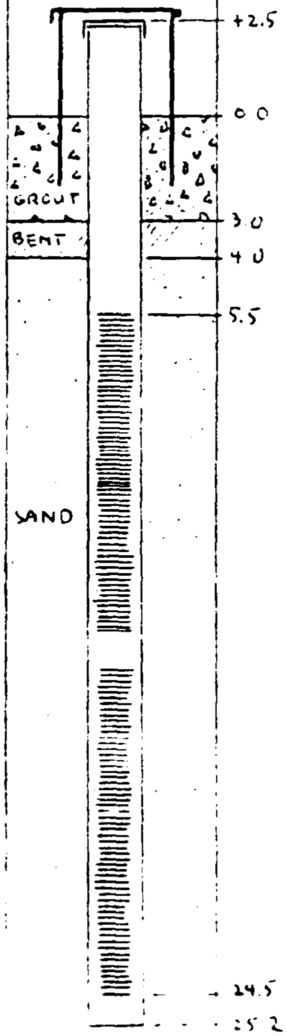
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation 218.60' ms

Drill Type 6-in. Hollow Stem Auger

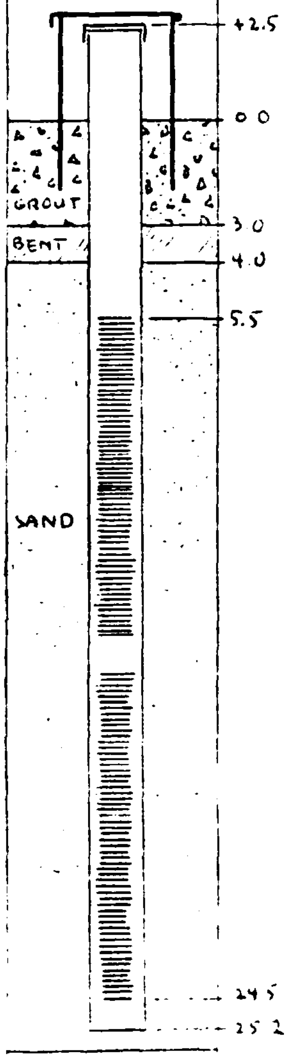


Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		Surface	Clayey sand, angular, med-fine, some organics, v. dk gray (5YR 3/1), saturated	SC	—
		5-6.5 ft	Clayey sand, fine-med, 60% sand, white (7.5 YR 8/0), moist	SC	4+6
		10-11.5 ft	Sandy clay, 40% sand, white (7.5 YR 8/0), reddish yellow tracers (7.5 YR 7/6), very moist	CL	14+16
		15-16.5 ft	Clayey sand, 70-80% sand, regular, angular to subangular, medium to fine, white (7.5 YR 8/0)	SC	13+17
		20-21.5 ft	Clayey sand, 60-70% sand, well sorted, subrounded, medium-fine, white (7.5 YR 8/0) with strong brown (7.5 YR 5/6) bands (20%)-very moist-saturated	SC	5+5
		25-26.5 ft	Sandy clay, 10% sand, reddish yellow (7.5 YR 6/8) with white streaks (25%	CL	6+7

SHEET 1 OF 1

Boring No. L-4
Hole Size 6 in. Slot 0.01 in.
Screen Size 2 in. Mat'l Sch. 40 PVC
Casing Size 2 in. Mat'l Sch. 40 PVC
Geologist J. Steinberg
Date Start 3/31/84 0820 Finish 3/31/84 [illegible]
Contractor WAR/WTD
Driller P. Wright

Location Coordinates [illegible]
Filter Materials 20-30 Sand
Grout Type Sand Cement
Protective Casing 6-in. steel
Static Water Level
Top of Well Flevation 222.20 ' msl
Drill Type 6-in. Hollow Stem Auger



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		Surface	Clayey sand, 60% sand, poorly sorted, medium to fine, subangular to subrounded, saturated, brown (7.5 YR 5/4)	SC	—
		5-6.5 ft	Sandy clay (70%) mixed with clayey sand (30%), 60-70% sand, clay 10-15%, clayey sand white (7.5 YR 8/0), sandy clay strong brown (7.5 YR 5/6) 50% and red (10R 4/6) 50%, moist sand subangular, fine, well sorted	CL-SC	12+13
		10-11.5 ft	Sandy clay, 30% sand, v fine, white (10 YR 8/1) moist	CL	11+12
		15-16.5 ft	Sandy clay, 30% sand, v. fine, white (10 YR 8/1); moist	CL	12+15
		20-21.5 ft	Sandy clay, 30% sand, very fine, white (7.5 YR 8/0) 10%, strong brown (7.5 YR 5/8) 20%, red (10 YR 5/6) 30%, and pale red (7.5 YR 6/4) 30%, moist	CL	7+11
		25-26.5 ft	Clayey sand, 30% sand, saturated, subangular, poorly sorted, fine [illegible] [illegible] pale brown (10 YR 6/3) NOTE: sand in lower 6" of barrel, above white clay interface	SC	3+3

SHEET 1 of 1

Boring No. L-5

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 3/21/84 1030 Finish 3/21/84 1530

Contractor WAR/WTD

Driller P. Wright

Location Coordinates [illegible]

Filter Materials 20-30 Sand

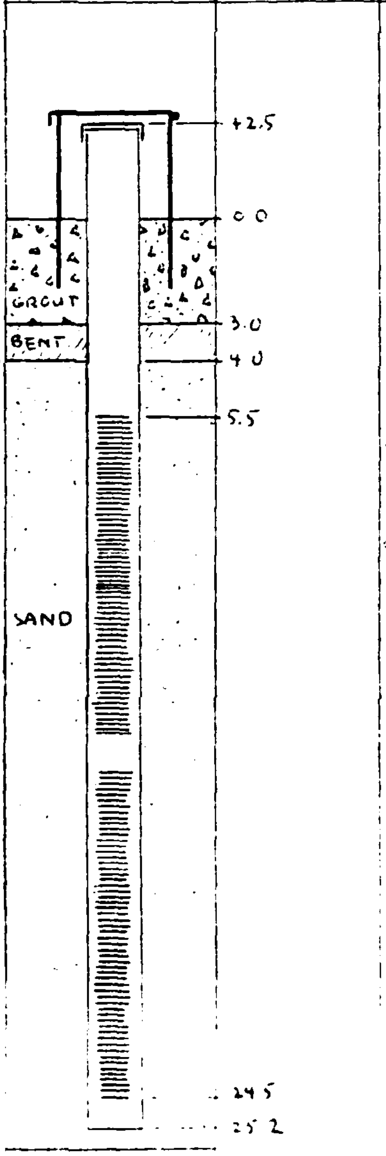
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Flevation 222.53' ms

Drill Type 6-in. Hollow Stem Auger



Sample	Lithology	USCS	SPT (BL/FT)
surface	clayey sand, 60% sand, medium to fine, well sorted, subangular, yellowish brown (10YR 5/4), moist	SC	—
5-6.5 ft	sandy clay, 30-40% sand, fine, white (10YR 8/1) 90%, with brownish yellow (10YR 6/6) 10%, moist	CL	14+15
10-11.5 ft	sandy clay, 30-40% sand, fine, white (10YR 8/1) 50%, red (10R 4/3) 30%, and reddish yellow (7.5YR 6/6) 20%, moist	CL	9+11
15-16.5 ft	sandy clay, 20% sand, angular, fine, white (10YR 8/1), moist	CL	11+14
20-21.5 ft	sandy clay, 45-50% sand, subangular, fine, yellow (10YR 7/6) 50%, brownish yellow (10YR 6/6) 40%, and white (10YR 8/1) 10%, saturated	CL	4+7
25-26.5 ft	clayey sand in 2" layers with sandy clay, alternate layers, sand layers in [illegible], sand - 90% sand, fine, well sorted, white (10YR 8/1), saturated [illegible] 40-50% sand, brownish [illegible] 60%, and dark [illegible] brown (10YR 4/3) 40%, saturated	SC - CL	9+14

SHEET 1 OF 1

Boring No. L- 6

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 3/31/84 1214 Finish 3/31/84 1750

Contractor WAR/WTD

Driller P. Wright

Location Coordinates [illegible]

Filter Materials 20-30 Sand

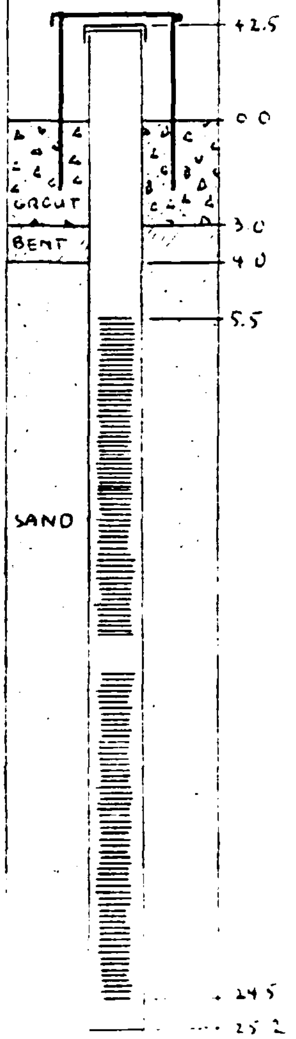
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation 237.47 ' msl

Drill Type 6-in. Hollow Stem Auger



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		Surface	Sandy clay, 30% sand, v. fine, subrounded, yellowish brown (10YR 5/6) 60% and dark gray (10YR 4/1) 45%, moist	CL	—
		5-6.5 ft	Sandy clay, 20% sand, v. fine, subangular, white (10YR 8/1) 70%, red (10R 4/?) 20%, yellow (10YR 7/6) 15%, moist	CL	9+11
		10-11.5 ft	Sandy clay, 20% sand, v. fine, subangular, white (10YR 8/1) with yellow streak (10YR 7/3), moist	CL	10+13
		15-16.5 ft	Sandy clay, 20-30% sand, v. fine, well sorted, subangular, white (5YR 8/1) with red streak (2.5YR 3/3), moist	CL	13+17
		20-21.5 ft	Sandy clay, 20% sand, v. fine, well sorted, subangular, white [illegible] (10YR 2.5/2) [illegible] yellow (10YR 7/6) 15%, moist		
		25-26.5 ft	Sandy clay, 20-40% sand, fine, well sorted, subangular, white [illegible] moist		

SHEET 1 OF 1

Boring No. LPP-1

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 3/22/84 1610 Finish 3/22/84 1430

Contractor WAR/WTD

Driller P. Wright

Location Coordinates

Filter Materials 20-30 Sand

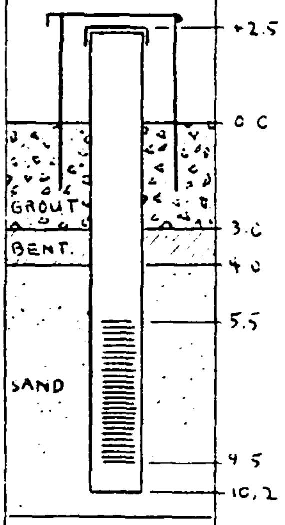
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation not surveyed

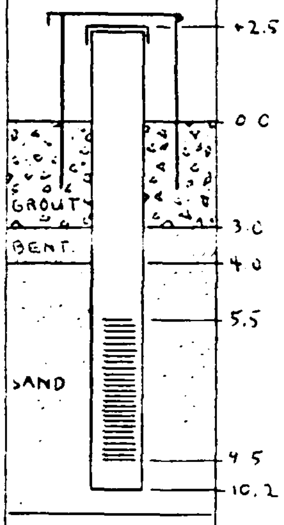
Drill Type 6-in. Hollow Stem Auger



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		0-1 ft	Sand, VF, Subangular, 20-30% silt and Clay, 5-10% organics, wet, dk. grayish brown (10YR 4/2)	SC	NA
		5-6.5 ft	Clay, 20-30% organics, 5-10% VF sand, saturated, v. dk. brown, (10YR 2/2)	OL	WOH*
		10-11.5 ft	Sand, VF, subangular, 5-10% silt and clay, saturated, v. dk. gray (10YR 3/1)	SP	11,7

Sheet 1 of 1

Boring No.	LPP-2	Location Coordinates	
Hole Size	6 in. Slot 0.01 in.		
Screen Size	2 in. Mat'l Sch. 40 PVC	Filter Materials	[illegible] Sand
Casing Size	2 in. Mat'l Sch. 40 PVC	Grout Type	Sand Cement
Geologist	J. Steinberg	Protective Casing	6-in. steel
Date Start	2/[illegible]/84 Finish [illegible]	Static Water Level	
Contractor	WAR/WTD	Top of Well Elevation	not surveyed
Driller	P. Wright	Drill Type	6-in. Hollow Stem Auger

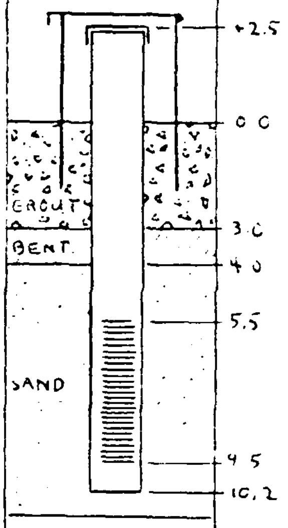


Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		0-1.5 ft	Sand, VF, subangular, <5% silt and clay, Tr. organics, Lt. Brown gray (10YR 6/2), wet	SP	WH
		5-6.5 ft	Sample washed out of split spoon	—	—
		10-11.5 ft	Clay, 10-15% VF sand, Tr. organics, saturated, dark gray [illegible]	CL	1/7/7

SHEET 1 OF 1

Boring No. LPP- 3
Hole Size 6 in. Slot 0.01 in.
Screen Size 2 in. Mat'l Sch. 40 PVC
Casing Size 2 in. Mat'l Sch. 40 PVC
Geologist J. Steinberg
Date Start [illegible] Finish [illegible]
Contractor WAR/WTD
Driller P. Wright

Location Coordinates
Filter Materials 20-30 Sand
Grout Type Sand Cement
Protective Casing 6-in. steel
Static Water Level
Top of Well Elevation [illegible]
Drill Type 6-in. Hollow Stem Auger



Sample	Lithology	USCS	SPT (BL/FT)
Surface	fine sand, subangular, moist; 5-10% silt and clay; light brownish gray (10 YR 6/2)	SP	
5-6.5 ft	Clayey sand, 80% sand, VF sand, (10 YR 5/3) brown, saturated	SC	3-3
[illegible]	Sandy [illegible], some organics, [illegible] 30-40% sand, dark gray (10 YR 4/1), saturated	[illegible]	5-4

SHEET 1 OF 1

Boring No. LPP-4

Hole Size 6 in. Slot 0.01 in.

Screen Size 2 in. Mat'l Sch. 40 PVC

Casing Size 2 in. Mat'l Sch. 40 PVC

Geologist J. Steinberg

Date Start 3/29/84 0950 Finish 3/29/84 [illegible]

Contractor WAR/WTD

Driller P. Wright

Location Coordinates

Filter Materials 20-30 Sand

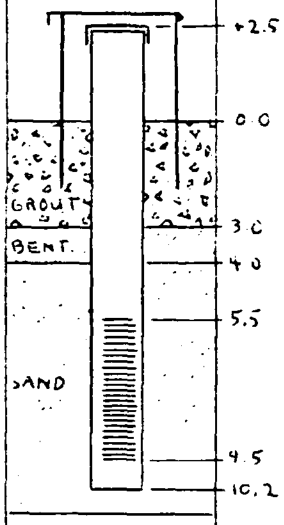
Grout Type Sand Cement

Protective Casing 6-in. steel

Static Water Level

Top of Well Elevation not surveyed

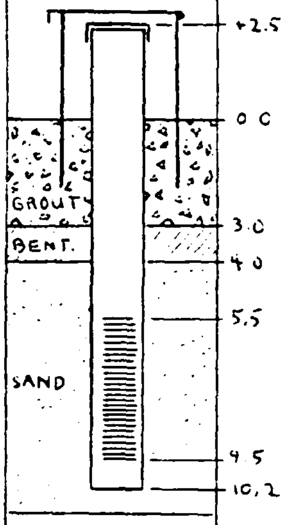
Drill Type 6-in. Hollow Stem Auger

Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		0-1ft	Sand, fine to medium, subangular <5% silt and clay, moist, TR. organics, Lt. brownish gray (10YR 6/2)	SP	NA
		5-6.5ft	Very fine sand, 10-15% clay, grayish brown (2.5Y 5/2), saturated	SC	1-4
		10-11.5ft	Fine sand 20-30% clay, dark gray (10YR 4/1) saturated	SC	36+15

SHEET 1 OF 1

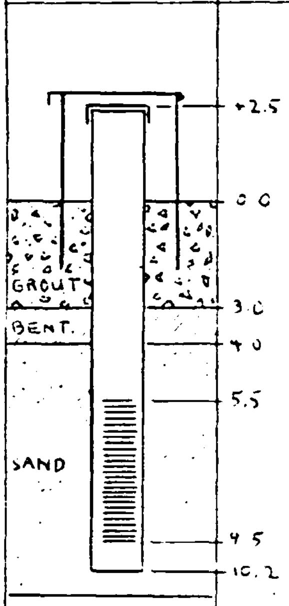
Boring No. LPP-5
Hole Size 6 in. Slot 0.01 in.
Screen Size 2 in. Mat'l Sch. 40 PVC
Casing Size 2 in. Mat'l Sch. 40 PVC
Geologist J. Steinberg
Date Start 3/[illegible] Finish [illegible]
Contractor WAR/WTD
Driller P. Wright

Location Coordinates
Filter Materials 20-30 Sand
Grout Type Sand Cement
Protective Casing 6-in. steel
Static Water Level
Top of Well Elevation not surveyed
Drill Type 6-in. Hollow Stem Auger

Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		0-1 ft	Sand, fine, subangular, <5% silt and clay, TR organics, moist, light brownish gray (10YR 6/2)	SP	NA
		5-6.5 ft	Sand, some clay and organics, fine, angular to subangular, brown (10YR 5/3), saturated	SP	4+6
		10-11.5 ft	Sandy clay, 40% very fine sand, dark gray (2.5 YR 3/[illegible]), Saturated	CL	4+14

SHEET 1 OF 1

Boring No.	LPP-6	Location Coordinates	
Hole Size	6 in.	Slot	0.01 in.
Screen Size	2 in.	Mat'l	Sch. 40 PVC
Casing Size	2 in.	Mat'l	Sch. 40 PVC
Geologist	J. Steinberg		
Date Start	[illegible]	Finish	[illegible]
Contractor	WAR/WTD		
Driller	P. Wright		
Filter Materials	20-30 Sand		
Grout Type	Sand Cement		
Protective Casing	6-in. steel		
Static Water Level			
Top of Well Elevation	not surveyed		
Drill Type	6-in. Hollow Stem Auger		



Sketch	Depth (Feet)	Sample	Lithology	USCS	SPT (BL/FT)
		surface	Clayey sand, fine-medium, brown (7.5YR 5/3 40%) dark brown (7.5YR 4/4) 60%) 15-20% clay micas	SC	—
		5-6.5ft	Brown, fine sandy clay and fill material (cinder, asphalt), moist	?	5+2
		10-11.5ft	sandy clay 40% sand, dark gray (10YR 3/1), saturated	CL	7+15

APPENDIX D

FIELD SHEETS FOR APRIL AND SEPTEMBER 1984 SAMPLING

FIELD SHEETS FOR APRIL 1984 SAMPLING

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-1

Sample Location Description: SW LANDFILL (SITE 1) - EAST SIDE OF FILL, APPROX. 100 YD. FROM PERIMETER RD.

Sampled by: RDB/SJC Date: 4/24/84 Time: 1000

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH 4.3
X	X	X	X	X	X	Specific conductance 20 umho/cm @ 18 23 @ 25 °C
X	X		X			Depth to water surface from casing top 5'0"
X	X		X		X	Volume of water purged prior to sampling 18 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
ⓧ	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T2	15637
ⓧ	X	X			X	40 ml. vials (2)	TOX	4°C	14	X1 X2	
ⓧ	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D3	
ⓧ	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G26	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
ⓧ	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M28	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
ⓧ					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C17	
ⓧ					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H1	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS WELL RECHARGES SLOWLY, BAILED DRY @ 7 gal

⑦

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-2

Sample Location Description: ______

Sampled by: RDB/SJC Date: 4/24/84 Time: 1125

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
[✓ X]	X	X	X	X	X	pH 4.4
[✓ X]	X	X	X	X	X	Specific conductance 23 umho/cm @ 18 27 @ 25 °C
[✓ X]	X		X			Depth to water surface from casing top 7′ 1½″
[✓ X]	X		X		X	Volume of water purged prior to sampling 18 gal.
		X				Sample depth ______
		X				Total water depth ______
				X		Auger hole depth ______
				X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T7	15638
[✓ X]	X	X			X	40 ml. vials (2)	TOX	4°C	14	X3, X4	
[✓ X]	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D18	
[✓ X]	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G25	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
[✓ X]	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M14	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
[✓ X]					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C3	
[✓ X]					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H4	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS WATER TURBID, MILKY ORANGE, NO ODOR.

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-3

Sample Location Description: SITE 1 - ~~E~~ SW LANDFILL
NORTHERN SIDE OF FILL EDGE OF SWAMP

Sampled by: RDG / SJC Date: 4/24/84 Time: 1045

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
[✓ X]	X	X	X	X	X	pH	5.0
[✓ X]	X	X	X	X	X	Specific conductance 700 umho/cm @ 23.0 °C	728 @ 25 °C
[✓ X]	X		X			Depth to water surface from casing top	5 ½'
[✓ X]	X		X		X	Volume of water purged prior to sampling	18 gal.
		X				Sample depth	
		X				Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T1	15639
[✓ X]	X	X			X	40 ml. vials (2)	TOX	4°C	14	X5 X6	↓
[✓ X]	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D11	↓
[✓ X]	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G33	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
[✓ X]	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M8	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		↓
[✓ X]					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C9	↓
[✓ X]					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H6	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS WATER VERY TURBID, BRT. ORANGE FOR 9 gal, THEN IMPROVED TO MILKY ORANGE, NO ODOR.

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-4

Sample Location Description: SITE 1, SW LANDFILL -

Sampled by: RDB / SJC Date: 4/24/84 Time: 0905

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
X	X	X	X	X	X	pH	5.2
[✓ X]	X	X	X	X	X	Specific conductance 54 umho/cm @ 13.0	62 @ 25 °C
[✓ X]	X		X			Depth to water surface from casing top	5'9"
X	X		X		X	Volume of water purged prior to sampling	
		X				Sample depth	
		X				Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.✱
[✓ X]	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T20,19	15640
[✓ X]	X	X			X	40 ml. vials (2)	TOX	4°C X13-16	14	X11,X12	
[✓ X]	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D8,13	
[✓ X]	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G27,31	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
[✓ X]	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3 M18	28**	M10,15	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
[✓ X]					X†	1 qt. glass/Tefl.	Pesticides	4°C C14	40	C6,8,2	
[✓ X]					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H5,8,11	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS CONDITIONS SAME AS L-5

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

✱ SEE Q.C. FIELD SHEETS FOR ADDITIONAL SAMPLE NOS.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-4

Sample Location Description: Q.C.

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH ______
X	X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X		X			Depth to water surface from casing top ______
X	X		X		X	Volume of water purged prior to sampling ______
		X				Sample depth ______
		X				Total water depth ______
				X		Auger hole depth ______
				X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T19	15671
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X13 X14	
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D13	
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G31	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	~~R15~~	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M15	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C8	
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H8	
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS 15671 - Herbicide (H8) VOL. 875 ml
SPIKED WITH 1 ml OF S132-D (2,4,5-T)
15671 - Pesticide (C8) VOL. 950 ml
SPIKED WITH 0.2 ml OF S163-C (Malathion)

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-4

Sample Location Description: Q.C.

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist						
Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	**IN SITU MEASUREMENTS**
X	X	X	X	X	X	pH
X	X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X		X			Depth to water surface from casing top
X	X		X		X	Volume of water purged prior to sampling
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28		15675
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X15, X16	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28		
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M18	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C →	40	C2, H11	
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C →	40	CH	15679
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS 15679 - VOL 950 ml
SPIKED WITH 1 ml S053-D2 (TOXAPHENE)
15675 - VOL. 810 ml (M-18)
SPIKED WITH 2 ml OF COMBINED METAL SOL'N.
15675 - VOL. 40 ml EACH (X15, 16)
SPIKE WITH 50 μl OF S161-C2

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-5

Sample Location Description: SITE 1, SW LANDFILL -

Sampled by: RDS / SJC Date: 4/24/84 Time: 0830

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
[✓ X]	X	X	X	X	X	pH	4.8
[✓ X]	X	X	X	X	X	Specific conductance	35 umho/cm @ 20 39 @ 25 °C
[✓ X]	X		X			Depth to water surface from casing top	9'2"
[✓ X]	X		X		X	Volume of water purged prior to sampling	17 gal.
		X				Sample depth	
		X				Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T27	15641
[✓ X]	X	X			X	40 ml. vials (2)	TOX	4°C	14	X7, X8	
[✓ X]	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D21	
[✓ X]	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G28	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
[✓ X]	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M19	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
[✓ X]					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C7	
[✓ X]					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H3	
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS WATER VERY TURBID, BRT. ORANGE, NO ODOR.

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: L-6

Sample Location Description: SITE 1, SW LANDFILL – WELL AT SW CORNER OF FILL IN BEND OF ROAD (SHOULDER)

Sampled by: RDB / SJC Date: 4/24/84 Time: 0800

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
[✓ X]	X	X	X	X	X	pH 6.2
X	X	X	X	X	X	Specific conductance 80 umho/cm @ 18 92 @ 25 °C
[✓ X]	X		X			Depth to water surface from casing top 5′ 9 3/4″
X	X		X		X	Volume of water purged prior to sampling 20 gal.
		X				Sample depth N/A
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T10	15642
[✓ X]	X	X			X	40 ml. vials (2)	TOX	4°C	14	X9, X10	
[✓ X]	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D7	
[✓ X]	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G29	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
[✓ X]	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M20	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
[✓ X]					X†	1 qt. glass/Tefl.	Pesticides	4°C	40	C1	
[✓ X]					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H2	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS WATER TURBID, MILKY PINK, NO ODOR.

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-1

Sample Location Description:

Sampled by: RDB/WGT/SJC Date: 4/23/84 Time: 1155

4/24/84 1630

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 5.5
X	[✓ X]	X	X	X	X	Specific conductance 1620 umho/cm @ 21 1754 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 3' 6¾" / 3' 4½" ON 4/2
X	X		X		X	Volume of water purged prior to sampling
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T15	15643
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X17, X18	
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D10	
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G30	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P7	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	[✓ X]	X			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M5	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Well recovers slowly

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-[illegible] only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-2

Sample Location Description:

Sampled by: RDB/WGT/SJC Date: 4/23/84 Time: 1205-1310

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 6.0
X	[✓ X]	X	X	X	X	Specific conductance 1220 umho/cm @ 18.5 1393 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 3' 1"
X	[✓ X]		X		X	Volume of water purged prior to sampling ~12 gallons [illegible] 44 [illegible]
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-21	15644
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X-23, X-24	
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D-14	
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-17	
	[✓ X]	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P-2	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	[✓ X]	X			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-36	
				X		1 qt. glass plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Very strong sulfide odor in water, dark gray color. Well recovers within 30 min.

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-3

Sample Location Description:

Sampled by: RCB/SJC Date: 4/24/84 Time: 1635

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 4.7
X	[✓ X]	X	X	X	X	Specific conductance 220 umho/cm @ 20 243 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 3′ 8¼″ / 4′ ¼″
X	X		X		X	Volume of water purged prior to sampling
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T11	15645
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X21, 22	↓
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D6	↓
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G32	↓
	[✓ X]	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P4	↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	[✓ X]	X			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M2	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Well recovers very slowly (>24 hrs)

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-4

Sample Location Description:

Sampled by: RDE/WGT/SJC Date: 4/23/84 Time: 1320

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 4.9
X	[✓ X]	X	X	X	X	Specific conductance 199 umho/cm @ 18.5 227 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 3'10½"
X	[✓ X]		X		X	Volume of water purged prior to sampling 8 gallons (>5 well volumes)
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-28	15646
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X-25, X-26	↓
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	O-20	↓
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-6	↓
	[✓ X]	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P-3	↓
				X*		40 ml. vials (4)	VOA	4°C	14		
X	[✓ X]	X			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-13	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Water still very turbid when sampled. [illegible] [illegible]. Well recovers quickly (< 10 min)

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-5

Sample Location Description:

Sampled by: RFR WGT/SJC Date: 4/24/84 Time: 1700

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 5.8
X	[✓ X]	X	X	X	X	Specific conductance 850 umho/cm @ 20 940 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 4' 1 3/4" / 4' 10 1/2"
X	X		X		X	Volume of water purged prior to sampling
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T25	15647
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X19, X20	↓
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	O16	
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G7	
	[✓ X]	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P12	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	[✓ X]	X			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M3	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Well recovers very slowly (>24hrs)

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-6

Sample Location Description:

Sampled by: RDB/WGT/SJC Date: 4/23/84 Time: 1225-1310

Site Completion Checklist: Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X	X	X	X	pH 6.3
X	[✓ X]	X	X	X	X	Specific conductance 1300 umho/cm @ 19 °C 1468 @ 25 °C
X	[✓ X]		X			Depth to water surface from casing top 5'2"
X	[✓ X]		X		X	Volume of water purged prior to sampling ~9 gallons (>5 well volumes)
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T6	15648
X	[✓ X]	X			X	40 ml. vials (2)	TOX	4°C	14	X27,28	↓
X	[✓ X]	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D2	↓
X	[✓ X]	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G18	↓
	[✓ X]	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P9	↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	[✓ X]	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M27	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Water still very turbid when sampled; dark gray
& well recovers quickly (<10 min)

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW1 (Dup Station)

Sample Location Description: Surface water sample N[illegible] [illegible] Pond [illegible]
[illegible] LPP-2

Sampled by: RDB/SJC Date: 4/23/84 Time: 1445

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	[✓ X]	X	X	X	pH 3.5
X	X	[✓ X]	X	X	X	Specific conductance 21 umho/cm @ 21 23 @ 25 °C
X	X		X			Depth to water surface from casing top N/A
X	X		X		X	Volume of water purged prior to sampling N/A
		[✓ X]				Sample depth SURFACE
		[✓ X]				Total water depth ~ 3 FT.
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample † No.
X	X	[✓ X]		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T9,23	15649
X	X	[✓ X]			X	40 ml. vials (2)	TOX	4°C	14	~~[illegible]~~ X63,64*	
X	X	[✓ X]		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D4,19	
X	X	[✓ X]		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G16,19	
	X	[✓ X]				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P11,10,6	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	[✓ X]			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M39,41,38	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		[✓ X]				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS WATER HIGHLY COLORED LILY PADS, ALGAE, TREES VINES SCRUB BUSHES. ~~[illegible]~~ Marker stake placed ~100 Ft. [illegible] LPP-2 (toward [illegible] fill) - marker No 1

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

* X69,70
X65,66

† SEE Q.C. FIELD SHEETS FOR ADDITIONAL SAMPLE NOS.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW1

Sample Location Description: Q.C.

Sampled by: ________ Date: ________ Time: ________

Site Completion Checklist

Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH ________
X	X	X	X	X	X	Specific conductance ____ umho/cm @ ____ °C
X	X		X			Depth to water surface from casing top ________
X	X		X		X	Volume of water purged prior to sampling ________
		X				Sample depth ________
		X				Total water depth ________
				X		Auger hole depth ________
				X		Depth to water in auger hole ________

SAMPLE COLLECTION AND PRESERVATION

Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T23	15672
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X65, X66	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D19	
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G19	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P10	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M41	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS ________

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW1

Sample Location Description: Q-C-

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH ______
X	X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X		X			Depth to water surface from casing top ______
X	X		X		X	Volume of water purged prior to sampling ______
		X				Sample depth ______
		X				Total water depth ______
				X		Auger hole depth ______
				X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28		
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X69, X70	15676
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28		
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P6	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M38	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS 15676 - Phenol (P6) VOL. 925 ml
SPIKED WITH 0.5 ml OF S154-D
15676 - Metals VOL. 846 ml
SPIKED WITH 4 ml OF COMBINED METAL SOL'N.
15676 - TOX VOL. 40 ml EACH (X69,70)
SPIKED WITH 100 μl OF S161-C2

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW2

Sample Location Description: Surface water sample No. 2 [illegible] Pond [illegible] 3

Sampled by: RDG/SJC Date: 4/23/84 Time: 1540

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
X	X	X	X	X	X	pH	5.8
X	X	[✓ X]	X	X	X	Specific conductance 19 umho/cm @	21.5 20 @ 25 °C
X	X		X			Depth to water surface from casing top	N/A
X	X		X		X	Volume of water purged prior to sampling	N/A
		[✓ X]				Sample depth	SURFACE
		[✓ X]				Total water depth	~3 FT.
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T33	15650
X	X	[✓ X]			X	40 ml. vials (2)	TOX	4°C	14	~~D77~~X5960	↓
X	X	[✓ X]		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D17	
X	X	[✓ X]		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G12	
	X	[✓ X]				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P5	
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	[✓ X]			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M7	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		[✓ X]				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS WATER & SITE DESCRIPTION SAME AS SW 1 EXCEPT MORE HEAVILY WOODED. Marker No 2 placed ~100 ft. [illegible] No. LPP-3 [illegible] from GW)

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW3

Sample Location Description: Surface water sample No. 3 [illegible] pond. ~100 ft west of well No. LPP-4

Sampled by: RDB/SJC Date: 4/23/84 Time: 1620

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
X	X	[✓ X]	X	X	X	pH	4.1
X	X	[✓ X]	X	X	X	Specific conductance	19 umho/cm @ 22 20 @ 25 °C
X	X		X			Depth to water surface from casing top	N/A
X	X		X		X	Volume of water purged prior to sampling	N/A
		[✓ X]				Sample depth	SURFACE
		[✓ X]				Total water depth	~2FT
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T34	15651
X	X	[✓ X]			X	40 ml. vials (2)	TOX	4°C	14	X57, 58	↓
X	X	[✓ X]		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D12	↓
X	X	[✓ X]		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G1	↓
	X	[✓ X]				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P1	↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	[✓ X]			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M16	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		[✓ X]				Place and record number of permanent location marker.
					X	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Marker No. 3 placed ~100 ft west of well No. [illegible] from [illegible] LILY PADS, HIGHLY COLORED WATER, TREES & SCRUB BUSHES.

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: LPP-SW4

Sample Location Description: Surface water sample No. 4 — Pad Pond, ~150 ft WNW of well No LPP-5

Sampled by: RDB/SJC Date: 4/23/84 Time: 1645

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Measurement	Value
X	X	[✓ X]	X	X	X	pH	4.5
X	X	[✓ X]	X	X	X	Specific conductance ___ umho/cm @ ___ °C	19 umho/cm @ 21.5 20 @ 25 °C
X	X		X			Depth to water surface from casing top	N/A
X	X		X		X	Volume of water purged prior to sampling	N/A
		[✓ X]				Sample depth	SURFACE
		[✓ X]				Total water depth	~3 FT.
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T17	15652
X	X	[✓ X]			X	40 ml. vials (2)	TOX	4°C	14	X61, 62	↓
X	X	[✓ X]		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D9	↓
X	X	[✓ X]		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G5	↓
	X	[✓ X]				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28	P8	↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	[✓ X]			X	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M32	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Item
				X		Record observations of fuel contamination in soil.
		[✓ X]				Place and record number of permanent location marker.
					X	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Marker No. 4 placed ~150 ft. WNW of well No LPP-5

*To be archived.
†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: NPOL-1

Sample Location Description: 3 ft ~~[illegible]~~ NW of 6th fence pole from ~~[illegible]~~ N corner

Sampled by: WET Date: 4/24/84 Time: 1640

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	[✓ X]	X	pH 3.5
X	X	X	X	[✓ X]	X	Specific conductance 32 umho/cm @ 25.0 °C
X	X		X			Depth to water surface from casing top
X	X		X		X	Volume of water purged prior to sampling none
		X				Sample depth
		X				Total water depth
				[✓ X]		Auger hole depth ~3.0 ft.
				[✓ X]		Depth to water in auger hole ~2.5 ft

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		[✓ X]	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-29	15653
X	X	X			X	40 ml. vials (2)	TOX	4°C	14		↓
X	X	X		[✓ X]		4 oz. plastic	COD	H_2SO_4, 4°C	28	D-5	↓
X	X	X		[✓ X]	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-13	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				[✓ X*]		40 ml. vials (4)	VOA	4°C	14	V-1	↓
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**		↓
				[✓ X]		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180	M-4	↓
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				[✓ X]		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS No evidence of fuel contamination in soil. Very [illegible] sheen apparent on surface of water but [illegible] difficult to identify.

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: NPOL-2

Sample Location Description: NW [illegible] E [illegible]

Sampled by: [illegible] Date: [illegible] Time: [illegible]

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
						IN SITU MEASUREMENTS
X	X	X	X	X	X	pH 3.7
X	X	X	X	X	X	Specific conductance 27 umho/cm @ 22 29 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		X	Volume of water purged prior to sampling
		X				Sample depth
		X				Total water depth
				X		Auger hole depth ~2.5'
				X		Depth to water in auger hole ~2.0'

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-22	15654
X	X	X			X	40 ml. vials (2)	TOX	4°C	14		
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28	D-22	
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-15	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14	V-2	
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**		
				X		1 qt. glass	Lead	Filter, HNO_3	180	M-1	
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS No fuel contamination evident in soil or water.

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE II FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-1

Sample Location Description: [illegible]

Sampled by: WGT

Date: [illegible]

Time: [illegible]

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DIT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.9
X	X	X	X	X	[✓ X]	Specific conductance 227 umho/cm @ 24 231 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~ 13 [illegible]
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DIT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-13	15659
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-49, X-50	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	6-10	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-23	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					~~X†~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X†~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DIT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS [illegible]

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-2

Sample Location Description: Main supply well No. 2, Bldg. 947

Sampled by: W.T   Date: [illegible]   Time: [illegible]

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.0
X	X	X	X	X	[✓ X]	Specific conductance 211 umho/cm @ 20.0 233 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~~[illegible]~~ ~7,000 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-31	15660
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-37, X-38	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-14	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-33	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					~~X†~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X†~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Sampled at hose bib 5 ft. from pump on main discharge line

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-3

Sample Location Description: [illegible] Well No. 3, [illegible]

Sampled by: WGT

Date: 4/24/84

Time: 11[illegible]

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH 7.2
X	X	X	X	X	X	Specific conductance 250 umho/cm @ 22 265 @ 25°C
X	X		X			Depth to water surface from casing top
X	X		X		X	Volume of water purged prior to sampling ~25,000 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	*Sample* No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-12, T-30	15661
X	X	X			X	40 ml. vials (2)	TOX	4°C	14 *	X-53, X-54 X-67, X-68	
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-20, G-46	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M-30 M-12, M-21	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS [illegible] hose bib in main discharge line [illegible]

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

* X-51, X-52 also

** SEE FIELD Q.C. SHEETS FOR ADDITIONAL SAMPLE NOS.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-3

Sample Location Description: Q.C.

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	X	pH ______
X	X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X		X			Depth to water surface from casing top ______
X	X		X		X	Volume of water purged prior to sampling ______
		X				Sample depth ______
		X				Total water depth ______
				X		Auger hole depth ______
				X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T30	15674
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X67, X68	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		↓
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G40	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M12	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS ______

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-3

Sample Location Description: Q.C.

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
X	X	X	X	X	X	pH ______
X	X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X		X			Depth to water surface from casing top ______
X	X		X		X	Volume of water purged prior to sampling ______
		X				Sample depth ______
		X				Total water depth ______
				X		Auger hole depth ______
				X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	X	4 oz. plastic	DOC	Filter, HCl, 4°C	28		
X	X	X			X	40 ml. vials (2)	TOX	4°C	14	X51, X52	15678
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	X	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28		
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			X	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M21	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X†	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X†	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					X	Describe sampling value location.

COMMENTS AND OBSERVATIONS 15678 - Metals (M21) VOL. 905 ml
SPIKED WITH 6 ml OF COMBINED METAL SOL'N.
TOX (X51, X52) 40 ml EACH
SPIKED WITH 200 µl OF S161-C2

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-4

Sample Location Description: 100 feet north [illegible]

Sampled by: W. T

Date: 4/24/84

Time: [illegible]

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.3
X	X	X	X	X	[✓ X]	Specific conductance 225 umho/cm @ 20.0 249 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~3000 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-3	15662
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-43, X-44	
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-11	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M-34	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					[✓ X†]	1 qt. glass/Tefl.	Pesticides	4°C	40	C-13	
					[✓ X†]	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H-7	
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS [illegible] has light gray-brown color. Sampled at end of 4 inch temporary discharge pipe (PVC

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-5

Sample Location Description: Bld. 1112 - [illegible], Non-potable well ([illegible])

Sampled by: RDB/WGT/SJC Date: 4/23/84 Time: 0940

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS	
X	X	X	X	X	[✓ X]	pH	7.3
X	X	X	X	X	[✓ X]	Specific conductance	205 umho/cm @ 21 222 @ 25 °C
X	X		X			Depth to water surface from casing top	
X	X		X		[✓ X]	Volume of water purged prior to sampling	~ 1900 gal.
		X				Sample depth	
		X				Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T4	15664
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X47,48	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		↓
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G8	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	X			[✓ X]	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M35	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					~~X~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Sampled at main valve in 6-inch line just outside Building 1112. Strong Sulfide odor in water.

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-5a

Sample Location Description: Bldg. 1114, Cadnance, potable well

Sampled by: RAP/WCT/SJC Date: 4/23/8? Time: 0947

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 6.6
X	X	X	X	X	[✓ X]	Specific conductance 167 umho/cm @ 21.0 181 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~ 1200 gal
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-24	15663
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-31, X-32	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		↓
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-3?	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	X			[✓ X]	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M-40	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					X† ✓	1 qt. glass/Tefl.	Pesticides	4°C	40		
					X† ✓	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Sampled at hose bib immediately below tank in court behind Bldg 1114. Sulfide odor detected.

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: **MAFB-6**

Sample Location Description: Bldg. 702 [illegible] well)

Sampled by: RDB/WGT/SJC Date: 4/23/84 Time: 1:20

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.2
X	X	X	X	X	[✓ X]	Specific conductance 201 umho/cm @ 22.5°C 211 @ 25°C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~ 650 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-8	15665
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-41, X-42	
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-3	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M-31	
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					[✓ X†]	1 qt. glass/Tefl.	Pesticides	4°C	40	C-4	
					[✓ X†]	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H-9	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Sampled at tap immediately below pressure switch box between well and pressure tank

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-7

Sample Location Description: Building 1705 - Mission Lake Well

Sampled by: RDB/SJC/WGT Date: 4/23/84 Time: 0905

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	ⓧ	pH 7.1
X	X	X	X	X	ⓧ	Specific conductance 208 umho/cm @ 20.5 [illegible] °C
X	X		X			Depth to water surface from casing top
X	X		X		ⓧ	Volume of water purged prior to sampling ~300 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	ⓧ	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-5	15666
X	X	X			ⓧ	40 ml. vials (2)	TOX	4°C	14	X-45, X-46	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		↓
X	X	X		X	ⓧ	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-4	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	X			ⓧ	1 qt. glass	Metals (8)	Filter, HNO_3	28**	M-29	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		
X					~~X~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					ⓧ	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS 1/4" sampling tap located at top of well casing

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-8

Sample Location Description: Golf course pond recharge well

Sampled by: WGT   Date: 4/24/84   Time: 0805-0835

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
X	X	X	X	X	[✓ X]	pH 7.4
X	X	X	X	X	[✓ X]	Specific conductance 212 umho/cm @ 19.0 239 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~6000 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-16	15667
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-39 X-40	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		↓
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-9	↓
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		↓
				X*		40 ml. vials (4)	VOA	4°C	14		↓
X	X	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-24	↓
				X		1 qt. glass	Lead	Filter, HNO_3	180		↓
X					[✓ X†]	1 qt. glass/Tefl.	Pesticides	4°C	40	C-10	↓
					[✓ X†]	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	H-10	↓
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Sampled at end of discharge pipe to lake

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-10

Sample Location Description: Grassy Pond Backup Water Supply Well (Well No 10)

Sampled by: WGT Date: 4/2/84 Time: 1445

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	Ⓧ	pH 6.5
X	X	X	X	X	Ⓧ	Specific conductance 107 umho/cm @ 24 109 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		Ⓧ	Volume of water purged prior to sampling ~1600 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	Ⓧ	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-14	15668
X	X	X			Ⓧ	40 ml. vials (2)	TOX	4°C	14	X-55, X-56	
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	Ⓧ	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-2	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			Ⓧ	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-37	↓
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					~~X†~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X†~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X†				Place and record number of permanent location marker.
					Ⓧ	Describe sampling ~~valve~~ location.

COMMENTS AND OBSERVATIONS Sampled at hose bib directly behind pressure tank, [illegible] feed turned off (chlorine feed ahead of sampling point)

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*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-12

Sample Location Description: Well at Bldg. 1500 - Transmitter Site

Sampled by: WGT Date: 4/24/86 Time: 0950 - 1010

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.6
X	X	X	X	X	[✓ X]	Specific conductance 221 umho/cm @ 23 230 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~ 650 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-32	15669
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-35, X-36	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-22	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-25	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					~~X~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Sampling valve underneath pressure tank

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

Sampling Site/Well No.: MAFB-13

Sample Location Description: Well at Bldg 1501 - Receiver Site

Sampled by: WGT

Date: 4/24/84

Time: 1025 - 1035

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	[✓ X]	pH 7.8
X	X	X	X	X	[✓ X]	Specific conductance 231 umho/cm @ 23.5 238 @ 25 °C
X	X		X			Depth to water surface from casing top
X	X		X		[✓ X]	Volume of water purged prior to sampling ~600 gal.
		X				Sample depth
		X				Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X	[✓ X]	4 oz. plastic	DOC	Filter, HCl, 4°C	28	T-18	15670
X	X	X			[✓ X]	40 ml. vials (2)	TOX	4°C	14	X-29, X-30	↓
X	X	X		X		4 oz. plastic	COD	H_2SO_4, 4°C	28		
X	X	X		X	[✓ X]	1 qt. glass/Tefl.	Oil&Grease	H_2SO_4, 4°C	28	G-23	
	X	X				1 qt. glass/Tefl.	Phenols	H_2SO_4, 4°C	28		
				X*		40 ml. vials (4)	VOA	4°C	14		
X	X	X			[✓ X]	1 qt. ~~glass~~ plastic	Metals (8)	Filter, HNO_3	28**	M-26	
				X		1 qt. ~~glass~~ plastic	Lead	Filter, HNO_3	180		
X					~~X†~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
					~~X†~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			X			1 qt. glass/Tefl.	DDT	4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	DDT Area Wells	POL Area Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
		X				Place and record number of permanent location marker.
					[✓ X]	Describe sampling ~~value~~ location.

COMMENTS AND OBSERVATIONS Sampling valve at bottom of pressure tank

*To be archived.

†Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

**28 days for mercury, 6 months for other metals.

FIELD SHEETS FOR SEPTEMBER 1984 SAMPLING

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-1

Sample Location Description: SW Landfill, east side of fill approximately 100 yds. from perimeter road (between landfill and Mission Lake

Sampled by: DRC/JWR Date: 6SEP84 Time: 0535 - 1302

NEED 15 gal

0558 17 gal DRY
0948 14 gal/DRY
1026 13 gal/DRY

Site Completion Checklist

Landfill Wells ↓	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
Ⓧ	X	X		X	X	pH 3.8
Ⓧ	X	X		X	X	Specific conductance 25. umho/cm @ 22. °C
Ⓧ	X					Depth to water surface from casing top 4' 5 3/4"
Ⓧ	X	X			X	Volume of water purged prior to sampling ~~[illegible]~~ 11 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
Ⓧ	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 3	16576
Ⓧ	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C 29	↓
~~X~~	X	X†				40 ml. vials (4)	VOC	4°C	14		↓
Ⓧ	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PW 9	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		↓
Ⓧ					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PC 6	↓
Ⓧ					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE 12	↓

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: L-2

Sample Location Description: SW Landfill, north of eastern portion of landfill within 100 ft. of edge of fill.

Sampled by: DPC   Date: 6 Sep 84   Time: 1200-1230

[illegible] 14 gal.

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill ↓ Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
[✓ X]	X	X		X	X	pH 3.5
[✓ X]	X	X		X	X	Specific conductance 37 umho/cm @ (Thermo = 18°C) 21.8 °C
[✓ X]	X					Depth to water surface from casing top 11' 4"
[✓ X]	X	X			X	Volume of water purged prior to sampling 14 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX311	16577
[✓ X]	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C27	↓
~~X~~	X	X†				40 ml. vials (4)	VOC	4°C	14		↓
[✓ X]	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU 5	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		↓
[✓ X]					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE 9	↓
[✓ X]					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HC 1	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS No smell, fines settle quickly

*Wells L-3 and L-5 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: L-3

Sample Location Description: SW Landfill north of western portion of fill; within 100 ft. from edge of fill; near edge of swamp

Sampled by: JWR Date: 6 Sep Time: 1200 - 1230

Need 17 gal

Site Completion Checklist

Landfill Wells ↓	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
(X)	X	X		X	X	pH 5.0
(X)	X	X		X	X	Specific conductance 465 umho/cm @ (Therm: 26°C) 23 °C
(X)	X					Depth to water surface from casing top 7'2"
(X)	X	X			X	Volume of water purged prior to sampling 17 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
(X)	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4oC	28	XX 655	16578
(X)	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C 31	↓
(X*)	X	X†				40 ml. vials (4)	VOC	4°C	14	V2	
(X)	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU 4	
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
(X)					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE 2	
(X)					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE 5	

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS no smell, yellow to cream-colored fines, quickly settle.

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*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-3 QC (VOC duplicate)

Sample Location Description: sw Landfill north of western portion of fill; within 100 ft. of edge of fill near edge of swamp

Sampled by:

Date: 6 Sep

Time: 1230

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	X	pH
X	X	X		X	X	Specific conductance ____ umho/cm @ ____ °C
X	X					Depth to water surface from casing top
X	X	X			X	Volume of water purged prior to sampling
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14	V1	16565
X	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††		
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-4
Sample Location Description: SW Landfill, south of eastern portion of fill on north side of perimeter road
Sampled by: DP/JWR Date: 6SEP84 Time: 0845-0925

NEED 14 gal

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells ↓	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
[✓ X]	X	X		X	X	pH 4.2
[✓ X]	X	X		X	X	Specific conductance 50 umho/cm @ (Therm.- 21 °C) 21.0 °C
[✓ X]	X					Depth to water surface from casing top 10' 4"
[✓ X]	X	X			X	Volume of water purged prior to sampling 15 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 733	16579
[✓ X]	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C 33	
~~X~~	X	X†				40 ml. vials (4)	VOC	4°C	14		
[✓ X]	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU 3	
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
[✓ X]					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE 11	
[✓ X]					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE 3	

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS yellow flocculent ~~[illegible]~~ mat'l in H_2O, no smell.
floc quickly settles out.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-4 QC (duplicate all + metals spike)

Sample Location Description: SW Landfill, south of eastern portion of fill on north side of perimeter road

Sampled by: DPC/DWR Date: 6 Sep 84 Time: 0845-0925

Site Completion Checklist

	Landfill Wells ↓	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
	X	X	X		X	X	pH
	X	X	X		X	X	Specific conductance ___ umho/cm @ ___ °C
	X	X					Depth to water surface from casing top
	X	X	X			X	Volume of water purged prior to sampling
			X				Sample depth
					X		Total water depth
					X		Auger hole depth
					X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

	Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
	X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX674	16566
	X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C32	↓
	X	X	X†				40 ml. vials (4)	VOC	4°C	14	~~[illegible]/P41~~	
(2)	X	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3 (2)	28††	P42/PU1	
					X		~~2 qt. plastic~~	~~Lead~~	~~Filter, HNO_3 (2X)~~	~~180~~	PL4	
(3)	X					X**	1 qt. glass/Tefl.	Pesticides	4°C (3 QC samp)	40	PL7/PC5	
(2)	X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C (2 QC samp)	40	HL4/HC2	

16570

16567 16568 16569

MISCELLANEOUS

	Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
					X		Record observations of fuel contamination in soil.
						X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS

*Wells L-3 and L-5 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-5

Sample Location Description: SW Landfill, south of central portion of fill on south side of perimeter road

Sampled by: DPC / JWK Date: 05sep84 Time: 0930 0955

need 11gal.

Site Completion Checklist

Landfill Wells ↓	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	X	pH 4.2
X	X	X		X	X	Specific conductance 45 umho/cm @ (Therm = 21°) 21 °C
X	X					Depth to water surface from casing top 14' 4½"
X	X	X			X	Volume of water purged prior to sampling 11 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX734	16580
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C 30	↓
~~X~~	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU 5	
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE 12	
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE 7	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS: much yellowish floc - quickly settles. no smell.

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*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: L-6
Sample Location Description: SW Landfill upgradient well; at SW corner of fill on SW side of bend in perimeter road
Sampled by: DPC /JWR Date: 05sep84 Time: 1000 -

Need 11 gal

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill ↓ Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
[✓ X]	X	X		X	X	pH 5.6
[✓ X]	X	X		X	X	Specific conductance 52 umho/cm @ (Therm = 20°) 21.5 °C
[✓ X]	X					Depth to water surface from casing top 14' ¼"
[✓ X]	X	X			X	Volume of water purged prior to sampling 11 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
[✓ X]	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX654	16581
[✓ X]	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C26	↓
[✓ X]	X	X†				40 ml. vials (4)	VOC	4°C	14	V4	↓
[✓ X]	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PL6	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		↓
[✓ X]					X**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE5	↓
[✓ X]					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE5	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS No smell, dirty-cream colored fines, quickly settle.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-1
Sample Location Description: Lily Pad Pond ECO site, first well on right entering the site from access road, at edge of fill
Sampled by: WGT Date: 9/6/84 Time: 1917

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X		X	X	pH 6.1
X	[✓ X]	X		X	X	Specific conductance 1650 umho/cm @ SCT: 21 °C
X	[✓ X]					Depth to water surface from casing top 4' 7" (9/5/84)
X	[✓ X]				X	Volume of water purged prior to sampling 3.2 gal.
		X				Sample depth
		X		X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	[✓ X]		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX367	16582
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C25	↓
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	V-13	↓
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-21	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark gray, turbid, slight septic odor. Well very slow to recover (bailed dry) - Initial bailing
Final bailing: water brown, less turbid than ~~as~~ initial bailing

*Wells L-3 and L-5 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-2

Sample Location Description: Lily Pad Pond EOD Site, second well going counter clockwise from entrance, at edge of fill

Sampled by: JWR Date: 9/6 Time: 1830

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	[✓ X]	X		X	X	pH 5.8
X	[✓ X]	X		X	X	Specific conductance 1020 umho/cm @ SCT: 21 °C
X	[✓ X]					Depth to water surface from casing top 4' 1⅛" (9/5/84)
X	[✓ X]	X			X	Volume of water purged prior to sampling 6.0 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX731	16583
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C19	↓
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	V12	↓
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-18	↓ ✓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark gray, turbid, slight septic odor

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*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-3

Sample Location Description: Lily Pad Pond EOD site, third well from entrance going counterclockwise, at edge of fill

Sampled by: WGT Date: 9/6/84 Time: 1908

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	[✓ X]	X		X	X	pH 5.7*
X	[✓ X]	X		X	X	Specific conductance 338* umho/cm @ SCT: 24 °C
X	[✓ X]					Depth to water surface from casing top 4' 9 3/4" (9/5/84)
X	[✓ X]	X			X	Volume of water purged prior to sampling 3 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX-732	16584
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-24	
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	V-11	
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	Pu-14	
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water light gray (1st bailer clear), turbid, little odor. Well recovers slowly

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

* pH and specific conductance measured on 9/7/84, 1142 hrs.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-3

Sample Location Description: Lily Pad Pond EOD site, ~~fourth~~ third well from entrance going counterclockwise, at edge of fill

Sampled by: WGT Date: 9/7/84 Time: 1142

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	X	X		X	X	pH 5.7
X	X	X		X	X	Specific conductance 335 umho/cm @ SCT : 24 °C
X	X					Depth to water surface from casing top
X	X	X			X	Volume of water purged prior to sampling
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	HX-9 - discard;	don't need
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS

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*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-4

Sample Location Description: Lily Pad Pond EOD Site, ~~fifth~~ fourth well from entrance going counterclockwise ~~(first on left clockwise)~~, at edge of Fill

Sampled by: WGT, JWR Date: 9/6/84 Time: 1903

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	[✓ X]	X		X	X	pH 5.4
X	[✓ X]	X		X	X	Specific conductance 275 umho/cm @ SCT ; 22°C
X	[✓ X]					Depth to water surface from casing top 4'11" (9/5/84)
X	[✓ X]	X			X	Volume of water purged prior to sampling 7.7 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	(2) XX104	16585
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	(2) C-8	↓
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	(8) V-5	↓
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	(3) PU-23	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark gray, turbid, septic odor. Well recovers quickly

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*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-4 QC (duplicate all, metals spike)

Sample Location Description: Same as for LPP-4

Sampled by: ______ Date: ______ Time: ______

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	pH ______
X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X				Depth to water surface from casing top ______
X	X			X	Volume of water purged prior to sampling ______
		X			Sample depth ______
		X	X		Total water depth ______
			X		Auger hole depth ______
			X		Depth to water in auger hole ______

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X	X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX659	16571
X	X	X	X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-3	
X*	X	X†			40 ml. vials (4)	VOC	4°C	14	V-8	
X	X	X		X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-13, Pu-22	
			X		2 qt. plastic	Lead	Filter, HNO_3	180		
X				X**	1 qt. glass/Tefl.	Pesticides	4°C	40		16572
X				X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			X		Record observations of fuel contamination in soil.
				X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS ______

*Wells L-5 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIb FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-5

Sample Location Description: Lily Pad Pond EOD Site, fifth well from entrance going counterclockwise (first on left clockwise), at edge of fill

Sampled by: JWR Date: 9/6/84 Time: 1932

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	[✓ X]	X		X	X	pH 63
X	[✓ X]	X		X	X	Specific conductance 860 umho/cm @ SCT: 21 °C
X	[✓ X]					Depth to water surface from casing top 5'2¼" (9/5/84)
X	[✓ X]	X			X	Volume of water purged prior to sampling 3.0 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 73	16586
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-23	↓
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	V-7	↓
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	HX 101	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tef.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark gray-brown, turbid, slight septic odor. Well recovers very slowly.

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*Wells L-5 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-6

Sample Location Description: Lily Pad Pond EOD site, near center of Gill, northeast of central mound

Sampled by: JWR Date: 9/6 Time: 1810

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	[✓ X]	X		X	X	pH 6.1
X	[✓ X]	X		X	X	Specific conductance 220 umho/cm @ SCT 24 °C
X	[✓ X]					Depth to water surface from casing top 6' 2 1/4" (9/5/84)
X	[✓ X]	X			X	Volume of water purged prior to sampling 8.1 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	[✓ X]	X		X		2 oz. plastic	DOC	Filter, H_2SO_4, 4°C	28	XX224	16587
X	[✓ X]	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-5	↓
X*	[✓ X]	X†				40 ml. vials (4)	VOC	4°C	14	V10	↓
X	[✓ X]	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-10	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark gray, turbid, slight septic odor. Well recovers quickly.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-SW1

Sample Location Description: Lily Pad Pond EOD Site, approximately 160 ft. ESE of Well No. LPP-2 (outward from fill) in swamp

Sampled by: WGT, JR Date: 9/6/84 Time: 1502

Site Sampled for (Check)

Landfill Wells	LPP Wells	LPP Surface Water ↓	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	[✓ X]		X	X	pH 4.0
X	X	[✓ X]		X	X	Specific conductance 35 umho/cm @ SCT: 27 °C
X	X					Depth to water surface from casing top
X	X				X	Volume of water purged prior to sampling
		[✓ X]				Sample depth 6 in.
		[✓ X]		X		Total water depth 21 in.
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	R-312	15588
X	X	[✓ X]		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C7	↓
X*	X	[✓ X†]				40 ml. vials (4)	VOC	4°C	14	V-14	↓
X	X	[✓ X]			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	H432	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water dark brown (tannins), no visible flow, no detectable odors. Location marked by PVC stake.

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling site/Well No.: LPP-SW2

Sample Location Description: Lily Pad Pond EOD site, approximately 100 ft. NNE of well No. LPP-3 (outward from fill) in swamp.

Sampled by: WGT, JR Date: 9/6/84 Time: 1535

Site Completion Checklist

Landfill wells	LPP Wells	LPP Surface Water ↓	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	[✓ X]	X	X	pH 4.4
X	X	[✓ X]	X	X	Specific conductance 31 umho/cm @ SCT: 27 °C
X	X				Depth to water surface from casing top
X	X	X		X	Volume of water purged prior to sampling
		[✓ X]			Sample depth 6 in
		[✓ X]	X		Total water depth 20 in.
			X		Auger hole depth
			X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]	X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 38	16589
X	X	[✓ X]	X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-2	↓
X*	X	[✓ X†]			40 ml. vials (4)	VOC	4°C	14	V-15	↓
X	X	[✓ X]		X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 113	↓
			X		2 qt. plastic	Lead	Filter, HNO_3	180		
X				X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X				X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			X		Record observations of fuel contamination in soil.
				X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Same as for LPP-SW1, Location marked by PVC Stake

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-SW3

Sample Location Description: Lily Pad Pond EOD site, approximately 100 ft. NW of well No LPP-4 (outward from fill) in swamp.

Sampled by: WGT Date: 9/6/84 Time: 1605

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	[✓ X]		X	X	pH 4.1
X	X	[✓ X]		X	X	Specific conductance 33 umho/cm @ SCT: 27 °C
X	X					Depth to water surface from casing top
X	X	~~X~~			X	Volume of water purged prior to sampling
		[✓ X]				Sample depth 6 in
		[✓ X]		X		Total water depth 14 in
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 263	16590
X	X	[✓ X]		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C-4	↓
X*	X	~~X†~~				40 ml. vials (4)	VOC	4°C	14		↓
X	X	[✓ X]			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-11	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Same as for LPP-SW1. Location marked with PVC stake.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: LPP-SW4

Sample Location Description: Lily Pad Pond ECD site, approximately 150 ft West of well No. LPP-5 (outward from fill) in swamp

Sampled by: WGT Date: 9/6/84 Time: 1624

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	[✓ X]		X	X	pH 4.1
X	X	[✓ X]		X	X	Specific conductance 33 umho/cm @ SCT . 27 °C
X	X					Depth to water surface from casing top
X	X	~~X~~			X	Volume of water purged prior to sampling
		[✓ X]				Sample depth 6 in
		[✓ X]		X		Total water depth 17 in
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	[✓ X]		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX-98	16591
X	X	[✓ X]		X		1 pt. glass	COD	H_2SO_4, 4°C	28	C 16	↓
X*	X	~~X†~~				40 ml. vials (4)	VOC	4°C	14		↓
X	X	[✓ X]			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	P.1-12	↓
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Same as for LPP-SW1, Location marked by PVC stake.

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*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: NPOL-1

Sample Location Description: North POL Area, 5½ fence posts SW of N corner, 4 feet NW (outside) of fence

Sampled by: WGT Date: 9/6/84 Time: 1120

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells		
X	X	X	[✓ X]	X	pH	4.8
X	X	X	[✓ X]	X	Specific conductance	118 umho/cm @ SCT: 26 °C
X	X				Depth to water surface from casing top	
X	X	X		X	Volume of water purged prior to sampling	
		X			Sample depth	
			[✓ X]		Total water depth	8 in.
			[✓ X]		Auger hole depth	7.5 ft.
			[✓ X]		Depth to water in auger hole	6 ft. 10 in.

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X	[✓ X]		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 671	16592
X	X	X	[✓ X]		1 pt. glass	COD	H_2SO_4, 4°C	28	C-9	↓
X*	X	X†			40 ml. vials (4)	VOC	4°C	14		
X	X	X		X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††		
			[✓ X]		2 qt. plastic	Lead	Filter, HNO_3	180	Pu-15	
X				X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X				X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			[✓ X]		1qt. glass/Tefl.	O.+Gr.	H_2SO_4, 4°C		PE-1	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			[✓ X]		Record observations of fuel contamination in soil.
				X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS 0.1 sheen clearly visible on water in backhoe pit. Strong fuel odor in clayey sand below 4 ft. depth. Fuel odor not detected in gray sand above 4-ft. depth. Clayey sand below 4 ft. is multi-colored (brown-gray-orange-red). Strong fuel odor in water. Sample dipped with nalgene cup taped to wood paddle.

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: NPOL-1

Sample Location Description: North POL Area, 5 1/2 fence posts SW of N corner, 4 feet NW (outside) of fence

Sampled by: DPC Date: 24 Sep 84 Time: 0930 - 1000

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
						IN SITU MEASUREMENTS
X	X	X		X ✓	X	pH
X	X	X		X ✓	X	Specific conductance ______ umho/cm @ ______ °C
X	X					Depth to water surface from casing top
X	X				X	Volume of water purged prior to sampling
		X				Sample depth
		X		X ✓		Total water depth 0.5 ft
				X ✓		Auger hole depth 9.0 ft
				X ✓		Depth to water in auger hole 8.5 FT

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X ✓		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X ✓		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†		X ✓		40 ml. vials (4)	VOC	4°C	14	VOL-1	16853
X	X	X			X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††		
				✓		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X ✓		Record observations of fuel contamination in soil.
					X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS [illegible] soil.
[illegible]

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: NPOL-2

Sample Location Description: North POL Area, 2 1/2 fence posts NE of W corner, 14 ft. NW (outside) of fence

Sampled by: WGT Date: 9/6/84 Time: 1133

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	[✓ X]	X	pH 4.2
X	X	X	[✓ X]	X	Specific conductance 55 umho/cm @ SCT: 25 °C
X	X				Depth to water surface from casing top
X	X	X		X	Volume of water purged prior to sampling
		X			Sample depth
			[✓ X]		Total water depth 6 in.
			[✓ X]		Auger hole depth 8.5 ft.
			[✓ X]		Depth to water in auger hole 8 ft.

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X	[✓ X]		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28	XX 730	16593
X	X	X	[✓ X]		1 pt. glass	COD	H_2SO_4, 4°C	28	C-6	
X*	X	X†			40 ml. vials (4)	VOC	4°C	14		
X	X	X		X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	~~PU-16~~	
			[✓ X]		2 qt. plastic	Lead	Filter, HNO_3	180	PU-16	
X				X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X				X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		
			[✓ X]		1qt glass/Tefl.	Oil+Gr.	H_2SO_4, 4°C		HE-9	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			[✓ X]		Record observations of fuel contamination in soil.
				X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Strong fuel odor in clayey sand below 3.5 ft. depth. Fuel odor not detected in gray sand above 3.5 ft. Clayey sand similar in appearance to that described for NPOL-1. Strong fuel odor detected in water. Sample dipped with glass mason jar.

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: NPOL-2

Sample Location Description: North POL Area, 2½ fence posts NE of W corner, 14 ft. NW (outside) of fence

Sampled by: DPC Date: 24 Sep 84 Time: 0932 - 1015

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	X	pH
X	X	X	X	X	Specific conductance ______ umho/cm @ ______ °C
X	X				Depth to water surface from casing top
X	X	X		X	Volume of water purged prior to sampling
		X			Sample depth
			X		Total water depth 0.5 ft
			X		Auger hole depth 10.5 ft
			X		Depth to water in auger hole 10.0 ft.

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X	X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X	X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†	X		40 ml. vials (4)	VOC	4°C	14	VOA-2/VOA-3	16854/1685
X	X	X		X	2 qt. plastic	Metals (8)	Filter, HNO_3	28††		
			X		2 qt. plastic	Lead	Filter, HNO_3	180		
X				X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X				X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			X		Record observations of fuel contamination in soil.
				X	Describe sampling valve location.

COMMENTS AND OBSERVATIONS [illegible] odor.
Water seeping in only within 6" of bottom of hole.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIb FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB - 1

Sample Location Description: Potable Well No. 1, Main System, Bldg. 913

Sampled by: WGT / DPC Date: 9/5/84 Time: 1630

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	[✓ X]	pH 7.25
X	X	X		X	[✓ X]	Specific conductance 225 umho/cm @ (21.5-therm) SCT : 22 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~ 14,000 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 102	16594
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve located ~ 5 feet outside south wall of Bldg 913 in main discharge line

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-5, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB - 1 - QC
Sample Location Description: Potable Well No. 1, Main System, Bldg 913

Sampled by: WGT / DPC Date: 9/5/84 Time: 1630

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	X✓	pH
X	X	X		X	X✓	Specific conductance ____ umho/cm @ ____ °C
X	X					Depth to water surface from casing top
X	X	X			X✓	Volume of water purged prior to sampling
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14	→ 16573	
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	HX-21 FL-114	
				X		2 qt. plastic	Lead	Filter, HNO_3	180		→ 16574
X					~~X*~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					X✓	Describe sampling valve location.

COMMENTS AND OBSERVATIONS ____________________

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-2

Sample Location Description: Potable Well No. 2, Main System, Bldg. 946

Sampled by: WGT / DPC　　Date: 9/5/84　　Time: 1604

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	X	X		X	[✓ X]	pH 7.2
X	X	X		X	[✓ X]	Specific conductance 234 umho/cm @ (22-therm) SCT · 23 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~~∼55,500 gal.~~ ∼61,100 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL100	16595
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X~~**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X~~**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve in main discharge line, 5 feet downstream from pump inside Bldg. 946. Strong sulfur odor.

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-3

Sample Location Description: Potable Well No 3, Main System, Bldg. 984

Sampled by: WGT / DPC   Date: 9/5/84   Time: 1620

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	X	X		X	[✓ X]	pH 7.2
X	X	X		X	[✓ X]	Specific conductance 250 umho/cm @ (22-therm) SCT : 23 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~12,600 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 116	16596
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve located just outside west wall of Bldg 984. Sulfur odor

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

AD-A165 870 INSTALLATION RESTORATION PROGRAM PHASE II - 3/3
CONFIRMATION/QUANTIFICATION S..(U) WATER AND AIR
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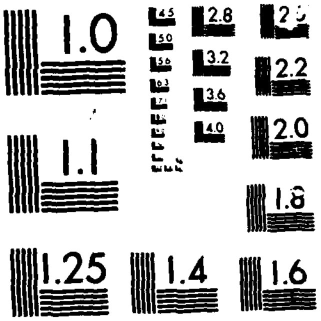

MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS 1963-A

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-4

Sample Location Description:

Sampled by: WGT Date: 9/7/84 Time: 1425

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells ↓	IN SITU MEASUREMENTS	
X	X	X		X	[✓ X]	pH	7.3
X	X	X		X	[✓ X]	Specific conductance	285 umho/cm @ 5CT · 24.5°C
X	X					Depth to water surface from casing top	
X	X	X			[✓ X]	Volume of water purged prior to sampling	~ 16,500 gal.
		X				Sample depth	
				X		Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	HX-10	16597
				X		2 qt. plastic	Lead	Filter, HNO_3	180		↓
X					[✓ X**]	1 qt. glass/Tefl.	Pesticides	4°C	40	PE-10	↓
X					[✓ X**]	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE-101	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS No strong odors, Sampled directly from 4-inch line in access pit beside well, 6ft. from pump

*Wells L-3 and L-5 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB -5

Sample Location Description: Bldg. 1114 - Ordnance Area; fire protection well

Sampled by: W6T / DPC Date: 9/5/84 Time: 1110

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	Ⓧ	pH 6.9
X	X	X		X	Ⓧ	Specific conductance 190 umho/cm @ (21-therm.) SCT: 22 °C
X	X					Depth to water surface from casing top
X	X	X			Ⓧ	Volume of water purged prior to sampling ~~3000± gal~~ ~2,160 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			Ⓧ	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 115	16598
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					X**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					X**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X	Ⓧ	Record observations of fuel contamination in soil. Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve located ~3 feet downstream from well head ~~pump~~, ahead of chlorine feed and pressure tank

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-5A

Sample Location Description: Ordnance Area potable well 40 feet west of Bldg. 1114 (Bldg. 1112)

Sampled by: WGT/DPC Date: 9/5/84 Time: 1543

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	Ⓧ	pH 7.2
X	X	X		X	Ⓧ	Specific conductance 222 umho/cm @ (21.5-therm) SCT: 22 °C
X	X					Depth to water surface from casing top
X	X	X			Ⓧ	Volume of water purged prior to sampling ~1800 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			Ⓧ	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 118	16599
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40	~~FL 118~~	
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					Ⓧ	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampled at valve in 6-inch main immediately outside west wall of Bldg. 1112

*Wells L-3 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/well No.: MAFB-6

Sample Location Description:

Sampled by: WGT   Date: 9/7/84   Time: 1045

Site Sampling Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
X	X	X		X	[✓ X]	pH 7.7
X	X	X		X	[✓ X]	Specific conductance 228 umho/cm @ SCT : 22 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~ 2,090 gal.
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	PU-17	16600
				X		2 qt. plastic	Lead	Filter, HNO_3	180		↓
X					[✓ X]**	1 qt. glass/Tefl.	Pesticides	4°C	40	PE-102	↓
X					[✓ X]**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE-10	↓

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampled from valve at bottom of pressure tank. Water comes directly off well; does not pass through tank

*Wells L-3 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-7
Sample Location Description: Bldg 1705 - Mission Lake : Potable well

Sampled by: WGT, DPC Date: 9/5/84 Time: 1127

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X	X	[✓ X]	pH 7.4
X	X	X	X	[✓ X]	Specific conductance 234 umho/cm @ (21 therm) SCT: 21.8 °C
X	X				Depth to water surface from casing top
X	X	X		[✓ X]	Volume of water purged prior to sampling ~435 gal.
		X			Sample depth
			X		Total water depth
			X		Auger hole depth
			X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X	X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X	X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†			40 ml. vials (4)	VOC	4°C	14		
X	X	X		[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 117	16601
			X		2 qt. plastic	Lead	Filter, HNO_3	180		
X				~~X~~**	1 qt. glass/Tefl.	Pesticides	4°C	40		
X				~~X~~**	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area Auger Holes	Potable Wells	
			X		Record observations of fuel contamination in soil.
				[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling tap located at well head

*Wells L-5 and L-6 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-6, and MAFB-8 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET
9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-8

Sample Location Description:

Sampled by: WGT Date: 9/7/84 Time: 1110

Site Completion Checklist

IN SITU MEASUREMENTS

Landfill wells	LPP wells	LPP Surface water	POL Area	auger holes	Potable wells	
X	X	X		~~X~~	[✓ X]	pH 7.4
X	X	X		~~X~~	[✓ X]	Specific conductance 225 umho/cm @ SCT: 23 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~16,500 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill wells	LPP wells	LPP Surface water	POL Area	auger holes	Potable wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FM-20	16602
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					[✓ X**]	1 qt. glass/Tefl.	Pesticides	4°C	40	PE-101	↓
X					[✓ X**]	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40	HE-11	↓

MISCELLANEOUS

Landfill wells	LPP wells	LPP Surface water	POL Area	auger holes	Potable wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Water has sulfur odor. Sampled at end of discharge pipe to lake

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*Wells L-5 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-5, and MAFB-6 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIB FIELD SAMPLE SHEET

9/5-7/84 Field Trip

Sampling Site/Well No.: MAFB-10

Sample Location Description: Back-up well at Grassy Pond, 15" casing diameter

Sampled by: WGT/DPC Date: 9/5/84 Time: 1247

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	[✓ X]	pH 6.7
X	X	X		X	[✓ X]	Specific conductance 103 umho/cm @ (23 therm) SCT: 24 °C
X	X					Depth to water surface from casing top
X	X				[✓ X]	Volume of water purged prior to sampling ~80 gal.
		X				Sample depth
		X		X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 104	16603
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	MISCELLANEOUS
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampled from 1-inch valve at well head, ahead of chlorinator feed. Pressure tank is ahead (downstream) of sampling location

*Wells L-5 and L-6 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-5, and MAFB-6 only.

††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIb FIELD SAMPLE SHEET
9/3-7/84 Field Trip

Sampling Site/Well No.: MAFB-12
Sample Location Description: Transmitter site potable well (Bldg. 1500).

Sampled by: WGT/DPC Date: 9/5/84 Time: 1504

Site Sampling Checklist

IN SITU MEASUREMENTS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Measurement	Value
X	X	X		X	(X)	pH	7.2
X	X	X		X	(X)	Specific conductance	235 umho/cm @ SCT · 22.5 °C
X	X					Depth to water surface from casing top	
X	X	X			(X)	Volume of water purged prior to sampling	~ 2080 gal.
		X				Sample depth	
				X		Total water depth	
				X		Auger hole depth	
				X		Depth to water in auger hole	

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			(X)	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	HX3	16604
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Item
				X		Record observations of fuel contamination in soil.
					(X)	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve located at bottom of pressure tank. Slight sulfur odor. Pressure tank is approx 100 gallon capacity. Sampling location is downstream of pressure tank.

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*Wells L-3 and L-9 only.
†Locations LPP-SW1 and LPP-SW2 only.
**Wells No. MAFB-4, MAFB-5, and MAFB-6 only.
††28 days for mercury, 6 months for other metals.

MOODY AFB PHASE IIb FIELD SAMPLE SHEET
9/3-7/84 Field Trip

Sampling Site/Well No.: MAFB-13

Sample Location Description: Receiver site potable well (Bldg. 1501)

Sampled by: WGT/OPC Date: 9/5/84 Time: 1521

Site Completion Checklist

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	IN SITU MEASUREMENTS
X	X	X		X	[✓ X]	pH 7.4
X	X	X		X	[✓ X]	Specific conductance 236 umho/cm @ SCT: 22 °C
X	X					Depth to water surface from casing top
X	X	X			[✓ X]	Volume of water purged prior to sampling ~2220 gal
		X				Sample depth
				X		Total water depth
				X		Auger hole depth
				X		Depth to water in auger hole

SAMPLE COLLECTION AND PRESERVATION

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	Container Description	Parameters to be Analyzed	Preservation Method	Holding Time (d)	Container No(s)	Sample No.
X	X	X		X		2 oz. plastic	DOC	Filter, H_2SO_4 4°C	28		
X	X	X		X		1 pt. glass	COD	H_2SO_4, 4°C	28		
X*	X	X†				40 ml. vials (4)	VOC	4°C	14		
X	X	X			[✓ X]	2 qt. plastic	Metals (8)	Filter, HNO_3	28††	FL 108	16605
				X		2 qt. plastic	Lead	Filter, HNO_3	180		
X					~~X**~~	1 qt. glass/Tefl.	Pesticides	4°C	40		
X					~~X**~~	1 qt. glass/Tefl.	Herbicides	HCl, 4°C	40		

MISCELLANEOUS

Landfill Wells	LPP Wells	LPP Surface Water	POL Area	Auger Holes	Potable Wells	
				X		Record observations of fuel contamination in soil.
					[✓ X]	Describe sampling valve location.

COMMENTS AND OBSERVATIONS Sampling valve located at bottom of pressure tank. Slight sulfur odor. Pressure tank capacity is approx. 120 gal. Sampling location is downstream of pressure tank.

*Wells L-3 and L-5 only.

†Locations LPP-SW1 and LPP-SW2 only.

**Wells No. MAFB-4, MAFB-5, and MAFB-6 only.

††28 days for mercury, 6 months for other metals.

APPENDIX E

SAMPLING AND ANALYTICAL PROCEDURES

APPENDIX E

SAMPLING AND ANALYTICAL PROCEDURES

E-1.0 ANALYTICAL QUALITY CONTROL

All field sampling and quality control spiking were performed by WAR. All sample analyses, with the exception of TOX, were performed by TSI. TOX analyses were performed by UBTL. Each of the above organizations maintains a strict quality assurance/quality control (QA/QC) plan which is outlined in a detailed document. These QA/QC documents were not appended in this report due to their length. This appendix outlines QA/QC procedures directly relevant to the Moody AFB Phase II Stage 1 survey.

Accuracy of analytical techniques is assured by strict adherence to the methods listed in Table E-1. Integrity and representativeness of the sample is assured by sampling procedures described in Section E-2.0. A check on analytical quality control is provided for by duplicating a minimum of 10 percent of the samples in each analysis lot. Additional samples were collected to provide for spiking 10 percent of total phenolics and metals samples. Samples for DOC, COD, oil and grease, VOA, and VOH were not spiked. Duplicate and spike samples were labeled in such a way that the analytical laboratory could not identify them. Duplicate values were averaged to obtain a best estimate of actual concentration. When results were below detection limits, a quantity equal to one-half the detection limit (i.e., an average between the detection limit and zero) was used to numerically represent the below-detection-limit result. Results of duplicate and spike analyses are shown in Tables E-2 and E-3.

E-2.0 SAMPLING INSTRUCTIONS FOR MOODY AFB

Descriptions of sample containers, preservation methods, and holding times are given in Table E-4. Sampling procedures are outlined below for each analysis group.

Table E-1. Analytical Chemistry Methods for Water Samples, Moody AFB, Georgia

Parameter	Method	Detection Limit
pH*	EPA 150.1	—
Specific conductance*	EPA 120.1	—
Temperature*	EPA 170.1	—
Organic carbon	EPA 415.1	1 mg/l
TOX	EPA 9020†	10
Oil and grease	EPA 413.2	0.5 mg/l
Total phenolics	EPA 420.1	1
Pesticides	EPA 608H	**
Herbicides	EPA(CERI)††	**
Arsenic	EPA 200.7***	2
Barium	EPA 200.7	2
Cadmium	EPA 200.7	3
Chromium	EPA 200.7	6
Lead	EPA 200.7	20
Mercury	EPA 245.1	0.1
Selenium	EPA 200.7***	2
Silver	EPA 200.7	3

*Performed at the time of sample collection.
†EPA = EPA "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 2nd Edition, 1982.
**See Table 4-4 for detection limits.
††EPA(CERI)-Method as given in EPA Document, "Methods for Organochlorine Pesticides and Chloropenoxy Acid Herbicides in Drinking Water and Raw Source Water"
***Hydride modification.

All detection limits are in ug/l units except where noted.

Note: EPA = U.S. EPA "Methods for Chemical Analysis of Water and Wastes," March 1979—Method Number.

Table E-2. Analytics Quality Assurance Checks--Percent Recoveries for TOX, Phenolics, Metals, Pesticides, and Herbicides (Page 1 of 2)

	Unspiked Sample		Field Spiked Sample				
Constituent	No.	Reported Conc.*	No.	Reported Level*	Difference	Spike Added	Percent Recovery
TOX	15671,15640	42	15675	55	13	29	45
	15672,15649	72	15676	68	-4	59	-7
	15674,15661	48	15678	97	47	120	39
Phenolics	15649,15672	8	15676	46	38	24	150
Arsenic	16566,16579	<2	16567	11	10	14	70
	16573,16594	<2	16574	25	24	23	100
	16571,16585	2	16572	86	84	80	100
Barium	16566,16579	20	16567	100	80	140	57
	16573,16594	100	16574	220	120	230	52
	16571,16585	130	16572	890	760	800	95
Cadmium	16566,16579	<6	16567	<6	0	14	0
	16573,16594	<6	16574	22	19	23	83
	16571,16585	8	16572	92	84	80	105
Chromium	16566,16579	<15	16567	<15	0	34	0
	16573,16594	<15	16574	63	56	58	97
	16571,16585	27	16572	220	190	200	95
Lead	16566,16579	<20	16567	19	9	27	33
	16573,16594	<20	16574	40	30	46	65
	16571,16585	<20	16572	140	130	160	81

Table E-2. Analytics Quality Assurance Checks--Percent Recoveries for TOX, Phenolics, Metals, Pesticides, and Herbicides (Page 2 of 2)

	Unspiked Sample		Field Spiked Sample				
Constituent	No.	Reported Conc.*	No.	Reported Level*	Difference	Spike Added	Percent Recovery
Mercury	16566,16579	0.2	16567	1.0	0.8	1.4	57
	16573,16594	0.07	16574	2.7	2.6	2.3	110
	16571,16585	0.1	16572	4.1	4.0	8.0	50
Selenium	16566,16579	<4	16567	11	9	14	64
	16573,16594	<4	16574	10	8	23	35
	16571,16585	<4	16572	76	72	79	91
Silver	16579	<6	16566†	12	9	10	90
	16594	<6	16573†	26	23	25	92
	16585	<6	16571†	69	66	75	88
Herbicide 2,4,5-T	16566,16579	<0.02	16570	9.6	9.6	16	60
Heptachlor Epoxide	16566,16579	<0.005	16569	4.4	4.4	3.8	110
Lindane	16566,16579	<0.002	16569	2.5	2.5	3.9	64
Malathion	16566,16579	<0.010	16568	16	16	38	42
o,p'-DDD	16566,16579	<0.005	16569	4.9	4.9	2.8	180
p,p'-DDD	16566,16579	<0.005	16569	6.9	6.9	4.7	150
o,p'-DDE	16566,16579	<0.005	16569	3.8	3.8	3.1	120
p,p'-DDE	16566,16579	<0.005	16569	3.0	3.0	2.7	110
o,p'-DDT	16566,16579	<0.005	16569	4.4	4.4	3.8	120
p,p'-DDT	16566,16579	<0.005	16569	4.7	4.7	5.4	87

*Units measured in ug/1.
†Laboratory spikes.

Table E-3. Analytics Quality Assurance Checks--Values Reported for Duplicate Samples (Page 1 of 2)

Constituents	Units	Sample No.	Value	Sample No.	Value
TOX	ug/l	15671	51	15640	33
		15672	75	15649	69
		15674	72	15661	25
Phenolics	ug/l	15649	8	15672	8
DOC	mg/l	16566	<0.5	16579	<0.5
		16571	33	16585	45
COD	mg/l	16566	3.9	16579	6.2
		16571	110	16585	120
Oil & grease	mg/l	15640	<0.5	15671	<0.5
		15649	<0.5	15672	<0.5
		15661	<0.5	15674	<0.5
Arsenic	ug/l	16566	<2	16579	<2
		16573	<2	16594	<2
		16571	2	16585	<2
Barium	ug/l	16566	24	16579	20
		16573	193	16594	18
		16571	173	16585	94
Cadmium	ug/l	16566	<6	16579	<6
		16573	<6	16594	<6
		16571	16	16585	<6
Chromium	ug/l	16566	<15	16579	<15
		16573	<15	16594	<15
		16571	47	16585	<15
Lead	ug/l	16566	<20	16579	<20
		16573	<20	16594	<20
		16571	<20	16585	<20
Mercury	ug/l	16566	0.2	16579	0.2
		16573	0.1	16594	<0.1
		16571	0.2	16585	<0.1
Selenium	ug/l	16566	<4	16579	<4
		16573	<4	16594	<4
		16571	<4	16585	<4

Table E-3. Analytics Quality Assurance Checks--Values Reported for Duplicate Samples (Page 2 of 2)

Constituents	Units	Sample No.	Value	Sample No.	Value
Pesticides	ug/l	16566	BDL*(all)	16579	BDL*(all)
Herbicides	ug/l	16566	BDL*(all)	16579	BDL*(all)
VOC	ug/l	16578		16565	
Chlorobenzene			9.2		5.4
1,4-dichlorobenzene			8.8		3.7
Trichloroethane			2.1		<1.0
Benzene			3.7		<0.5
All other compounds			BDL*		BDL*
VOA-Method 503.1	ug/l	16854		16855	
Benzene			30		34
1,1,2-Trichloroethylene			2.4		2.8
a-Trifluorotoluene			<10		<10
Toluene			<1.0		<1.0
1,1,2,2-Tetrachloroethylene			5.0		6.7
Ethyl benzene			30		36
1-Chlorocyclohexene-1			<1.0		<1.0
p-Xylene			28		25
m-Xylene			<1.0		<1.0
o-Xylene			2.2		2.3
Isopropylbenzene			4.1		5.6
Styrene			<1.0		<1.0
p-Bromofluorobenzene			<1.0		<1.0
n-Propylbenzene			12		14
t-Butylbenzene			<1.0		<1.0
Bromobenzene			<1.0		<1.0
sec-Butylbenzene			<1.0		<1.0
1,3,5-Trimethylbenzene			19		22
p-Cymene			<1.0		<1.0
1,2,4-Trimethylbenzene			<10		<10
Cyclopropylbenzene			6.7		6.8
n-Butylbenzene			2.7		3.0
2,3-Benzofuran			<1.0		<1.0
Hexachlorobutadiene			<1.0		<1.0
Naphthalene			5.6		6.9

*BDL = below detection limit.

Table E-4. Sample Containers, Preservation Methods, and Holding Times

Parameter	Sample Type	Container/ Volume	Method of Preservation (Filtration, pH, etc.)	Holding Time
Oil and grease	W*	Glass, 1 qt. Teflon liner in cap	Conc. H_2SO_4 to pH <2, chill to 4°C	28 days
Phenols	W	Glass, 1 qt.	Conc. H_2SO_4 to pH <2, chill to 4°C	28 days
Metals (dissolved)	W	Plastic, 4 oz.	Filter, conc. HNO_3 to pH <2	6 months, 28 days†
TOX	W	Glass, 40 ml (2) Teflon septa	No headspace in vial, chill to 4°C	**
DOC	W	Plastic, 4 oz.	Filter, conc. HCl to pH <2, chill to 4°C	28 days
COD	W	Plastic, 4 oz.	Conc. H_2SO_4 to pH <2, chill to 4°C	28 days
Purgeables	W	Glass, 40 ml (4)	No headspace in vial, chill to 4°C	14 days
Organochloride and organophosphate		Teflon septa		
Pesticides	W	Glass, 1 liter Teflon liner in cap	Chill to 4°C	7 days extraction, 40 days
		Glass, 1 liter		7 days extraction
Herbicides	W	Teflon liner in cap	Conc. HCl to pH <2, chill to 4°C	40 days analysis

*W = Water.
†Mercury holding time is 28 days.
**Not specified by method.

Source: U.S. Environmental Protection Agency (EPA). 1982. Technical Additions to Methods for Chemical Analysis of Water and Wastes, Table 1. EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-82-055, December 1982.

E-2.1 METALS

Metal samples from the wells should be from the first bailer (1 liter). Bottle should be filled to very top if dissolved metals are desired and filtration is not performed immediately.

Filtration should be as follows:

1. Glass fiber filter should be rinsed with 20 to 30 milliliters of 0.5 N HNO_3 after being placed in suction apparatus. Discard rinse.
2. Rinse filter with 20 to 30 milliliters of sample. Discard rinse.
3. Filter sample and return to bottle after the bottle has been rinsed with deionized water.
4. For membrane filtration, place filter in apparatus with gridded side up and follow Steps 1 through 3.
5. Samples must be filtered through the 0.45-microgram filter for analytes to be considered dissolved. Filtration through a glass fiber filter reduces "binding" of the membrane filter but may not be needed for samples with little turbidity.

Preserve metal samples with 2 milliliters of HNO_3 per liter (after filtration for dissolved metals), mix, and check pH by pouring small amount on pH test strip. pH should be less than 2; add more HNO_3 if necessary. Refrigeration is not necessary.

E-2.2 DOC

Bottle should be completely filled to ensure sufficient sample after filtration. Procedure is the same as that for metals except 5 N HCl is used for rinsing and concentrated HCl for preservation. These samples require refrigeration.

E-2.3 OIL AND GREASE

Sample bottles should not be filled to top due to nature of analyte. Bottles are 1-liter glass with Teflon™-lined caps. Preserve to a pH less than 2 with concentrated H_2SO_4 and refrigerate.

E-2.4 PURGEABLE ORGANICS

This sample should come from the first aliquot of a bailer to prevent the loss of any volatiles. Excess turbulence should be avoided (e.g., bubbling) when filling these bottles for the same reason. Fill bottle to an inverted meniscus, cap, and refrigerate immediately. A small convex dimple in the top of the septum indicates that the bottle is properly filled. There should be no air bubbles present in the bottle. This sample is taken in quadruplicate in 40-milliliter glass, screw-cap vials with Teflon™ septa. Preservation is by refrigeration.

E-2.5 TOX

The same procedure is used as for purgeable organics, except samples are taken in duplicate.

E-2.6 TOTAL PHENOLICS

Bottles should not be completely filled in order to leave room for spiking. Bottles are 1-liter glass with Teflon™-lined caps. Preserve to a pH less than 2 with concentrated H_2SO_4 using disposable glass pipets. Refrigerate after acidification.

E-2.7 PESTICIDES/HERBICIDES

Samples are taken in 1-liter glass bottles with Teflon™-lined caps. Separate fractions were taken for organochloride and organophosphate pesticides, and for herbicides. The herbicide fractions were preserved with concentrated HCl to pH less than 2. EPA recommends acidifying samples collected expressly for chlorophenoxy acid herbicide analysis in Section 7 of their publication "Characterization of Hazardous Waste Sites, a Methods Manual, Volume III, Available Laboratory Analytical Methods" (EPA-600/4-84-038, May 1984). They specifically suggest

H_2SO_4; WAR used HCl because we believed it would prevent bacterial decomposition and potential hydrolysis of herbicides, while not interfering with subsequent extraction.

E-2.8 CHEMICAL OXYGEN DEMAND

Samples are taken in 4-ounce plastic bottles and preserved with concentrated sulfuric acid to pH less than 2. These samples require refrigeration.

APPENDIX F

CHAIN OF CUSTODY FORMS

5648

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166 - 140

SAMPLERS: (Signature) W.A.R.

Station Number	EXTRACTION ~~Station Location~~ DATE (MAXIMUM)	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
C17	5/1/84	4/26/84		X			15637	ORGANOCHLORINE,
C3							15638	ORGANOPHOSPHATE
C9							15639	PESTICIDES
C6							15640	
C7							15641	
C1							15642	
C13	↓						15662	
C4	4/30/84						15665	
C10	5/1/84						15667	
[illegible]							~~15671~~	
C2							15675	
C14	↓	↓		↓			15679	↓
C18	5/1/84	4/26/84		X			15655	DDT-R ONLY
C16							15656	
C11	↓	↓		↓		✓	15657	↓

Relinquished by: Organization: W.A.R	Received by: Organization: TSI	Date/Time 5/14/84 10:16
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: SAME AS ABOVE	Date/Time

Method of Shipment: CO. COURIER

5647

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166 - 140

SAMPLERS: (Signature) W.A.R.

Station Number	EXTRACTION ~~Station Location~~ DATE (MAXIMUM)	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
H1	5/1/84	4/26/84		X			15637	HERBICIDES
H4							15638	
H6							15639	
H5							15640	
H3							15641	
H2						✓	15642	
H7	↓						15662	
H9	4/30/84						15665	
H10	5/1/84						15667	
H8							15671	
H11	↓	↓		↓			15675	↓
C5	5/1/84	4/26/84		X			15658	DDT-R ONLY
C12							15673	
C15	↓	↓		↓			15677	↓

Relinquished by: Organization: W.A.R	Received by: Organization: TSI	Date/Time 5/14/84 10:16
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: SAME AS ABOVE	Date/Time

Method of Shipment: CO. COURIER

Water and Air Research, Inc.
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P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

ALL SAMPLES PRESERVED c̄ CONC. H_2SO_4 TO pH < 2

CLIENT
PROJECT 7166 - 140

SAMPLERS: (Signature) W.A.R.

Station Number	MAXIMUM EXTRAC-~~Station Location~~TION DATE	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
G26	5/21/84	4/30/84		X			15637	OIL &
G25							15638	GREASE BY
G33							15639	I.R.
G27							15640	
G28							15641	
G29							15642	
G30							15643	
G17							15644	
G32							15645	
G6							15646	
G7							15647	
G18							15648	
G16							15649	
G12							15650	
G1	↓	↓		↓			15651	↓

Relinquished by / Organization	Received by / Organization	Date/Time
Relinquished by: NCH Organization: W.A.R.	Received by: Wayne W. Organization: TSI	4-30 2:3
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received for Laboratory by: Wayne W.	430 2:3

Method of Shipment: CO. COURIER Nancy C.

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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

ALL SAMPLES PRESERVED c̄ CONC. H_2SO_4 TO pH

CLIENT:
PROJECT: 7166 - 140

SAMPLERS: (Signature) W.A.R.

Station Number	MAXIMUM EXTRAC-~~Station Location~~TION DATE	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis • Required
G5	5/21/84	4/30/84		X			15652	OIL &
G13							15653	GREASE BY
G15							15654	I.R.
G10							15659	
G14							15660	
G20							15661	
G11							15662	
G21							15663	
G8							15664	
G3							15665	
G4							15666	
G9							15667	
G2							15668	
G22							15669	
G23	↓	↓		↓			15670	↓

Relinquished by / Organization	Received by / Organization	Date/Time
Relinquished by: NCH Organization: W.A.R.	Received by: Wayne W. Organization: TSI	4-30 2:3
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received by: Organization:	
Relinquished by: Organization:	Received for Laboratory by: Wayne W.	4-30 2:3

Method of Shipment: CO. COURIER Nancy C.

Water and Air Research, Inc.
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P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	MAXIMUM EXTRACTION DATE ~~Station Location~~	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
G31	5/21/84	4/~~27~~30/84		X			15671	OIL & GREASE
G19	↓	↓		↓			15672	BY I.R.
G40							15674	↓
	ALL SAMPLES PRESERVED c̄ CONC. H_2SO_4 TO pH < 2							
D5							15653	C.O.D.*
D22							15654	↓
D13							15681	
D19							15672	
D15							15680	

Relinquished by: N.C.H. Organization: W.A.R.	Received by: Organization: James C Burden	Date/Time 4-30 2:15pm
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: James C Burden T.S.I.	Date/Time 4-30 2:15pm

Method of Shipment: CO. COURIER Nancy C. Hoofe

* USE THESE SAMPLES ONLY IF ~~SAMPLE~~ VOLUME IN D.O.C. BOTTLES IS NOT SUFFICIENT.

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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT: PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME EXPIRATION ~~Station Location~~	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
T2	5/21/84	4/30/84		X			15637	~~METAL~~
T7	↓	↓		↓			15638	D.O.C.
T1							15639	&
T20							15640	C.O.D.*
T27							15641	(All samples
T10							15642	preserved c̄
T15							15643	conc. H_2SO_4
T21							15644	& filtered
T11							15645	thru 0.45 μm
T28							15646	membrane filter
T25							15647	↓
T6							15648	
T9							15649	
T33							15650	
T34							15651	

Relinquished by: NCH Organization: W.A.R.	Received by: Organization: T.S.I.	Date/Time 4/30
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by:	Date/Time 4/30

Method of Shipment: CO. COURIER Nancy C. Hoofe

* IF VOLUME IS NOT SUFFICIENT USE "D" BOTTLES

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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT: PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	Sediment		
T17 *	5/21/84	4/30/84		X			15652	D.O.C.
T29 *							15653	&
T22 *							15654	C.O.D. *
T13							15659	(All samples
T31							15660	filtered thru
T12							15661	0.45 μm mem-
T3							15662	brane filters
T24							15663	& preserved $\bar{c}$
T4							15664	conc. H_2SO_4)
T8							15665	
T5							15666	
T16							15667	
T14							15668	
T32							15669	
T18							15670	

Relinquished by: NCH Organization: W.A.R.	Received by: Organization: T.S.I.	Date/Time 4-30
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by:	Date/Time 4-30

Method of Shipment: CO. COURIER

* IF VOLUME IS NOT SUFFICIENT USE "D" BOTTLES

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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT: PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	Sediment		
T19 *	5/21/84	4/30/84		X			15671	D.O.C.
T23 *							15672	(All samples filt
T30							15679	thru 0.45 μm mem
T35 *							15680	filters & preserv.
								$\bar{c}$ conc. H_2SO_4)
D14		4/30/84		X			15644	C.O.D. *
D6							15645	
D20							15646	
D16							15647	
D2							15648	
D4							15649	
D17							15650	
D12							15651	
D9							15652	

Relinquished by: N.C.H. Organization: W.A.R.	Received by: Organization: T.S.I.	Date/Time 4-30
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by:	Date/Time 4-30

Method of Shipment: CO. COURIER

* USE THESE SAMPLES ONLY IF VOLUME IN D.O.C. BOTTLES IS NOT

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CHAIN OF CUSTODY RECORD

ALL SAMPLES FILTERED & PRESERVED ē CONC. HNO_3

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ FOR MERCURY	Date	Time	Water	Air	Sediment	WAR Sample No.	Analysis Required
M28	5/21/84	4/30/84		X			15637	METALS:
M14							15638	Cd, Cr, Pb,
M8							15639	Hg, Se, Ag,
M10							15640	Ba, As
M19							15641	
M20							15642	
M5							15643	
M36							15644	
M2							15645	
M13							15646	
M3							15647	
M27							15648	
M39							15649	
M7							15650	
M16	↓	↓		↓			15651	↓

Relinquished by: NCH
Organization: W.A.R.
Received by:
Organization: T.S.I.
Date/Time 4-30

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received for Laboratory by:
Date/Time 4-30

Method of Shipment: CO. COURIER

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P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

ALL SAMPLES FILTERED & PRESERVED ē CONC. HNO

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ FOR MERCURY	Date	Time	Water	Air	Sediment	WAR Sample No.	Analysis Required
M32	5/21/84	4/30/84		X			15652	METALS:
M23							15658	Cd, Cr, Pb,
M33							15660	Hg, Se, Ag,
M30							15661	Ba, As
M34							15662	
M40							15663	
M35							15664	
M31							15665	
M29							15666	
M24							15667	
M37							15668	
M25							15669	
M26							15670	
M15							15671	
M41	↓	↓		↓			15672	↓

Relinquished by: NCH
Organization: W.A.R.
Received by:
Organization: T.S.I.
Date/Time 4 30

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received for Laboratory by:
Date/Time 4 30

Method of Shipment: CO. COURIER

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT
PROJECT 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	Station Location	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	Sediment		
~~15~~ M12	(All samples	4/30/84		X			15674	METALS:
M18	filtered thru						15675	Cd, Cr, Pb,
M38	0.45 μm membrane						15676	Hg, Se, Ag,
M21	filters & preserved						15678	Ba, As
M1	c̄ conc. HNO_3)						15680	↓
M4							15653	Pb ONLY
M11	↓	↓		↓			15654	↓
D3	All samples	4/30/84		X			15637	C.O.D.*
D18	preserved c̄						15638	
D11	conc. H_2SO_4						15639	
D8							15640	
D21							15641	
D7							15642	
D10	↓	↓		↓			15643	↓

Relinquished by: NCH Organization: W.A.R.	Received by: Organization: T.S.I.	Date/Time 4-30
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by:	Date/Time 4-30

Method of Shipment: CO. COURIER Nancy C. Hedge

* USE THESE SAMPLES ONLY IF VOLUME IN D.O.C. BOTTLES IS NOT SUFFICIENT.

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	Sediment		
P7	5/21/84	4/30/84		X			15643	Total
P2							15644	Phenolics
P4							15645	
P3							15646	
P12							15647	
P9							15648	
P11							15649	
P5							15650	
P1							15651	
P8							15652	
P10							15672	
P6	↓	↓		↓			15676	↓
	ALL SAMPLES PRESERVED c̄ CONC H_2SO_4 TO $pH < 2$							

Relinquished by: NCH Organization: W.A.R.	Received by: James C Burden Organization:	Date/Time 4-30 2:00 pm
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: James C Burden T.S.I.	Date/Time 4-30 2 pm

Method of Shipment: CO. COURIER Nancy C. Hedge

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	MAXIMUM EXTRACTION ~~Station Location~~ DATE	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
C8	5/1/84	4/30/84		X			15671	PESTICIDES
C19	↓	↓		↓			15680	(ORGANOCHLORINE
								& ORGANOPHOSPHATE)
	HOLDING TIME							
V1	5/8/84	4/30/84		X				Volatiles*
V2	↓	↓		↓				(Method 503.1)
Field BlK.								↓
								[illegible]

* TO BE ARCHIVED UNTIL 15653 & 15654 ARE ANALYZED FOR DOC & OIL AND GREASE.

Relinquished by: NCH Organization: W.A.R.	Received by: Wayne W. Wood Organization: TSI	Date/Time 4.30 2:30
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Wayne W. Wood	Date/Time 4.30 2:30

Method of Shipment: CO. COURIER Nancy C. Hodge

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis •Required
X1,2	5/8/84	4/30/84		X			15637	TOX
X3,4	↓	↓		↓			15638	↓
X5,6							15639	
X11,12							15640	
X7,8							15641	
X9,10							15642	
X17,18							15643	
X23,24	5/7/84						15644	
X21,22	5/8/84						15645	
X25,26	5/7/84						15646	
X19,20	5/8/84						15647	
X27,28	5/7/84						15648	
X63,64	↓						15649	
X59,60							15650	
X57,58							15651	

Relinquished by: Robert D. Boken Jr. Organization: W.A.R., INC.	Received by Organization	Date/Time
Relinquished by: Organization:	Received by Organization	Date/Time
Relinquished by: Organization:	Received by Organization.	Date/Time
Relinquished by: Organization:	Received by Organization.	Date/Time
Relinquished by Organization:	Received for Laboratory by	Date/Time

Method of Shipment: FED. EXPRESS

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R.

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
X61,62	5/7/84	4/30/84		X			15652	TOX
X49,50	5/3/84						15659	
X37,38							15660	
X53,54							15661	
X43,44	↓						15662	
X31,32	5/7/84						15663	
X47,48							15664	
X41,42							15665	
X45,46	↓						15666	
X39,40	5/3/84						15667	
X55,56							15668	
X35,36							15669	
X29,30	↓						15670	
X13,14	5/3/84						15671	
X65,66	5/7/84	↓		↓			15672	↓

Relinquished by: Robert D. Baker, Jr.
Organization: W.A.R., INC.
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received for Laboratory by:
Date/Time

Method of Shipment: FED. EXPRESS

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT: PROJECT: 7166-140

SAMPLERS: (Signature) W.A.R

Station Number	HOLDING TIME ~~Station Location~~ EXPIRATION	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis Required
X67,68	5/8/84	4/30/84		X			15674	TOX
X15,16	5/8/84						15675	
X69,70	5/7/84						15676	
X51,52	5/8/84						15678	
X33,34	↓	↓		↓			15680	↓

Relinquished by: Robert D. Baker, Jr.
Organization: W.A.R., INC.
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received by:
Organization:
Date/Time

Relinquished by:
Organization:
Received for Laboratory by:
Date/Time

Method of Shipment: FED. EXPRESS

Water and Air Research, Inc.
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: - 141

SAMPLERS: (Signature) [illegible]

Station Number	Station ~~Location~~ [illegible]	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	Sediment		
	[illegible] 84	[illegible]		VOA 1			16553	[illegible]
	↓	↓		VOA 2			16554	[illegible]
	↓	↓		VOA 3			16555	[illegible]
								[illegible]

Relinquished by [illegible] Organization [illegible]	Received by Organization	Date/Time 24 [illegible]
Relinquished by Organization	Received by Organization	Date/Time
Relinquished by Organization	Received by Organization	Date/Time
Relinquished by Organization	Received by Organization	Date/Time
Relinquished by Organization	Received for Laboratory by	Date/Time

Method of Shipment [illegible]

Water and Air Research, Inc.
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature) W.A.R.

Station Number	Analysis Date ~~Station Location~~ (Maximum)	Date	Time	Sample Type and No. ✓			WAR Sample No.	Analysis Required
				Water	Air	~~Sediment~~		
	10/4/84	9/6/84		XX 674		✓	16566	D.O.C. + C.O.D*
	↓	↓		XX 659		✓	16571	(All samples have
				XX 3		✓	16576	been preserved
				XX 311		✓	16577	with conc. H_2SO_4
				XX 688		✓	16578	and filtered through
				XX 733		✓	16579	0.45μ membrane
				XX 734		✓	16580	filters)
				XX 654		✓	16581	↓
				XX 367		✓	16582	
				XX 731		✓	16583	
				XX 732		✓	16584	
				XX 104		✓	16585	
				XX 73		✓	16586	
	↓	↓		XX 224		✓	16587	↓

Relinquished by: Daniel [illegible] Organization: W.A.R.	Received by: Organization:	Date/Time [illegible] 85 | [illegible]
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: [illegible]	Date/Time [illegible]/84 [illegible]

Method of Shipment: Company Courier

* If volume is not sufficient for C.O.D., use "C" bottles with corresponding WAR Nos.

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature)
W.A.R.

Station Number	Station Location	Date	Time	Sample Type and No.			WAR Sample No.	Analysis Required
				Water	Air	~~Sediment~~ ✓		
	10/4/84	9/6/84		R 312		✓	16588	D.O.C. + C.O.D.
	↓	↓		XX38		✓	16589	↓
	↓	↓		XX263		✓	16590	↓
	↓	↓		XX98		✓	16591	↓
	↓	↓		XX671		✓	16592	↓
	↓	↓		XX730		✓	16593	↓
	10/4/84	9/6/84		PE-1		✓	16592	Oil + Grease
	"	"		HE-9		✓	16593	by IR

Relinquished by: Daniel P. [illegible] Organization: W.A.R.	Received by: Organization:	Date/Time 0515 | 10/4/84
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret [illegible]	Date/Time 10/10/84 | 8:10 am

Method of Shipment: Company Courier

Water and Air Research, Inc.
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P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature)
W.A.R.

Station Number	Latest Analysis ~~Station Location~~ Date for Mercury	Date	Time	Sample Type and No.			WAR Sample No.	Analysis • Required
				Water	Air	~~Sediment~~ ✓		
	10/4/84	9/6/84		PU-1		✓	16566	Metals: Cd,
	↓	↓		PU-2		✓	16567	Cr, Pb, Hg, Se,
	↓	↓		PU-13		✓	16571	Ag, Ba, As
	↓	↓		PU-22		✓	16572	↓
	10/3/84	9/5/84		HX-21		✓	16573	↓
	"	"		FL 114		✓	16574	↓
	10/4/84	9/6/84		PU-9		✓	16576	↓
	↓	↓		PU-5		✓	16577	↓
	↓	↓		PU-4		✓	16578	↓
	↓	↓		PU-3		✓	16579	↓
	↓	↓		PU-8		✓	16580	↓
	↓	↓		PU-6		✓	16581	↓
	↓	↓		PU-21		✓	16582	↓
	↓	↓		PU-18		✓	16583	↓
	↓	↓		PU-14		✓	16584	↓

Relinquished by: Daniel P. [illegible] Organization: W.A.R.	Received by: Organization:	Date/Time 0815 | 10/4/84
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret [illegible]	Date/Time 10/10/84 | 8:10 am

Method of Shipment: Company Courier

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT
PROJECT 7166/140

SAMPLERS: (Signature)
W. A. R.

Station Number	Latest Analysis ~~Station Location~~ Date for Mercury	Date	Time	Sample Type and No. Water	Air	~~Sediment~~	WAR Sample No.	Analysis Required
	10/4/84	9/6/84		PU-23		✓	16585	Metals: Cd, Cr,
				HX 101		✓	16586	Pb, Hg, Se, Ag,
				PU-10		✓	16587	Ba, As
				H 432		✓	16588	
				FL 113		✓	16589	
				PU-11		✓	16590	
				PU-12		✓	16591	↓
				PU-15		✓	16592	Lead only
	↓	↓		PU-16		✓	16593	" "
	10/3/84	9/5/84		FL 102		✓	16594	Metals: Cd, Cr,
				FL 100		✓	16595	Pb, Hg, Se, Ag,
				FL 116		✓	16596	Ba, As
	10/5/84	9/7/84		HX-10		✓	16597	
	10/3/84	9/5/84		FL 115		✓	16598	
	↓	↓		FL 118		✓	16599	↓

Relinquished by: Organization: W. A. R.	Received by: Organization:	Date/Time 0815
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret Vaughn	Date/Time 9/10/84 8:10 am

Method of Shipment: Company Courier

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature)
W. A. R.

Station Number	Latest Analysis ~~Station Location~~ Date for Mercury	Date	Time	Sample Type and No. Water	Air	Sediment	WAR Sample No.	Analysis *Required
	10/5/84	9/7/84		PU-17		✓	16600	Metals: Cd, Cr,
	10/3/84	9/5/84		FL 117		✓	16601	Pb, Hg, Se, Ag,
	10/5/84	9/7/84		PU-20		✓	16602	Ba, As
	10/3/84	9/5/84		FL 104		✓	16603	
				HX 3		✓	16604	
	↓	↓		FL 108		✓	16605	
	10/5/84	9/7/84		PU 100		✓	16606	↓

Relinquished by: Organization: W. A. R.	Received by: Organization:	Date/Time 0815
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret Vaughn	Date/Time 9/10/84 8:10 am

Method of Shipment: Company Courier

Water and Air Research, Inc.
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CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature) W.A.R.

Station Number	Maximum Extraction ~~Station Location~~ Date	Date	Time	Sample Type and No. Water	Air	~~Sediment~~ ✓	WAR Sample No.	Analysis Required
	9/13/84	9/6/84		PE-4		✓	16566	Pesticides
				PE-7		✓	16568	(Organochlorine +
				PE-8		✓	16569	Organophosphate)
				PE-6		✓	16576	
				PE-9		✓	16577	
				PE-2		✓	16578	
				PE-11		✓	16579	
				PE-12		✓	16580	
				PE-3		✓	16581	
	9/14/84	9/7/84		PE-10		✓	16597	
				PE-102		✓	16600	
				PE-101		✓	16602	

Extract entire sample plus container

Relinquished by: David P. Chamberlain Organization: W.A.R.	Received by: Organization:	Date/Time 0945 10/9/84
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret Laughlin	Date/Time 10/10/84 8:10 am

Method of Shipment: Company Carrier

Water and Air Research, Inc.
6821 S.W. Archer Road
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Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT:
PROJECT: 7166/140

SAMPLERS: (Signature) W.A.R.

Station Number	Maximum Extraction ~~Station Location~~ Date	Date	Time	Sample Type and No. Water	Air	~~Sediment~~ ✓	WAR Sample No.	Analysis Required
	9/13/84	9/6/84		HE-4		✓	16566	Herbicides
				HE-2		✓	16570	
				HE-12		✓	16576	
				HE-1		✓	16577	
				HE-5		✓	16578	
				HE-3		✓	16579	
				HE-7		✓	16580	
				HE-8		✓	16581	
	9/14/84	9/7/84		HE-101		✓	16597	
				HE-10		✓	16600	
				HE-11		✓	16602	

Relinquished by: David P. Chamberlain Organization: W.A.R.	Received by: Organization:	Date/Time 0945 10/9/84
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret Laughlin	Date/Time 10/10/84 8:10 am

Method of Shipment: Company Carrier

Water and Air Research, Inc.
6821 S.W. Archer Road
P.O. Box 1121
Gainesville, Florida 32602

CHAIN OF CUSTODY RECORD

CLIENT
PROJECT 7166/140

SAMPLERS: (Signature)
W.A.R.

Station Number	Analysis Date ~~Station Location~~ (Maximum)	Date	Time	Sample Type and No. ✓ Water	Air	~~Sediment~~	WAR Sample No.	Analysis Required
	9/20/84*	9/6/84		V1		✓	16565	VOC-601/602
	↓	↓		V8		✓	16571	↓
				Field blank		✓	16575	
				V2		✓	16578	
				V4		✓	16581	
				V13		✓	16582	
				V12		✓	16583	
				V11		✓	16584	
				V5		✓	16585	
				V7		✓	16586	
				V10		✓	16587	
				V14		✓	16588	
				V15		✓	16589	

Relinquished by: Daniel P. Chambers Organization: W AF.	Received by: Organization:	Date/Time [illegible] | [illegible]
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received by: Organization:	Date/Time
Relinquished by: Organization:	Received for Laboratory by: Margaret Laughlin	Date/Time 9/10/84 | 5:10 PM

Method of Shipment: Company Courier

* VOAs by 9/19/84

APPENDIX G

RESUMES OF PROJECT STAFF

JAMES H. SULLIVAN, JR., Ph.D., P.E.

CHEMICAL ENGINEER
WATER AND AIR RESEARCH, INC.

Relevant Experience

Dr. Sullivan has played major roles in projects involving technical work directly related to groundwater monitoring and assessment at hazardous wastes sites. His recent experience includes work for a paper manufacturer, a phosphate plant, a landfill, and a cement manufacturer.

Dr. Sullivan directed preparation of Part A and Part B permit applications for the U.S. Navy. He has also worked directly on other projects related to RCRA groundwater monitoring and assessment programs and the permitting process. He is familiar with the DOD Hazardous Materials Information System which he has used to assess chemical/physical properties of DOD compounds. He directed a team of scientists and engineers working at two installations on initial assessment studies (IASs) for the U.S. Naval Energy and Environmental Support Activity (NEESA). Potential for contamination from past hazardous waste disposal was determined for approximately 80 candidate disposal sites. Recommendations for confirmation or remedial action were developed.

At U.S. Air Force bases he conducted Phase 2 Confirmation Studies of potential contamination from past hazardous waste disposal activities. He participated in field work and used field data to assess pollutant movement and severity of contamination. He recommended remedial measures and specified additional data needs for remedial design.

He directed a series of studies for the U.S. Army in which impacts of munitions wastes at several ammunition plants were defined. Siting of a new munitions plant was the objective of another study, and developing water quality criteria for hazardous substances using field and laboratory data was accomplished in another study. He conducted field work, data reduction, report preparation and briefings.

At a U.S. Army installation (Redstone Arsenal), Dr. Sullivan directed a nationally prominant study of environmental contamination from DDT. He was responsible for devising and evaluating engineering techniques for remedial action. The project involved several public agencies, with field data collected by four separate groups. He was responsible for reducing and interpreting all field data. Again he participated directly in field reconnaissance, records research, data compilation, data reduction, report writing, and briefings, including those before Congressional staffs.

Dr. Sullivan studied three solid waste disposal sites near Charleston, South Carolina and monitored groundwater impacts. In addition to gathering chemical data on groundwater and soils, fluorescent dye was used to trace groundwater movement. Evidence of hazardous substances in leachate was found and remedial action recommended.

Education

Ph.D.	Environmental Engineering	University of Florida
M.S.	Environmental Engineering	University of Florida
B.S.	Chemical Engineering	Georgia Institute of Technology

Professional Registrations and Society Memberships

Professional Engineer--Florida
Member of 8 professional societies

Publications

Author and co-author of approximately 10 publications and 45 technical reports in water chemistry, potable water treatment, wastewater renovation, and environmental impact assessment.

WILLIAM G. THIESS

ENVIRONMENTAL ENGINEER
WATER AND AIR RESEARCH, INC.

Relevant Experience

Mr. Thiess has worked with hazardous waste management at facilities in Georgia, Florida, Alabama, and Texas. He prepared major portions of a Part B application for a commercial treatment, storage, and disposal facility in Georgia. He developed concept designs for container storage and sludge fixation (solidification) facilities. He developed all topographic information and process descriptions, and he designed plans for waste storage and handling.

Mr. Thiess prepared major portions of a Part B application for a Naval Air Station in Texas. He helped develop plans and specifications for a container storage building and vaulted, below-grade storage tanks. He prepared detailed facility descriptions. He has interfaced directly with permit agency staff to negotitate permit conditions.

Mr. Thiess has participated in initial assessment studies (IASs) of hazardous waste contamination at U.S. Marine Corps and U.S. Navy installations. For a naval shipyard, he was also responsible for developing recommendations for further groundwater assessment and remedial actions where contamination was apparent.

Mr. Thiess evaluated engineering alternatives for isolation or detoxification of DDT-contaminated sediments near Huntsville, Alabama. His primary role in this project was to select, design, and cost various mitigation alternatives. He also helped evaluate relative alternative effectiveness.

In another groundwater contamination study near Redstone Arsenal (Alabama), he supervised well sampling and laboratory analysis of hazardous organics according to rigid field and laboratory procedures.

For the U.S. Army Corps of Engineers (COE), Mobile District, he directed efforts to identify and assess impacts upon physical systems for the Coosa River Navigation Project environmental impact statement. For Savannah District, he supervised and participated in field work and data analysis for the Richard B. Russell Dam pre-impoundment study.

He has participated in and directed portions of Section 208 projects in central Florida. He developed water and nutrient budgets for the Winter Haven chain of lakes in a study designed to evaluate restoration alternatives for Lake Howard. He was also responsible for design and implementation of a study to evaluate effects of septic tank drainfields on water quality in three central Florida lakes.

While a graduate research assistant at Clemson University (1978-1979), he was responsible for organizing and directing stream survey field work for a project sponsored by the U.S. Environmental Protection Agency (EPA) designed to evaluate the effectiveness of control measures for nonpoint source pollutants. He supervised laboratory work in sediment transport analysis and applied various digital computer models to drainage basins for erosion and sediment transport analysis. He dealt with various state and federal agency personnel, as well as local interests, during organization and implementation of the project.

Education

M.S.	Environmental Engineering	Clemson University
B.S.	Environmental Engineering	Florida Institute of Technology

Professional Organizations

Chi Epsilon
Water Pollution Control Federation
American Water Works Association

JERRY A. STEINBERG, Ph.D., P.E.

WATER RESOURCES ENGINEER
WATER AND AIR RESEARCH, INC.

Relevant Experience

Dr. Steinberg is an environmental engineer specializing in the management of hazardous wastes and defining pollutant transport. This includes working at abandoned sites, writing hazardous waste management plans, and preparing hazardous waste facility permits. He has worked directly with regulatory agency staff to negotiate types and amounts of information required and compliance schedules on Part B permits.

For the U.S. Navy he conducted hazardous waste inventory surveys at installations in Texas and Florida. He developed hazardous waste management plans for Naval Air Stations at Corpus Christi, Texas; and Pensacola and Jacksonville, Florida. He filed RCRA Part B permit applications for facilities in Georgia, Florida, and Texas. At one or more of these facilities, incinerators, surface impoundments, treatment in tanks, container storage, storage in tanks, and thermal treatment were permitted. Dr. Steinberg has worked on all components for Part B applications. He has developed closure plans, closure costs, preparedness/prevention measures, and contingency plans. Work included developing concept designs for facilities not meeting 40 CFR 264 requirements. Plans for modifying facilities to achieve compliance were developed. He has directed work for the Naval Energy and Environmental Support Activity (NEESA) at three installations assessing environmental contamination potential from hazardous waste disposal. This initial assessment study (IAS) involved bases in Virginia and North Carolina. In addition to directing the project, he actively participated in all technical phases including: archival research, on-site reconnaissance, data assessment, developing recommendations for confirmation or mitigative action, and report preparation.

For the U.S. Air Force, Dr. Steinberg has participated in installation restoration program (IRP) activities at six bases. At bases in Florida and North Carolina, he conducted on-site assessment of confirmation sites. He then developed work scopes for conducting confirmation work. He participated directly in confirmation assessments at bases in Florida and Virginia. Monitoring data were reviewed leading to determination of environmental degradation and the need for remedial actions. For the U.S. Army, he conducted field studies of dispersion of munitions wastes in surface waters at Holston AAP. At Longhorn and Louisiana AAP, he participated in field studies of munitions impacts on ambient water. He conducted pollutant dispersion analysis on the Clinch River (TN) to assess downstream effects of peaking power dam discharges.

In Dade County (FL) he assessed groundwater contamination from disposal of a proposed hazardous waste. Wells were sited and installed, sampling directed, and results interpreted. Evidence of pollutant movement beyond property boundaries was shown; however, hazardous constituents did not migrate far in the aquifer. Mitigation recommendations were made.

Dr. Steinberg has prepared comments for submission to the U.S. Environmental Protection Agency (EPA) addressing technical appropriateness of federal hazardous waste regulations. He has participated in EPA-sponsored workshops on Part B application filing. He has drafted two major American Society of Civil Engineers (ASCE) hazardous waste policy statements which have been presented to U.S. congressional committees. He is chairman of the ASCE Hazardous Waste Management Committee.

Education

Ph.D.	Environmental Engineering	University of Florida
M.S.E.	Water Resources Engineering	Vanderbilt University
B.C.E.	Civil Engineering	Vanderbilt University

Professional Registrations and Societies

Professional Engineer--Florida
American Society of Civil Engineers
American Water Resources Association
American Geophysical Union (Hydrology Section)

ROBERT D. BAKER, JR.

ENVIRONMENTAL CHEMIST
WATER AND AIR RESEARCH, INC.

Relevant Experience

Mr. Baker is a highly skilled organic chemist who has diverse experience in analyzing environmental samples for various organic constituents. Examples of his recent work include:

- Gas chromatographic (GC) analysis using FID, ECD, NPD, FPD, and Hall ECD and high-pressure liquid chromatographic (HPLC) analysis using variable wavelength UV/visible, fluorescence, and electrochemical detectors; and
- Developing and testing methods for analysis for determining trace levels of organic contaminants in pesticide industry wastestreams, which included, among other analyses, detecting phenolics and volatiles using GC.

In work related to other pesticide manufacturers, he reviewed and assessed processes for more than 200 compounds. Using plant operating data, he identified possible impurities introduced through raw materials, by-products created from side-reactions, and potential contamination from various solvent media. This work ultimately led to development of pretreatment technologies.

Mr. Baker modified existing methods of analyzing for DDT in natural waters. Modification was necessary to meet extremely low detection limits with rigorous quality control because of low concentrations mandated in drinking water regulations.

Other types of analytic work by Mr. Baker include:

- Analyzing natural water (river and lake) samples for organics for background EIS data--Georgia, South Carolina, Alabama, and Florida;
- Analyzing water and sediment samples for low levels of DDT, PCBs, and other organics--Alabama and Virginia;
- Developing improved techniques to accurately measure volatile hydrocarbon levels in soils--Virginia;
- Analyzing fish tissue for hazardous waste contamination in blinded samples with better than 90-percent accuracy on duplicates and controls--Alabama;
- Using HPLC to verify methods for analysis of 16 polynuclear aromatic hydrocarbon compounds and 2 benzidine compounds (wastewater matrix)--Ohio; and
- Using HPLC to develop methods and analyze for hazardous (munitions) wastes--Louisiana and Texas.

Education

B.S. Chemistry Northeast Louisiana University

Professional Societies

American Chemical Society
American Association for the Advancement of Science

CHARLES R. FELLOWS **ENVIRONMENTAL CHEMIST**
WATER AND AIR RESEARCH, INC.

Relevant Experience

Mr. Fellows is an environmental chemist trained in both field studies and formal laboratory chemistry.

As a member of hazardous waste site investigation teams, Mr. Fellows has conducted interviews regarding past disposal practices, past and present industrial/chemical processes, and the chemical and physical nature of disposed materials. On several occasions he has identified waste sites that posed an immediate concern to human health.

Mr. Fellows is familiar with and has used various appropriate safety procedures and techniques while sampling sites that have received hazardous wastes. He has collected groundwater, surface water, sediment, and leachates for a wide variety of organic, inorganic, and physical analyses. He is experienced in applying site assessment models to evaluate migration and health-threatening potential of chemical wastes at specific disposal sites.

In addition to the procedures mentioned above for collection, preservation, and analysis of various types of samples, he is familiar with the RCRA EP Toxicity Test Procedure, the U.S. Army Corps of Engineers Elutriate Test Procedure, and groundwater monitoring procedures for arsenic, heavy metals and other toxicants.

Mr. Fellows is directly responsible for inorganic chemical analyses. He performs quality assurance checks and often participates in actual laboratory water quality analyses. He recently worked with an industry generating hazardous wastes to develop suitable extraction methods for assessing waste toxicity. He helped to develop wastewater analysis protocols which mitigated interferences from chemicals in battery manufacturing wastes.

He directs sampling of groundwater monitoring wells and participates in developing field sampling networks for both surface waters and groundwaters.

Education

M.S.	Water Chemistry	University of Florida
B.S.	Biology	Eckerd College

Publications

Author and co-author of several articles and technical reports

WILLIAM D. ADAMS

HYDROGEOLOGIST
WATER AND AIR RESEARCH, INC.

Relevant Experience

Mr. Adams is a graduate geologist who has specialized in engineering applications of hydrogeology. His practical experience is strongly oriented toward solving problems of pollutant transport in the subsurface environment.

He works on environmental contamination assessments and hazardous waste management/permitting. He has conducted hydrogeologic work at abandoned hazardous waste sites at DOD installations in Alabama, Florida, North Carolina, Georgia, Virginia, and Arizona. At some of these bases, chemical agent disposal was investigated and elaborate health and safety precautions were used.

His project responsibilities have included: assembling and reviewing geologic and geohydrologic literature; quantifying pollutant movement potential using published documents and/or field test data; supervising monitoring well installation; selecting well sites, depths, and casing requirements; specifying rig clean-up procedures; and drafting reports of findings for DOD and regulatory staffs. Mr. Adams has also participated in staff briefings detailing interim and final findings.

He conducted a comprehensive hazardous waste inspection and survey at Pensacola Naval Air Station. Industrial facilities which generate substantial quantities of various wastes were visited and associated personnel debriefed to determine waste generation and handling practices. This information was used in two ways. First, Mr. Adams and his team developed a complete hazardous waste management plan for the entire complex. This ensured compliance with 40 CFR 260-265. A Part B permit application, including revised Part A, was then filed. Facilities permitted included container storage buildings, surface impoundments, and treatment in drying beds. A preliminary design for additional container storage was reviewed and concept design modifications made to ensure RCRA compliance (40 CFR 264). Although numerous tanks were used, all tank usage was reviewed and recommendations were made to alter hazardous waste storage practices. This eliminated the need to permit any tank.

Mr. Adams has also directed field work for installation restoration confirmation studies (Phase 2) at Langley Air Force Base, Virginia and Eglin Air Force Base, Florida. In these studies, he researched site geology, sited all wells, supervised well installation and development, and collected samples for inorganic and organic constituent analyses.

In another DOD study, Mr. Adams compared two potential depleted uranium burial sites. He planned and supervised the field work, lab work, and report preparation. An important aspect of this study was assessing potential routes of contaminant migration. This work included extensive field and laboratory soils testing and analysis.

Education

M.S.	Geology	University of Florida
B.S.	Geology	University of Florida

Professional Societies

National Water Works Association
Florida Water Well Association

Publications

Author and co-author of several articles and technical reports.

APPENDIX H

SAFETY PLAN

APPENDIX H
SAFETY PLAN

H-1.0 GENERAL

The safety plan presented herein gives guidelines for basic safety procedures and equipment utilized by WAR during the course of IRP Phase II surveys. Samples collected during Phase II surveys are typically environmental water and sediment samples as opposed to hazardous waste samples and normally do not require unusual levels of personnel protection. Detailed procedures and equipment required to minimize exposure to specific hazardous wastes or conditions requiring higher levels of protection are beyond the scope of this plan. References are provided from which waste-specific information on equipment and procedures can be obtained on a case-by-case basis.

H-2.0 INFORMATION REVIEW

Prior to initiating Phase II survey fieldwork, the Phase I records search is reviewed in detail to identify hazardous wastes or conditions that may be encountered at each site. Available toxicological data on materials suspected of being present at the sites are reviewed to determine if the base level of personnel protection outlined in Section H-5.0 is adequate. Hazards such as the presence of highly toxic or incompatible chemicals, toxic gases, radioactive material, or explosives may require more extensive precautionary measures than the base level of protection. Safety hazards requiring special attention are addressed on an individual basis using appropriate assessment methods and equipment and procedure recommendations given in the EPA Field Health and Safety Manual (EPA, 1980) and the EPA Safety Manual for Hazardous Waste Site Investigations (EPA, 1979). Hazardous conditions can be clarified or confirmed on preliminary site visits.

H-3.0 MEDICAL MONITORING PROGRAM

The person responsible for Phase II survey fieldwork will determine whether a medical monitoring program is necessary, based on results of the information review. If hazard levels are judged high enough to warrant this procedure, all field personnel will participate in a medical monitoring program. Guidelines for the program are given in Appendix I of the EPA Field Health and Safety Manual (EPA, 1980).

H-4.0 FIELD PERSONNEL INDOCTRINATION

All field personnel will be informed by the project field supervisor of required safety equipment and procedures prior to on-site work. Subjects covered will include personal safety gear, general and site-specific safety procedures, and incident notification procedures.

H-5.0 PERSONNEL PROTECTION GEAR

The following items will be provided on-site for all field personnel:

- Tyvek® disposable coveralls,
- Rubber boots,
- Rubber gloves,
- Hard hats,
- Eye protection (safety glasses or face shields).

Hearing protection (disposable ear plugs) will be provided for all work in the vicinity of the flight line or other noise hazards. Cartridge-type respirators will be available on-site for protection against inhalation of dust or vapors. If strong vapors are encountered, respirators will be utilized to facilitate evacuation of personnel and equipment from the site until the situation can be assessed or corrected.

Personal equipment described above will offer adequate protection for most situations encountered during the course of Phase II survey fieldwork. When conditions are identified that require a higher level of personal protection, the EPA Safety Manual for Hazardous Waste Site Investigations will be referred to for guidance.

H-6.0 SAFETY PROCEDURES

Hard hats and eye protection will be worn when appropriate, as directed by the project field supervisor. Protective clothing (boots, gloves, and coveralls) will be worn at all times while working on-site. Coveralls will be changed a minimum of once daily.

The project field supervisor will consult with the base environmental coordinator or other responsible contact regarding site-specific hazards prior to entering sites. Special procedures for entering and working at particular sites will be clarified and conveyed to all field personnel. Examples of areas requiring strict procedures are active runways or taxiways, fuel handling or storage areas, and secure areas.

Prior to any drilling or digging on the sites, USAF Form 103 must be routed to all applicable base organizations for a clearance review. Circulation of this form is required to avoid contact with underground or overhead utilities, conflict with base activities, or breaches of security.

Additional safety procedures will be implemented, if warranted by the information review or conditions encountered at the site. Site-specific safety procedures will be based on guidelines given in the EPA Field Health and Safety Manual and the EPA Safety Manual for Hazardous Waste Site Investigations.

H-7.0 INCIDENT/ACCIDENT NOTIFICATION PROCEDURES

As a minimum, the following emergency phone numbers should be available on-site:

1. Ambulance or medical assistance,
2. Base fire department (or other if off-site), and
3. USAF base point of contact for project.

After contacting appropriate emergency services (if necessary), the base point of contact should be notified of the incident or accident so that it can be dealt with according to base policies and procedures.

References

U.S. Environmental Protection Agency (EPA). 1979. Safety Manual for Hazardous Waste Site Investigations. EPA National Enforcement Investigations Center, Denver, Colorado.

U.S. Environmental Protection Agency (EPA). 1980. Field Health and Safety. EPA Region 4, Atlanta, Georgia.

APPENDIX 1

AQUIFER TESTING METHOD AND DATA PRESENTATION

APPENDIX I

AQUIFER TESTING METHOD AND DATA PRESENTATION

I-1.0 AQUIFER HYDRAULIC TESTING

WAR performed single well aquifer tests at one well to determine values of horizontal hydraulic conductivity representative of the surrounding soil. A rising-head test[1] was used.

WAR performed this test at Moody AFB by:

1. Determining the static water level by taking a series of preliminary water level measurements,
2. Rapidly removing water from the well, and
3. Measuring the rise in water levels as a function of time.

Reduction of rising head test data was as follows:

1. Determining the time since the test started for each water level measurement, and
2. Calculating the difference (H_t) between each water level measurement and the static water level (H_o).

The data were plotted on semi-log paper as H_t/H_o versus t. The straight line portion of the plot is used to determine hydraulic conductivity from the equation.

$$K = [R^2 \ln (L/R) \ln (H_1/H_2)]/[2L(t_2-t_1)]$$

where K = hydraulic conductivity (cm/sec)

R = inside radius of the well casing (cm),

L = length of saturated soil opposite the well screen (cm),

t_1, t_2 = elapsed time (sec.), and

H_3, H_2 = Ht/Ho at t_1 and t_2, respectively.

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[1] Naval Facilities Engineering Command. 1982. Soil Mechanics, Design Manual 7.1. Alexandria, Virginia. pp 7.1-103 - 7.1-108.

HYDRAULIC CONDUCTIVITY CALCULATIONS

Li. at Well L-4 equals total casing depth less depth to static water = 27.7 - 6.6 = 21.1 feet = 640 cm

From plot of recovery vs. time, two straight lines were approximated.

For first line: $H/H_o = 0.61$ at $t = 5$ minutes
$H/H_o = 0.305$ at $t = 45$ minutes

For second line: $H/H_o = 0.66$ at $t = 5$ minutes
$H/H_o = 0.305$ at $t = 45$ minutes

Radius of pipe equals 1 inch = 2.54 cm

For first line: $K = 0.00048$ cm/min
$K = 8.1 \times 10^{-6}$ cm/sec

For second line: $K = 0.00068$ cm/min
$K = 1.1 \times 10^{-5}$ cm/sec

APPENDIX J

RELEVANT EPA WATER QUALITY CRITERIA

Table J-1. Relevant EPA Water Quality Criteria (Page 1 of 5)

	Criteria for Freshwater Aquatic Life, ug/l				Human Health Criteria, ug/l		
						Ingestion of Water and Aquatic Organisms	
Parameter	Acute Toxicity Level*	Chronic Toxicity Level*	Maximum 24-hr. Average	Maximum Concentration	Potable Water Taste/Odor Control†	Ambient Criterion	10^{-6} Incremental Cancer Risk
PURGEABLE ORGANICS							
Acrolein	68	21				320	
Acrylonytrile	7,550	2,600**				0††	0.058
Benzene	5,300					0††	0.66
Carbon tetrachloride	35,200					0††	0.40
Chlorinated ethanes							
1,2-dichloroethane	118,000	20,000				0††	0.94
1,1,2-trichloroethane		9,400				0††	0.60
1,1,2,2-tetrachloroethane		2,400				0††	0.17
1,1,1-trichloroethane						18.4	
Chloroalkyl ethers	238,000						
bis-(chloromethyl)-ether						0††	0.38 X 10^{-6}
Chloroform	28,900	1,240				0††	0.19
Dichloroethylenes	11,600						
1,1-dichloroethylene						0††	0.033
Dichloropropanes	23,000	5,700					
Dichloropropenes	6,060	244				87	
Ethylbenzene	32,000					1.4	
Haloethers	360	122					
Halomethanes	11,000					0††	0.19
Tetrachloroethylene	5,280	840				0††	0.80
Toluene	17,500					14.3	

Table J-1. Relevant EPA Water Quality Criteria (Page 2 of 5)

Parameter	Criteria for Freshwater Aquatic Life, ug/l				Human Health Criteria, ug/l		
						Ingestion of Water and Aquatic Organisms	
	Acute Toxicity Level*	Chronic Toxicity Level*	Maximum 24-hr. Average	Maximum Concentration	Potable Water Taste/Odor Control†	Ambient Criterion	10^{-6} Incremental Cancer Risk
PURGEABLE ORGANICS							
Trichloroethene	45,000	21,900**				0††	2.7
Vinyl chloride						0††	2.0
BASE/NEUTRAL EXTRACTABLE ORGANICS							
Acenaphthene	1,700	520**			20		
Benzidine	2,500					0††	0.00012
Chlorinated benzenes	250	50**					
Hexachlorobenzene						0††	0.00072
Hexachloroethane	980					0††	1.9
Chlorinated napthalenes	1,600						
bis(2-chloroethyl) ether						0††	0.03
bis(2-chloroisopropy) ether						34.7	
Dichlorobenzenes	1,120	763				400	
Dichlorobenzidines						0††	0.0103
2,4-dinitrotoluene	330	230				0††	0.11
1,2-diphenylhydrazine	270					0††	0.00042
Fluoranthene	3,980					42	
Hexachlorobutadiene	90	9.3				0††	0.45
Hexachlorocyclopentadiene	7	5.2			1	206	
Isophorone	117,000					5.2	
Napthalene	2,300	620					
Nitrobenzene	27,000				30	19.8	

Table J-1. Relevant EPA Water Quality Criteria (Page 3 of 5)

Parameter	Criteria for Freshwater Aquatic Life, ug/l: Acute Toxicity Level*	Criteria for Freshwater Aquatic Life, ug/l: Chronic Toxicity Level*	Criteria for Freshwater Aquatic Life, ug/l: Maximum 24-hr. Average	Criteria for Freshwater Aquatic Life, ug/l: Maximum Concentration	Human Health Criteria, ug/l: Potable Water Taste/Odor Control†	Human Health Criteria, ug/l: Ingestion of Water and Aquatic Organisms: Ambient Criterion	Human Health Criteria, ug/l: Ingestion of Water and Aquatic Organisms: 10^{-6} Incremental Cancer Risk
BASE/NEUTRAL EXTRACTABLE ORGANICS							
Phthalate esters	940	3					
Dimethyl phthalate						313	
Diethyl phthalate						350	
Dibutyl phthalate						34	
PHENOLIC COMPOUNDS							
CHLORINATED PHENOLS							
4-chloro-3-methelphenol	30						
2,3,5,6-tetrachlorophenol							
4-chlorophenol							
3-monochlorophenol					0.10		
4-monochlorophenol					0.10		
2,3-dichlorophenol					0.04		
2,5-dichlorophenol					0.50		
2,6-dichlorophenol					0.20		
3,4-dichlorophenol					0.30		
2,3,4,6-tetracholorophenol					1.0		
2,4,5-trichlorophenol					1.0	2,600	
2,4,6-trichlorophenol		970			2.0	0††	1.2
2-methyl-4-chlorophenol					1,800		
3-methyl-4-chlorophenol					3,000		
3-methyl-6-chlorophenol					20		
2-chlorophenol		4,380	2,000**		0.10		
2,4-dichlorophenol		2,020	365		0.30	3.09	
2,4-dimethylphenol		2,120			400		

Table J-1. Relevant EPA Water Quality Criteria (Page 4 of 5)

Parameter	Criteria for Freshwater Aquatic Life, ug/l Acute Toxicity Level*	Chronic Toxicity Level*	Maximum 24-hr. Average	Maximum Concentration	Human Health Criteria, ug/l Potable Water Taste/Odor Control†	Ingestion of Water and Aquatic Organisms Ambient Criterion	10^{-6} Incremental Cancer Risk
PHENOLIC COMPOUNDS							
Nitrophenols	230	150**					
2,4-dinitro-o-cresol						13.4	
dinitrophenol						70	
Pentachlorophenol					30	1,010	
Phenol					0.30	3.5	
CHLORINATED HYDROCARBON PESTICIDES							
Aldrin				3.0			0.000074
Chlordane			0.0043	2.4		0	0.000046
Dieldrin			0.0019	2.5		0††	0.000071
DDT			0.0010	1.1			0.000024
DDE	1,050						
Endrin			0.0023	0.18		1	
Heptachlor			0.0038	0.52		0††	.00028
Lindane			0.08	2			
Polychlorinated biphenyls	2**		0.014			0††	.00079
HEAVY METALS							
Cadmium			***	***		10	
Chromium, trivalent		44		***		170,000	
Chromium, hexavalent			0.29	21		50	
Copper			5.6	***	1,000		

Table J-1. Relevant EPA Water Quality Criteria (Page 5 of 5)

Parameter	Criteria for Freshwater Aquatic Life, ug/1				Human Health Criteria, ug/1		
						Ingestion of Water and Aquatic Organisms	
	Acute Toxicity Level*	Chronic Toxicity Level*	Maximum 24-hr. Average	Maximum Concentration	Potable Water Taste/Odor Control†	Ambient Criterion	10^{-6} Incremental Cancer Risk
HEAVY METALS							
Lead			***			50	
Mercury	0.00057	0.0017				0.144	
Nickel			***	***		13.4	
Zinc			47	***	5		
Cyanide			3.5	52		200	

*Toxicity may occur at lower concentrations among species more sensitive than those tested.

†Organoleptic data used as basis for taste and odor control have no demonstrated relationship to adverse human health effects.

**Data is not definitive.

††Zero level may not be attainable at this time.

***Maximum level related to hardness of water, for which no data are available.

Source: EPA, 1980.

APPENDIX K

REPRODUCTIONS FROM THE PHASE I REPORT OF HAZARD ASSESSMENT RATING FORMS FOR THE PHASE II STAGE I SITES

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE: Southwest Landfill (Site No. 3)

LOCATION: Moody AFB

DATE OF OPERATION OR OCCURRENCE: 1955-1972

OWNER/OPERATOR: Moody AFB

COMMENTS/DESCRIPTION: Main Base Landfill, includes low-level radioactive tube disposal

SITE RATED BY: N. Hatch, B. Haas, R. Knight

I. RECEPTORS

	Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A.	Population within 1,000 feet of site	1	4	4	12
B.	Distance to nearest well	3	10	30	30
C.	Land use/zoning within 1 mile radius	3	3	9	9
D.	Distance to reservation boundary	3	6	18	18
E.	Critical environments within 1 mile radius of site	3	10	30	30
F.	Water quality of nearest surface-water body	1	6	6	18
G.	Ground-water use of uppermost aquifer	0	9	0	27
H.	Population served by surface-water supply within 3 miles downstream of site	0	6	0	18
I.	Population served by ground-water supply within 3 miles of site	3	6	18	18
			Subtotals	115	180

Receptors subscore (100 x factor score subtotal/maximum subtotal) 64

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

	Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
1. Surface-water migration				
Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	3	8	24	24
		Subtotals	68	108
Subscore (100 x factor score subtotal/maximum score subtotal)				63
2. Flooding	0	1	0	100
		Subscore (100 x factor score/3)		0
3. Ground-water migration				
Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	1	8	8	24
Subsurface flows	1	8	8	24
Direct access to ground water	N/A	8	--	--
		Subtotals	38	90
Subscore (100 x factor score subtotal/maximum score subtotal)				42

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 63

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	64
Waste Characteristics	40
Pathways	63
Total 167 divided by 3 =	56
	Gross [illegible]

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

56 x 1.0 [illegible]

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE: Lily Pad Pond Fill Site (Site No. 8)
LOCATION: Moody AFB
DATE OF OPERATION OR OCCURRENCE: --
OWNER/OPERATOR: Moody AFB
COMMENTS/DESCRIPTION: Rubble fill site, some industrial waste disposal
SITE RATED BY: N. Hatch, B. Haas, R. Knight

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	0	3	0	9
D. Distance to reservation boundary	2	6	12	18
E. Critical environments within 1 mile radius of site	3	10	30	30
F. Water quality of nearest surface-water body	1	6	6	18
G. Ground-water use of uppermost aquifer	0	9	0	27
H. Population served by surface-water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	86	180

Receptors subscore (100 x factor score subtotal/maximum subtotal) 48

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

50 x 0.8 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 80

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
1. Surface-water migration				
Distance to nearest surface water		8		24
Net precipitation		6		18
Surface erosion		8		24
Surface permeability		6		18
Rainfall intensity		8		24
		Subtotals		108
Subscore (100 x factor score subtotal/maximum score subtotal)				
2. Flooding		1		100
Subscore (100 x factor score/3)				
3. Ground-water migration				
Depth to ground water		8		24
Net precipitation		6		18
Soil permeability		8		24
Subsurface flows		8		24
Direct access to ground water		8		
		Subtotals		
Subscore (100 x factor score subtotal/maximum score subtotal)				

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 80

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	48
Waste Characteristics	40
Pathways	80
Total 168 divided by 3 =	56

Gross Total S

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

56 x 1.0 = 56

HAZARDOUS ASSESSMENT RATING FORM

Page 1 of 2

NAME OF SITE: North POL Area (Site No. 12)

LOCATION: Moody AFB

DATE OF OPERATION OR OCCURRENCE: 1941-Present

OWNER/OPERATOR: Moody AFB

COMMENTS/DESCRIPTION: Dead trees downstream of drain outlets

SITE RATED BY: B. Haas, N. Hatch, R. Knight

I. RECEPTORS

	Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A.	Population within 1,000 feet of site	2	4	8	12
B.	Distance to nearest well	3	10	30	30
C.	Land use/zoning within 1 mile radius	3	3	9	9
D.	Distance to reservation boundary	3	6	18	18
E.	Critical environments within 1 mile radius of site	1	10	10	30
F.	Water quality of nearest surface-water body	0	6	0	18
G.	Ground-water use of uppermost aquifer	0	9	0	27
H.	Population served by surface-water supply within 3 miles downstream of site	0	6	0	18
I.	Population served by ground-water supply within 3 miles of site	3	6	18	18
			Subtotals	93	180

Receptors subscore (100 x factor score subtotal/maximum subtotal) 52

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 0.8 = 32

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

32 x 1.0 = 32

Page 2 of 2

III. PATHWAYS

	Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 80

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
1. Surface-water migration				
Distance to nearest surface water		8		24
Net precipitation		6		18
Surface erosion		8		24
Surface permeability		6		18
Rainfall intensity		8		24
		Subtotals		108
Subscore (100 x factor score subtotal/maximum score subtotal)				
2. Flooding		1		100
	Subscore (100 x factor score/3)			
3. Ground-water migration				
Depth to ground water		8		24
Net precipitation		6		18
Soil permeability		8		24
Subsurface flows		8		24
Direct access to ground water		8		
		Subtotals		
Subscore (100 x factor score subtotal/maximum score subtotal)				

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 80

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	52
Waste Characteristics	32
Pathways	80
Total 164 divided by 3 =	55

Gross Total Sc

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

55 x 1.0 = 55

END
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