INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
STAGE 1

SITES 24-WF15, 25-WF22 AND 26-BST5

U.S. AIR FORCE PLANT NO. 42
Palmdale, California

PREPARED FOR

HEADQUARTERS AERONAUTICAL SYSTEMS DIVISION
FACILITIES MANAGEMENT DIVISION (ASD/PMDA)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6503

AND

HEADQUARTERS AIR FORCE SYSTEMS COMMAND
COMMAND BIOENVIRONMENTAL ENGINEER (AFSC/SGPB)
ANDREWS AIR FORCE BASE, MARYLAND 20334-5000

UNITED STATES AIR FORCE
OCCUPATIONAL & ENVIRONMENTAL HEALTH LABORATORY
TECHNICAL SERVICES DIVISION (USAFOEHL/TS)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

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JUNE 1988

FINAL REPORT

PREPARED BY

ENGINEERING-SCIENCE, INC.
Pasadena, California 91103
Atlanta, Georgia 30329

ENGINEERING-SCIENCE

INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
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Final Report
For

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USAF CONTRACT NO. F33615-84-D-4403
DELIVERY ORDER NO. 001105

USAFOEHL TECHNICAL PROGRAM MANAGER
John K. Yu, Ph.D.

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An Installation Restoration Program (IRP) Phase II, Stage 1 investigation was conducted at USAF Plant 42 in Palmdale, California, to confirm the presence or absence of contamination at 3 sites. Contamination was suspected at the sites as a result of past spills, leaks, or waste disposal practices. A field investigation program was conducted, consisting of soil boring and sampling, and chemical analysis selected soil samples for suspected contaminants. Soil samples were analysed for total petroleum hydrocarbons (EPA 418.1), volatile organics (EPA 8240), semivolatile organics (EPA 8270), and 8 RCRA metals plus 4 other metals. No significant contaminants were found at any of the sites. No further action was recommended for these sites because contaminants were indetectably low or occurred at such low concentrations that they did not pose a threat to health or the environment.

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PREFACE

Engineering-Science (ES) has entered into an agreement with the U.S. Air Force to perform a Phase II, Stage 1 Installation Restoration Program investigation at USAF Plant No. 42, Palmdale, California. This investigation was initiated in September 1985 under Agreement F33615-84-D-4403, Delivery Order 001105. The overall objectives of this effort were to define the magnitude, extent, direction, and rate of movement of identified contaminants and to determine the need for remedial actions based on an assessment of risks to human health and the environment.

This investigation was performed by Engineering-Science personnel from the Atlanta, Georgia and Pasadena, California offices. Mr. Dennis Kaspar, P.E., served as Project Manager, and Mr. Craig L. Sprinkle, P.G., served as the Field Team Leader. Ernest J. Schroeder, P.E., was the Technical Director for the project.

Engineering-Science wishes to acknowledge Beylik Drilling Company, LaHabra, California, as the drilling subcontractor. Michael J. Graziano, Chief Facility Engineer, USAF Plant 42, provided support during the course of the project.

The work described in this report was accomplished between January 1988 and March 1988. Dr. John Yu, Technical Services Division, United States Air Force Occupational and Environmental Health Laboratory (USAFOEHL) was the Technical Monitor.

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EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

The Department of Defense (DOD) has developed the Installation Restoration Program (IRP) to identify, evaluate and remediate (if necessary) sites where contamination may be present on DOD property because of past spills or hazardous waste disposal practices. The IRP has four phases:

- Phase I - Installation Assessment/Records Search,
- Phase II - Confirmation/Quantification,
- Phase III - Technology Base Development, and
- Phase IV - Remedial Actions.

Engineering-Science, Inc. (ES) was retained by the United States Air Force (USAF) to conduct the Phase II, Stage 1 investigation at three sites within the Production Flight Test Installation, USAF Plant 42 in Palmdale, California, under Contract F33615-84-D-4403, Delivery Order 001105. The objectives of the Stage 1 investigation at USAF Plant 42 were:

- to determine the presence or absence of contamination at the past spill and waste-disposal sites identified,
- to determine the magnitude and extent of contamination and, where possible, the potential for migration of contaminants in the various environmental media,
- to identify potential environmental consequences and health risks of known contaminants, based on State or Federal standards and guidelines, and
- to identify any specific requirements for additional monitoring to confirm the magnitude, extent, migration, or identity of contaminants present.

BACKGROUND INFORMATION

USAF Plant 42 is located in southern California, approximately 80 miles from the City of Los Angeles (Figure 1). Situated on approximately 5,832 acres of land between the communities of Palmdale and Lancaster, USAF Plant 42 is in the southern corner of the Antelope Valley, on the western fringes of the Mojave Desert. The land adjacent to the installation is a mixture of light industrial, commercial, agricultural, and residential users.

The host unit at USAF Plant 42 is Detachment 2, Air Force Contract Management Division (AFCMD), under the Air Force Systems Command. The primary mission of USAF Plant 42 is to provide and maintain facilities for: (1) final assembly of jet aircraft, (2) production engineering and flight testing programs, and (3) Air Force acceptance flight testing of high performance jet aircraft manufactured by DOD contractors assigned to USAF Plant 42.

SITES INVESTIGATED

A total of 26 sites (Figure 2) were studied during the Phase II, Stage 1 effort at USAF Plant 42. This report discusses the study of Site 24 - Vehicle Washrack at Fire Station 1, Site 25 - Vehicle Washrack at Fire Station 2, and Site 26 - Battery Shop, Underground Storage Tank.

ENVIRONMENTAL SETTING

USAF Plant 42 is located in the southern corner of Antelope Valley, a triangular-shaped, closed basin bordered by mountains on the east, the northwest, and the southwest. The mountains slope steeply to the margins of the valley, then slopes decrease toward the center of the basin. Altitudes within USAF Plant 42 range from about 2,590 feet above the National Geodetic Vertical Datum of 1929 (NGVD) in the southwest to about 2,470 feet above the NGVD in the north. Only shallow drainage features and man-made structures break the otherwise gentle slope of the land surface, which ranges from 30 to 40 feet per mile toward the north-northeast.

Antelope Valley lies in a graben, a down-dropped block between two faults. Erosion of the uplifted rocks filled Antelope Valley with unconsolidated alluvium (Quaternary) that rests directly on basement rocks. The older alluvium consists of poorly-sorted gravel, sand, silt,

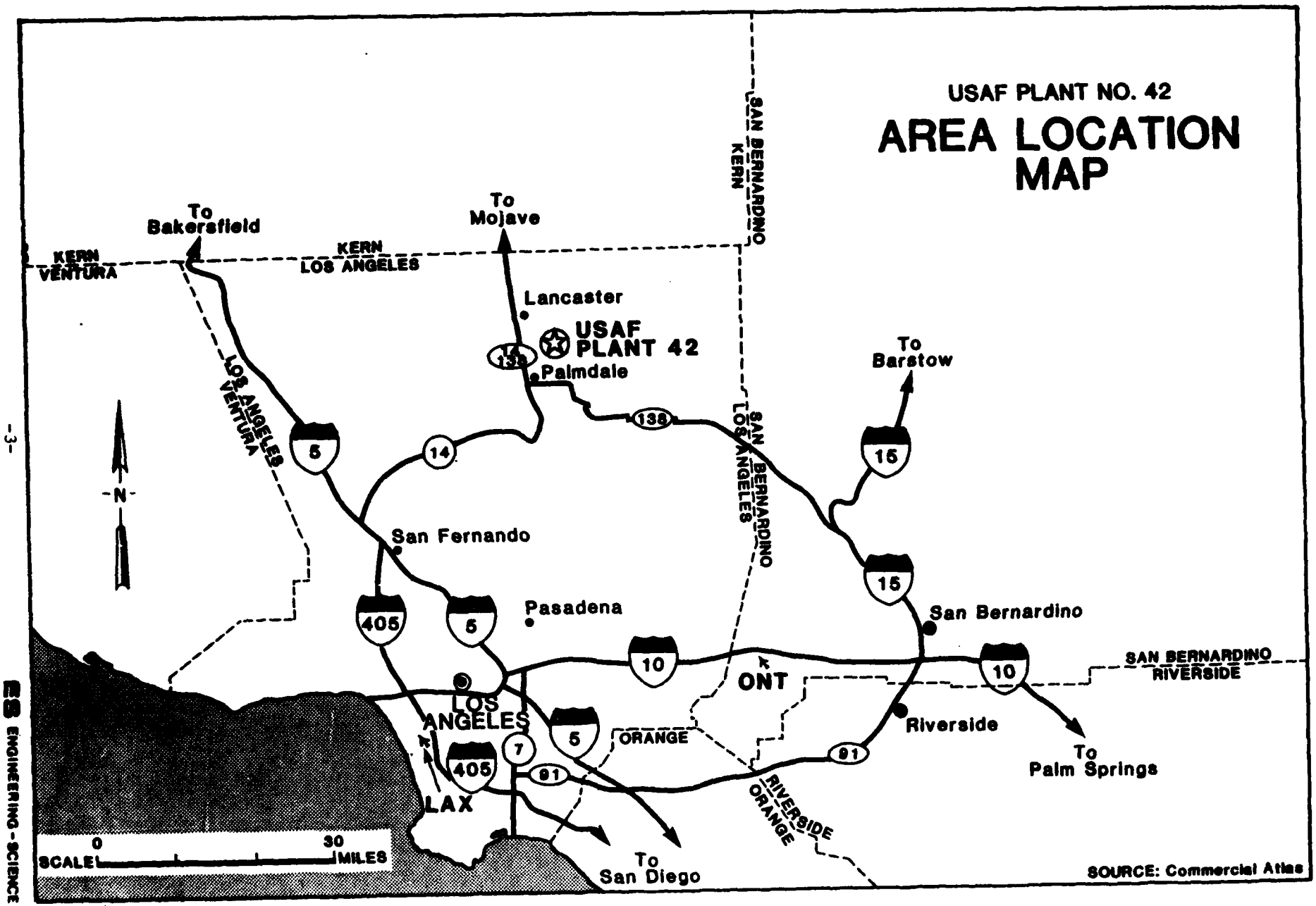
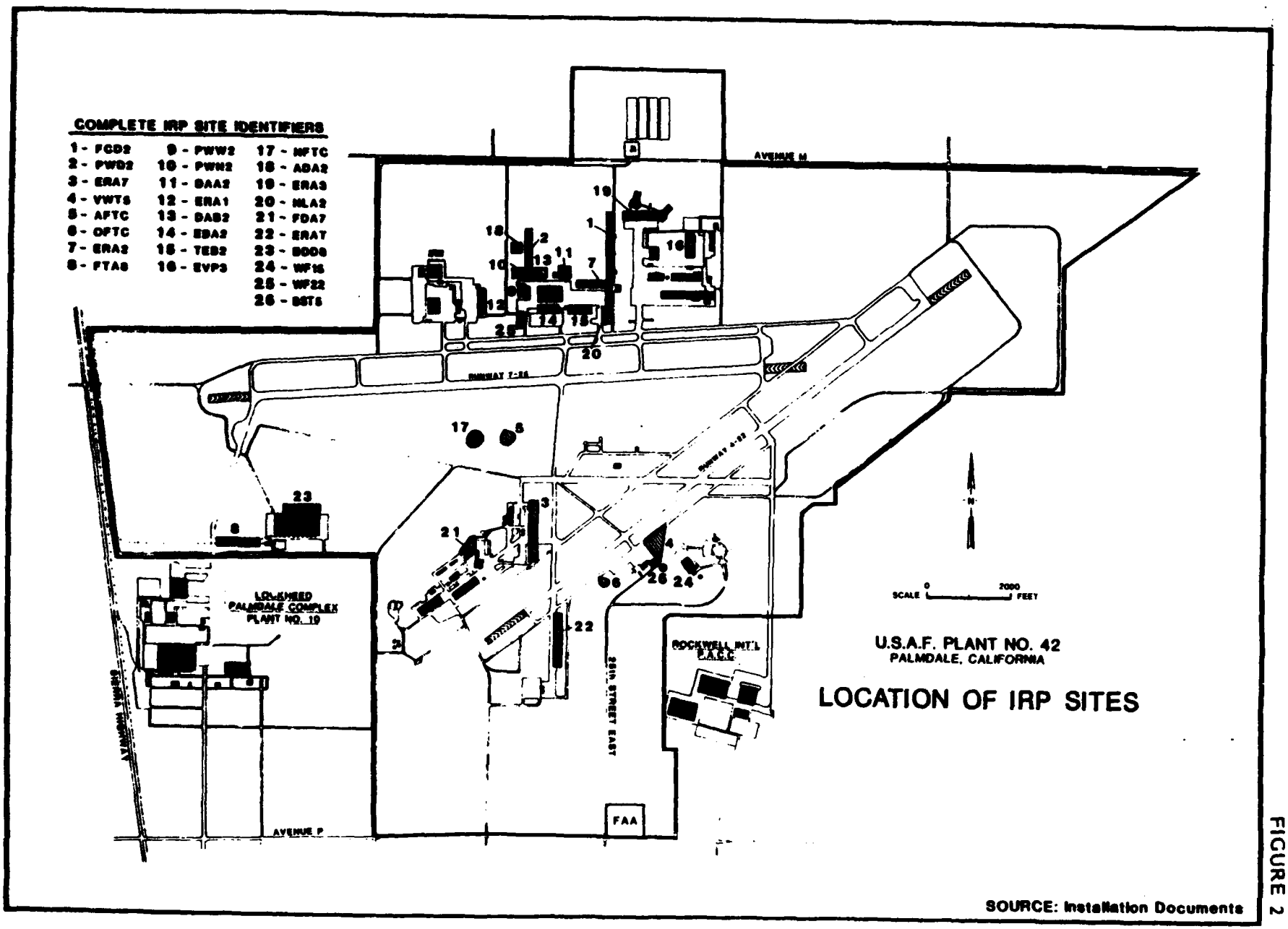

USAF PLANT NO. 42
AREA LOCATION MAP
To Bakersfield
To Mojave
KERN
VENTURA
KERN
LOS ANGELES
SAN BERNARDINO
KERN
Lancaster
USAF PLANT 42
Palmdale
To Barstow
LOS ANGELES
VENTURA
SAN BERNARDINO
LOS ANGELES
N
San Fernando
Pasadena
San Bernardino
SAN BERNARDINO
RIVERSIDE
ONT
LOS ANGELES
ORANGE
Riverside
To Palm Springs
LAX
RIVERSIDE
ORANGE
To San Diego
SCALE 0 30 MILES
SOURCE: Commercial Atlas

FIGURE 1



SOURCE: Installation Documents

FIGURE 2

and clay of granitic origin. The younger alluvium consists of sand, angular gravel, cobbles, and boulders containing small quantities of silt and clay. At USAF Plant 42 the younger alluvium is approximately 100 feet thick, while the older alluvial deposits range from about 900 feet thick in the southern part of the installation to be more than 1,200 feet thick in the north. The soils developed on the alluvial deposits are relatively immature sandy loams. These soils have a low clay content, contain little natural organic material, and have moderate to high permeabilities.

The average annual precipitation at USAF Plant 42 is less than 5 inches, and the potential evapotranspiration rate from soils is about 35 inches per year (pan and lake evaporation are much higher). Precipitation occurs primarily between November and April, and rainfall can be intense at times, with rains of 4 to 6 inches recorded over a 7-day period in nearby Palmdale. Such intense rainfall could produce surface runoff with potential for transporting contaminants dissolved in water or adsorbed to sediments. However, no major streams flow through USAF Plant 42, and no perennial surface-water bodies are located downslope. Surface runoff is discharged by a buried pipe and ditch system to a percolation pond located within the installation boundaries.

The older alluvial deposits comprise the principal source of ground water in Antelope Valley. Recharge to the principal aquifer occurs when surface water runoff originating in the mountains is absorbed by the coarse alluvium along the margins of Antelope Valley. Little or no direct recharge occurs from precipitation in the valley itself, because of high evapotranspiration rates. The principal aquifer occurs under water-table conditions at depths of about 350 feet below USAF Plant 42, and ground water beneath USAF Plant 42 moves toward the north and northeast. The nearest large water-supply wells are located about one mile upgradient (south) of USAF Plant 42, but several wells located within the installation are used for drinking water supply. Ground water in the vicinity of USAF Plant 42 is potable, generally low in dissolved solids, and ranges from soft to moderately-hard.

The environmental setting of USAF Plant 42 results in a low potential for contaminants to affect water supplies. There are no surface-water supplies downslope of the installation, and spills or

short-term discharges of liquids at the land surface are not likely to endanger local ground-water supplies because of:

- o high evapotranspiration rates,
- o great depth to water table,
- o lack of sustained hydraulic gradient (driving force), and
- o moderate adsorption potential of the alluvial sediments.

FIELD INVESTIGATION PROGRAM

The field investigation program at Sites 24, 25, and 26 involved soil borings and soil sampling for chemical analysis and is summarized in Table 1. Soils were analyzed for petroleum hydrocarbons, volatile organics, and semivolatile organics at Sites 24 and 25 and the metals As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Cu, Fe, Mn, and Zn were analysed for Site 26. Field activities began in late January 1988 and were completed in early February 1988.

RESULTS AND SIGNIFICANCE OF FINDINGS

No apparent contamination was found in any ground-water samples collected from seven wells at USAF Plant 42 during earlier Phase II, Stage 1 effort. Therefore, there is no evidence that contaminants at any of the IRP sites have migrated into the ground-water. Results of the soil boring and sampling activities conducted at the three IRP sites are summarized in Table 2. The conclusions regarding their significance are summarized in Table 3. The significance of these results was determined from consideration of the amount and extent of contaminants present, their potential for migration, and the potential threat posed to human health and the environment.

RECOMMENDATIONS

No further action is recommended for the three sites, and the sites should be classified as Category I. Data for these sites are considered sufficient to conclude that no significant threat to human health or the environment exists.

TABLE 1
SUMMARY OF FIELD INVESTIGATION PROGRAM BY SITE

Site Identifier	Site Name/Description	Field Activities	Samples Analyzed	Laboratory Analytical Parameters
24-WF15	Vehicle Washrack at Fire Station No. 1	3-25 foot borings	9 soils	Total petroleum hydrocarbons, Volatile organics, and Semi-volatile organics.
25-WF22	Vehicle Washrack at Fire Station No. 2	3-25 foot borings	8 soils	Total petroleum hydrocarbons, Volatile organics, and Semi-volatile organics.
26-BST5	Battery Shop, Underground Storage Tank	2-50 foot borings	9 soils	Total petroleum hydrocarbons, Primary metals.

TABLE 2
SUMMARY OF RESULTS AT SITES 24, 25 AND 26

	Drilling			Organics			Metals
Site Identifier	Color	Odor	Organic[1] Vapors	Volatiles[2]	Semi-Volatiles[3]	Total Petroleum[4] Hydrocarbons	Over Soluble Threshould Limit Concentrations[5] Site 26 Only
24-WP15	Normal	None	None	5 ug/kg[6] Chloroform at 5 feet	None	None	Not Determined
25-WP22	Normal	None	None	None	None	None	Not Determined
26-BST5	Discolor-ation at 5 feet deep	Odor present	30-50 ppm[7]	Not Determined	Not Determined	230 mg/kg at 5 feet deep	None

(1) measured with portable photoionization detector
(2) using US EPA Method SW 8240
(3) using US EPA Method SW 8270
(4) using US EPA Methods SW 3550 and 418.1
(5) metals at concentrations in excess of the Soluble Threshold Limit Concentrations listed in California Administrative Code, Title 22, Division 4, Chapter 30, Section 66699
(6) microgram per kilogram
(7) parts per million

TABLE 3
SUMMARY OF FINDINGS

Site Identifier	Site Name/ Description	Significant Results and Major Conclusions
1. 24-WF15	Vehicle Washrack Fire Station No. 1	No significant contamination was detected at this site. One sample at five foot depth contained chloroform at a level not exceeding the US EPA Chronic Toxicity Reference Level if that concentration were in water.(1)
2. 25-WF22	Vehicle Washrack Fire Station No. 2	No contamination was detected at this site.
3. 26-BST5	Battery Shop, Underground Storage Tank	Low levels of contamination were detected at five foot depth in boring SB1 where total petroleum hydrocarbons exceeded 100 mg/kg. No metals concentration in excess of the Soluble Threshold Limit Concentrations(2) were found. The extent of the contamination is limited (present only in one sample) and the contaminants detected are not a threat to health or the environment.

(1) Table C-3, Proposed Rules, Federal Register, Volume 51, No. 114, 21673-4, June 13, 1986.

(2) See footnote 5, Table 2.

SECTION 1.0
INTRODUCTION

SECTION 1.0
INTRODUCTION

1.1 BACKGROUND AND AUTHORITY

The United States Air Force, due to its primary mission of defense of the United States, has long been engaged in a wide variety of operations involving toxic and hazardous materials. Federal, State and local governments have developed strict regulations that require disposers to identify the locations and contents of past disposal sites and to 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 the Act, Federal agencies are directed to assist the Environmental Protection Agency (EPA). Under Section 3012, State agencies are required to inventory past disposal sites, and EPA is required to provide information concerning such sites (including information obtained from other Federal agencies) at the request of the State agencies.

To assure compliance with these hazardous waste regulations, the Department of Defense (DOD) developed the Installation Restoration Program (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 Air Force message dated 21 January 1982. DEQPPM 81-5 reissued and amplified all previous directives and memoranda on the Installation Restoration Program. DOD policy is to identify and fully evaluate suspected problems associated with past waste disposal practices (including spills), and to control hazards to health and welfare that resulted from these operations. The IRP is the basis for remedial actions on Air Force Installations under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, and clarified by Executive Order 12316.

CERCLA is the primary legislation governing remedial action at past hazardous-waste disposal sites.

The IRP has four phases: Phase I - Records Search, Phase II - Confirmation, Phase III - Research on Remedial Techniques, and Phase IV - Remediation of Sites. Sites at U.S. Air Force Plant 42 have been studied under both Phase I and Phase II. The testing discussed in this document was done as part of Phase II, Stage 1 investigations by Engineering-Science (ES) under contract to the Air Force Office of Environmental Health Laboratories (USAFOEHL) Technical Services Section, Brooks AFB, Texas.

1.2 PLANT LOCATION AND SITE DESCRIPTION

USAF Plant 42 is located in southern California, approximately 80 miles from the City of Los Angeles, as shown in Figure 1.1. Located between the communities of Palmdale and Lancaster in the southern corner of the Antelope Valley, USAF Plant 42 is on the western fringes of the Mojave Desert.

USAF Plant 42 is situated on approximately 5832 acres of land, and includes two 12,000-foot runways, each with a 1000-foot asphalt concrete overrun at both ends (Figure 1.2). About 1444 acres are dedicated to industrial sites, 288 acres are obstruction easements, and roughly 4100 acres are airfields and other common-use land.

There are eight industrial plant sites within USAF Plant 42, six of which house contractor-managed aircraft manufacturing and warehouse facilities. The two other sites are used for general administrative, operations, and maintenance activities. Among the facilities located in common areas are a sewage and waste treatment plant, two fire protection stations, and the Los Angeles County Palmdale Air Terminal (currently inactive). Two neighboring aircraft manufacturing facilities not owned by the Air Force also share use of the airfields at USAF Plant 42. These are Lockheed's Plant 10 and Rockwell's Palmdale Aircraft Construction Complex (PACC), both of which are shown in Figure 1.2. A total of twenty-six sites within USAF Plant 42 have been studied under the IRP program (Figure 1.2). During this investigation, studies were completed at three sites: Vehicle Washrack at Fire Station No. 1 (Site 24-WF15), Vehicle Washrack at Fire Station No. 2 (Site 25-WF22), and

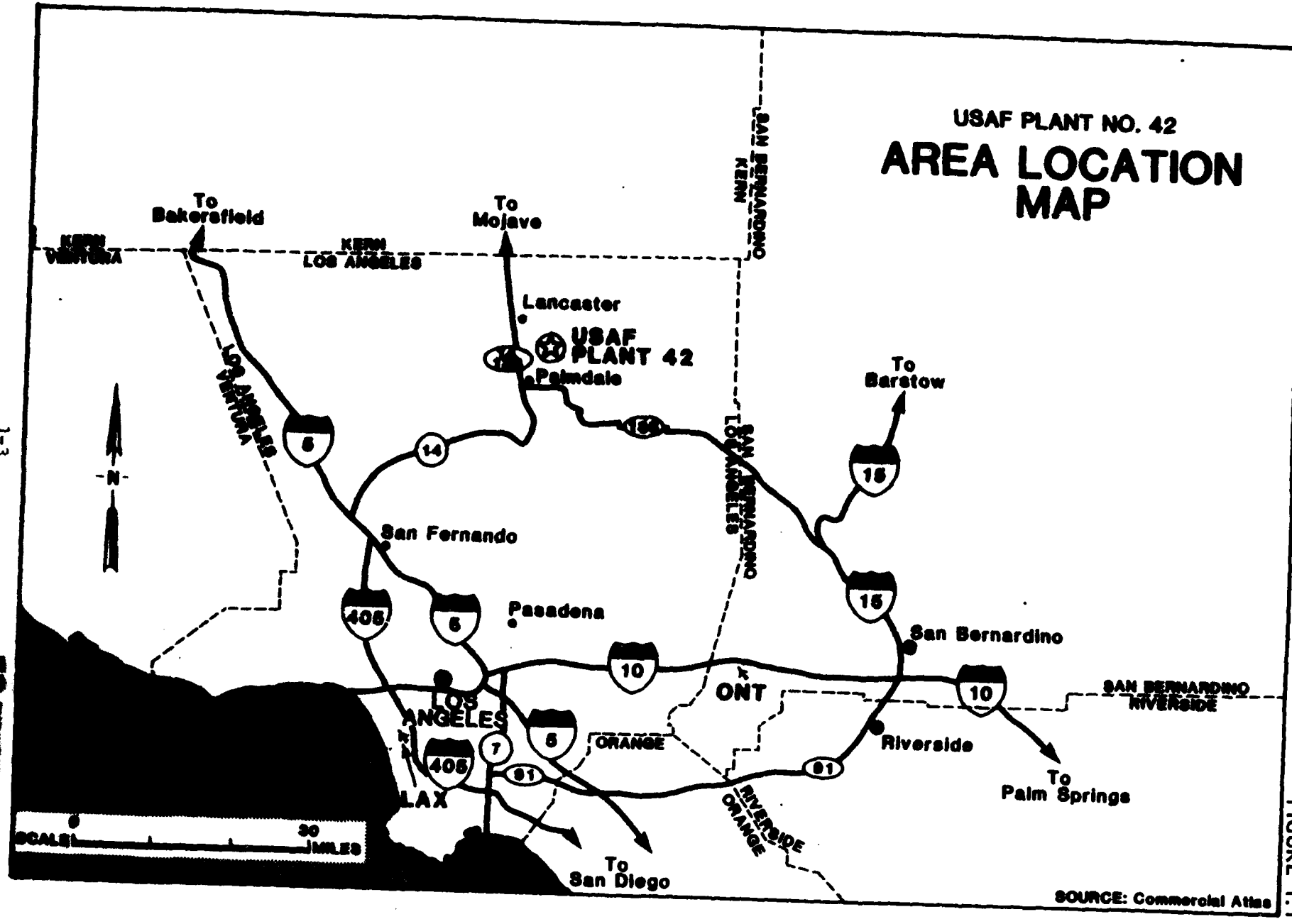

USAF PLANT NO. 42
AREA LOCATION MAP
To Bakersfield
To Mojave
KERN
LOS ANGELES
SAN BERNARDINO
KERN
VENTURA
Lancaster
USAF PLANT 42
Palmdale
To Barstow
LOS ANGELES
VENTURA
SAN BERNARDINO
LOS ANGELES
N
San Fernando
Pasadena
San Bernardino
ONT
LOS ANGELES
LAX
ORANGE
Riverside
SAN BERNARDINO
RIVERSIDE
To Palm Springs
RIVERSIDE
ORANGE
To San Diego
SCALE
30 MILES
SOURCE: Commercial Atlas

FIGURE 1.1

FIGURE 1.2

SOURCE: Installation Documents

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Battery Shop Underground Storage Tank (Site 26-BST5). The prior waste-handling activities at these sites are discussed in the following paragraphs.

1.2.1 Site 24: Vehicle Washrack Fire Station No. 1 (24-WF15)

Site 24-WF15 is located north of Fire Station No. 1 as shown in Figures 1.2 and 1.3. The vehicle washrack began operation in 1959 and is still in use. During operation, liquids generated from the washrack drain into an oil/water separator. The effluent from the oil/water separator is then discharged to a leach field and ultimately discharges to a drainage ditch. Potential contaminants include oils, fuels, detergents, hydraulic fluids, and possibly spent solvents from maintenance operations. The washrack was cited in 1987 by the California Regional Water Quality Control Board for lack of proper discharge permit.

1.2.2 Site 25: Vehicle Washrack Fire Station No. 2 (25-WF22)

Site 25-WF22 is located at Fire Station No. 2 near Industrial Site 2, as shown in Figures 1.2 and 1.4. The vehicle washrack began operation in 1959 and is still in use. The washrack was operated in the same manner as Site 24-WF15, however, recently the discharge from the oil/water separator has been routed to the sanitary sewer. Potential contaminants from the site include oils, fuels, hydraulic fluids, detergents, and possibly spent solvents from maintenance operations. This washrack was also cited by the California Regional Water Quality Control Board for lack of proper discharge permit.

1.2.3 Site 26: Battery Shop, Underground Tank (26-BST5)

Site 26-BST5 is located beside Building 531 as shown in Figures 1.2 and 1.3. Waste battery acid from the shop was stored in a 400 gallon underground tank at this site during operations from 1954 to 1982. Waste from the underground tank was periodically pumped out by a contractor who removed the contents from base property. The tank has been removed from the site, however no testing of soils adjacent to the tank was done.

1.3 PREVIOUS WORK

The IRP Phase I (Installation and Record Search) investigation of USAF Plant 42 was conducted by CH_2M-Hill, Inc. and was completed in

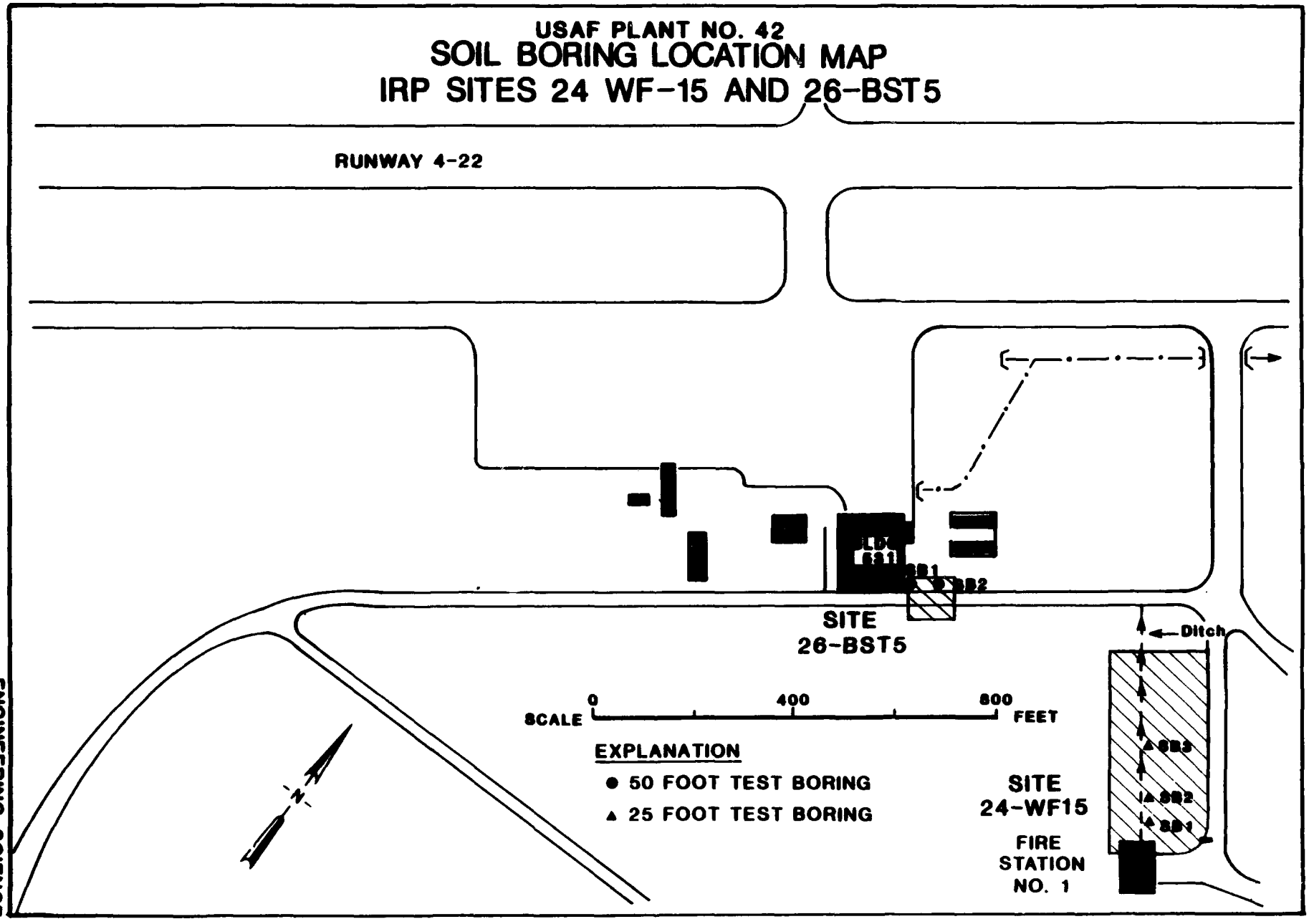
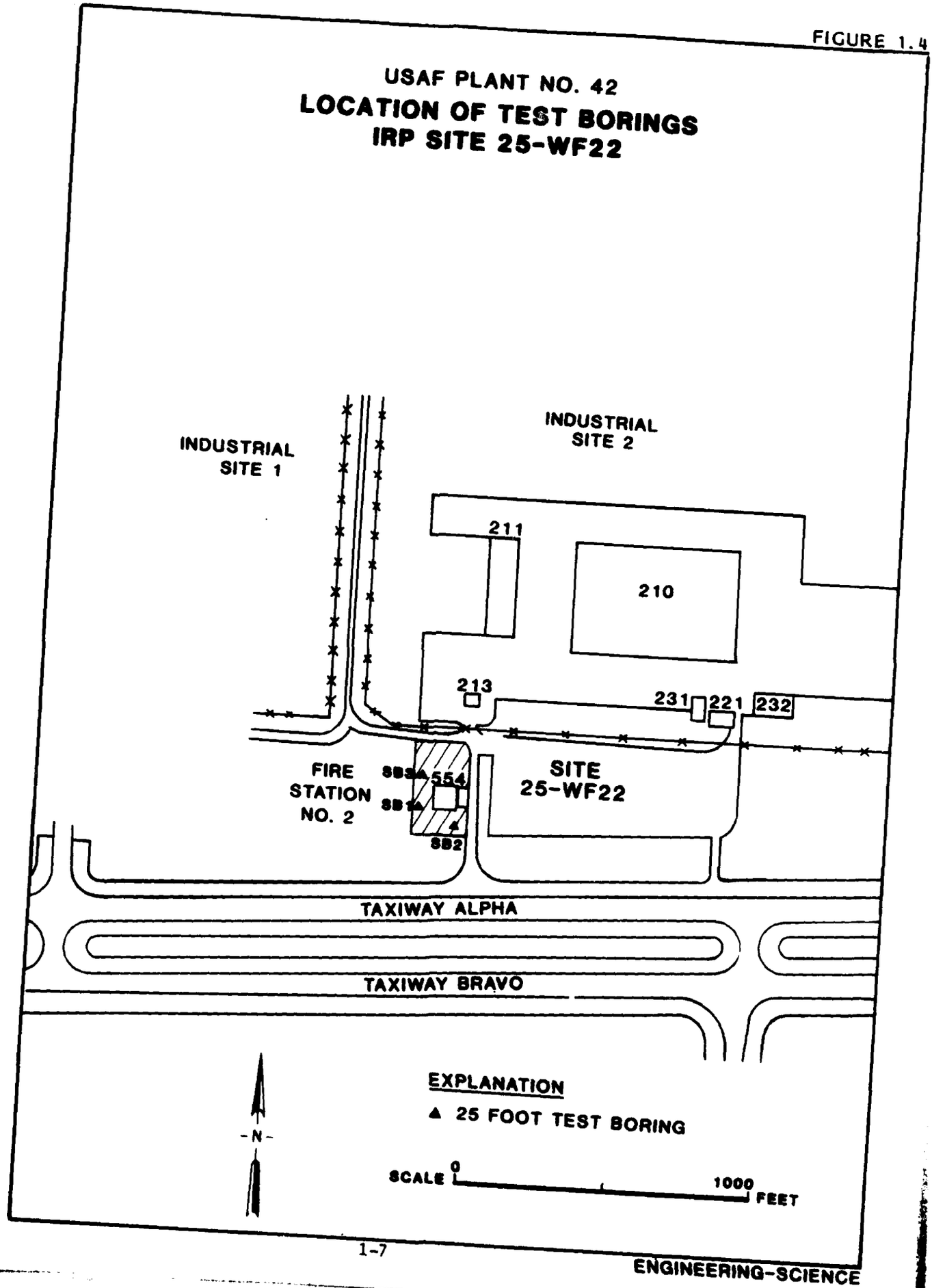

USAF PLANT NO. 42
SOIL BORING LOCATION MAP
IRP SITES 24 WF-15 AND 26-BST5
RUNWAY 4-22
SB1
SB2
SITE
26-BST5
Ditch
SB3
SB2
SB1
SCALE
0
400
800
FEET
EXPLANATION
● 50 FOOT TEST BORING
▲ 25 FOOT TEST BORING
SITE
24-WF15
FIRE
STATION
NO. 1
N

FIGURE 1.3

FIGURE 1.4

USAF PLANT NO. 42
LOCATION OF TEST BORINGS
IRP SITE 25-WF22



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October 1983. A total of 22 sites within USAF Plant 42 were investigated in 1985 - 1986 during IRP Phase II. The studies at Plant 42 under IRP Phase II have indicated contamination at some sites; significant findings are summarized in Table 1.1. A soil-vapor survey to better characterize the extent of soil contamination at selected sites was conducted at Plant 42 in December 1987. Table 1.2 is a summary of significant findings by site and major conclusions developed from the soil-vapor survey.

The three sites addressed in this report were not investigated in earlier Phase II Stage 1 efforts.

1.4 PURPOSE AND SCOPE

The purpose of work covered in this report is to determine the risk, if any, presented by possible hazardous wastes at Sites 24, 25 and 26. Investigation of vehicle washracks at Fire Stations 1 and 2 (Sites 24-WF15 and 25-WF22) and the battery shop underground tank (Site 26-BST5) are a continuation of the Phase II Stage 1 studies at USAF Plant 42.

The overall objectives of the IRP Phase II Stage 1 effort are to define the magnitude, extent, and direction and rate of movement of identified contaminants, and to determine the need for remedial actions based on an assessment of risks to human health and the environment. To meet these objectives a series of staged field investigations may be required. Specific objectives of the Stage 1 investigation at USAF Plant 42 were:

- to determine the presence or absence of contamination at former spill and waste-disposal sites previously identified in Phase I,
- to determine the magnitude and extent of contamination and, where possible, the potential for migration of contaminants in the various environmental media,
- to identify potential environmental consequences and health risks of known contaminants, based on State or Federal standards and guidelines, and

TABLE 1.1
SUMMARY OF FINDINGS AND RECOMMENDATIONS BY SITE

Site Identifier	Site Name/Description	Significant Results	Recommendations
1-FCD2	Fuel-Contaminated Ditch	Contaminants (petroleum hydrocarbons and volatile organics) were detected in 10 of 12 borings. Petroleum hydrocarbon values exceeded 1000 mg/Kg in five borings, at depths up to 50 feet. The extent of contamination was well defined. Possible continuing sources of contaminants were identified.	Phase IV Remediation Category III
2-PWD2	Paint Waste Disposal Ditch	Some contaminants were detected, but their location and amounts were not sufficient to be of concern.	No Further Action Category I
3-ERA7	Engine Run-up Area in Plant Site 3	No apparent contamination was found at this site.	No Further Action Category I
4-VWT5	Vehicle Washrack and Leaking Underground Tank	Some contaminants were detected, but their location and amounts were not sufficient to be of concern.	No Further Action Category I
5-AFTC	Abandoned Fire Training Area	Contaminants (oil & grease, toluene, xylenes, other volatileorganics) were detected in one location, where oil & grease values exceeded 1000 mg/Kg to a depth of 30 feet. The extent of contamination at this site was not determined.	Phase II Stage 2 Further Remedial Investigation Category II

TABLE 1.1--Continued
SUMMARY OF FINDINGS AND RECOMMENDATIONS BY SITE

Site Identifier	Site Name/Description	Significant Results	Recommendations
6-OFTC	Original Fire Training Area	Contaminants (oil & grease and volatile organics) were detected in one location, where oil & grease values exceeded 1000 mg/Kg to a depth of 10 feet. The extent of contamination at this site was not determined.	Phase II Stage 2 Additional Remedial Investigation Category II
7-ERA2	Engine Run-up Area in Plant Site 2	Contaminants (petroleum hydrocarbons) were detected in 4 of 7 borings. Petroleum hydrocarbon values exceeding 3000 mg/Kg were detected at depths up to 30 feet in three of these, and up to 150 feet in the fourth. The extent of contamination at this site was partially defined. A possible continuing source of contaminants was identified.	Phase IV Remediation Category III
8-FTA8	Fuel Transfer Area	No apparent contamination was found at this site.	No Further Action Category I
9-PWN2	Paint Waste Disposal Area - West	No apparent contamination was found at this site.	No Further Action Category I
10-PWN2	Paint Waste Disposal Area - North	No apparent contamination was found at this site.	No Further Action Category I

TABLE 1.1--Continued
SUMMARY OF FINDINGS AND RECOMMENDATIONS BY SITE

Site Identifier	Site Name/Description	Significant Results	Recommendations
11-DAA2	Disposal Area "A"	No apparent contamination was found at this site.	No Further Action Category I
12-ERA1	Engine Run-up Area in Plant Site 1	No apparent contamination was found at this site.	No Further Action Category I
13-DAB2	Disposal Area "B"	No apparent contamination was found at this site.	No Further Action Category I
14-EBA2	Engine Build-up Area	No apparent contamination was found at this site.	No Further Action Category I
15-TEB2	TEB Disposal Area	Contaminants (petroleum hydrocarbons) were detected in one location at a depth of 10 feet, where petroleum hydrocarbon values exceeded 3500 mg/Kg. The extent of contamination at this site was not determined.	Phase II Stage 2 Additional Remedial Investigation Category II
16-EVP3	Evaporation Ponds	No apparent contamination was found at this site.	No Further Action Category I

TABLE 1.1--Continued
SUMMARY OF FINDINGS AND RECOMMENDATIONS BY SITE

Site Identifier	Site Name/Description	Significant Results	Recommendations
17-NFTC	New Fire Training Area	No contaminants were detected in samples from one location, but the presence and extent of contaminants elsewhere at the site was not determined. Evidence of possible contamination at other locations was observed during field activities.	Phase II, Stage 2 Additional Remedial Investigation Category II
18-ADA2	Abandoned Disposal Area	No apparent contamination was found at this site.	No Further Action Category I
19-ERA3	Engine Run-up Area in Plant Site 3	No apparent contamination was found at this site.	No Further Action Category I
20-NLA2	Noise Level Area	No apparent contamination was found at this site.	No Further Action Category I
21-FDA7	Fuel Disposal Area	No apparent contamination was found at this site.	No Further Action Category I
22-ERAT	Engine Run-up Area at the Palmdale Air Terminal	No apparent contamination was found at this site.	No Further Action Category I
23-BDD8	Building Ditch Discharge	No apparent contamination was found at this site.	No Further Action Category I

TABLE 1.2
SUMMARY OF FINDINGS BY SITE.
SOIL-VAPOR SURVEY, DECEMBER 1987

Site Identifier	Site Name	Significant Results and Major Conclusions
1-FCD2	Fuel Contaminated Ditch	Volatile hydrocarbons were detected in soil-vapors more than 600 feet downstream of the buried waste-fuel tank. Volatile organics also were detected near the underground fuel storage area south of Building 214. An unidentified volatile contaminant was detected in three probes along the eastern edge of the ditch far downstream of previously identified contaminant sources. The contaminant may indicate spillage or discharge of non-fuel liquids.
5-AFTC	Abandoned Fire-Training Area	Contaminants appear to be localized in the old burn area. Trace levels of volatiles detected in soils in a small area nearby may indicate another spill or discharge of localized extent.
6-OFTC	Old Fire-Training Area	Contaminants appear to be localized near the test boring made previously. Natural degradation processes may have depleted the volatile organic content of soil to the extent that areas of residual petroleum contamination may not be discernable using soil-vapor surveys of the site.

TABLE 1.2
SUMMARY OF FINDINGS BY SITE.
SOIL-VAPOR SURVEY, DECEMBER 1987
(Continued)

Site Identifier	Site Name	Significant Results and Major Conclusions
7-ERA2	Engine Run-Up Area in Plant Site 2	Contaminants appear to be localized along parts of the fuel pipeline, but also extend more than 100 feet south of the pipeline beneath the concrete apron.
15-TEB2	TEB Disposal Area	Lack of detectable volatile hydrocarbons indicates no recent spill or discharges of organic liquids. Non-detects also indicate only low to moderate levels of (non-volatile) organic residues should occur over most of the site.
17-NFTC	New Fire-Training Area	Fuel residues are localized to soils in burn pit, but concentrations of volatile hydrocarbons increase greatly with depth. Additional test borings are needed in burn pit to determine extent and rate of fuel migration downward through soils.

- to identify any specific requirements for additional monitoring to confirm the magnitude, extent, migration, or identity of contaminants present.

SECTION 2.0

FIELD INVESTIGATION PROGRAM

SECTION 2.0
FIELD INVESTIGATION PROGRAM

2.1 PROGRAM DEVELOPMENT

The IRP Phase II, Stage 1 field investigation program for USAF Plant 42 was based on results of the Phase I effort (CH2M-Hill, 1983) and subsequent technical and regulatory reviews by the Air Force, the U.S. Environmental Protection Agency (Region IX), and the Lahonton Regional Water Quality Control Board (Resources Agency of California). From these reviews came the following decisions concerning the Stage 1 field investigation program:

- o determination of the specific sites to be investigated,
- o identification of analytical requirements, based on suspected contaminants at the sites, and
- o selection of field investigation and sampling techniques.

These decisions were the basis for the Statement of Work (SOW) presented in Appendix D, which provided the technical guidance for the Phase II, Stage 1 field investigation program. The field investigation program involved work at the IRP sites identified in Figure 1.2. Earlier remedial investigations of 23 sites are reported in "Installation Restoration Program Phase II Confirmation/Quantification Stage 1, Volumes 1 and 2, U.S. Air Force Plant No. 42, Palmdale, CA" issued February, 1987. As a continuing part of Phase II, Stage 1 field investigation program, soil boring and sampling activities, with chemical analysis of selected soil samples, were conducted in early 1988 at sites 24-WF15, 25-WF22, and 26-BST5.

2.2 SOIL BORING AND SAMPLING PROCEDURES

Soil samples were collected using the hollow-stem auger drilling technique. A center stem and reverse-spiral lead bit prevented free material from entering the center (hollow-stem) of the auger. Soil

samples were collected using split-spoon samplers driven ahead of the drilling bit into the undisturbed soil. Soil samples were thus collected for lithology and stratigraphic control purposes at the surface, and at 5-foot intervals to a maximum depth of 50 feet. Selected soil samples were also obtained for chemical analysis. Drilling, sampling, and soil classification were performed by the following methods:

- ASTM D1452-65, Soil Investigation and Sampling by Auger Boring
- ASTM D1586-67, Penetration Test and Split-Barrel Sampling of Soils
- ASTM D2487-83, Unified Soil Classification System
- ASTM D2488-69, Recommendation Practices for Visual-Manual Description of Soil

Logs were kept during all drillings activities. Along with a description of the lithology samples, these logs included observations of discoloration, odors, organic vapor (photoionization meter) readings, and other anomalies. Logs of the soil borings and sampling activities are presented in Appendix A.

Upon completion of drilling and sampling, each borehole was filled from the bottom to the surface with a grout mixture of Type I portland cement and bentonite. Approximately three to five pounds of bentonite were mixed with each 94-pound sack of cement and 6.5 gallons of water. Clean sand was added to the grout mixture to form a hard protective cap in the top 2 feet of boreholes located in ditches and other areas subject to traffic or erosion.

All drilling tools (augers, bits and center rods) were decontaminated between boreholes to prevent cross-contamination. Decontamination consisted of steam and detergent cleaning, clean-water rise, methanol rinse, and a final distilled-water rinse. The clean equipment was air dried and then wrapped in plastic for storage until its next use. All tools used in soil sampling and packaging activities (split-spoon samplers, stainless steel mixing bowls, and sample-cutting

knives) were decontaminated after the collection of each sample. Decontamination of these items consisted of a detergent wash, clean-water rinse, methanol rinse, and a final distilled-water rinse. After the final rinse, the sampling equipment was allowed to air dry completely before again being used.

2.3 SAMPLE NUMBERING SYSTEM

Each individual soil sample was assigned a unique sample identifier that described exactly where the sample was collected. The same identifier was used in the drilling logs, on lithology sample labels, and on bottle labels, chain-of-custody forms, and laboratory reports. Each sample identifier consists of five groups of letters and numbers, separated by hyphens, as described below. A sixth group of letters was used to distinguish between duplicate samples shipped to different laboratories for chemical analysis.

1. IRP site number
2. IRP site name abbreviation & plant location
3. soil boring number (sequential for each IRP site)
4. soil sample number (from surface for each boring)
5. soil sample depth (feet from land surface)
6. destination laboratory (only on samples for chemical analysis)

For example, the sample identifier "24-WF15-SB1-SS1-10-ESB" refers to a soil sample from IRP Site 24-WF15, the Vehicle Wash Rack at Fire Station No. 1. The sample was collected from the first soil boring at that site, and represents the first discrete soil sample collected from that boring, which was taken at a depth of 10 feet. The sixth group of letters, "ESB", indicates that this sample was shipped to Engineering-Science, Berkeley laboratory for chemical analysis.

Blind duplicate soil samples shipped to the laboratory for Quality Assurance (QA) purposes were also assigned unique sample identifiers. These samples were consistently assigned soil sample depths of 15 feet. For example, "25-WF22-SB3-SS1-15'-ESB" represents the blind duplicate of sample "25-WF22-SB3-SS1-10'-ESB". While soil samples were collected for lithologic description at 15 feet from all of the borings none of these

were among the samples shipped for chemical analysis. Therefore, except in the drilling logs, any soil sample identifier that indicates a depth of "-15-" refers to a blind duplicate sample shipped for QA purposes. The identifiers of samples with their respective blind duplicate samples are listed below.

Sample I.D.	Blind Duplicate Sample I.D.
24-WF15-SB2-SS2-10'-ESB	24-WF15-SB2-SS3-15'-ESB
25-WF22-SB3-SS2-10'-ESB	25-WF22-SB3-SS3-15'-ESB
26-BST5-SB2-SS4-20'-ESB	26-BST5-SB2-SS3-15'-ESB

2.4 SAMPLE HANDLING, PACKAGING, AND SHIPPING

Soil samples collected for chemical analysis were cut from the split-spoon sampler and placed into a clean stainless-steel bowl. Only fairly homogeneous samples were chosen for chemical analysis, with a minimum of pebble-sized particles. Also, the top and bottom portions of soil collected with split-spoon samplers were excluded to ensure that only uncontaminated soil from a known depth was analyzed. A sample was then broken apart and stirred, using a clean stainless-steel spoon. The sample was then split among the various containers required for shipment to the laboratory, with a portion of the sample also being retained as the lithology sample. Soil samples for chemical analyses were placed in glass or plastic containers that were pre-cleaned according to EPA procedures (supplied by I-Chem Research, Inc., Hayward, California).

Each sample container was sealed by a teflon lined cap that was taped shut using polyethylene tape to ensure it remained sealed during shipment. Individual sample containers were labelled with the following information:

- o project identifier (AFP 42, IRP-II),
- o sample identifier (as described above),
- o date of sample collection,

- o time of sample collection, and
- o required analytical method (specific for each container).

The individual containers for one sample were all placed together in a sealed plastic bag to prevent cross-contamination between samples that might occur from container breakage during shipment. These bags were then placed into insulated shipping coolers, along with a sealed plastic bag of ice.

A chain-of-custody form containing the following information was completed and sealed inside each cooler in a waterproof envelope just prior to shipping:

- o project identifier (AFP 42, IRP-II),
- o name and signature of person who collected the sample,
- o sample identifiers (for all samples in the cooler),
- o date and time of sample collection,
- o number of individual containers for each sample,
- o required analytical methods for each sample, and
- o signature of the sampling individual.

The shipping coolers were sealed shut with security labels taped over opposite ends of the lid. The coolers were then shipped by overnight delivery service to the laboratory. Copies of the completed Chain-of-Custody forms are presented in Appendix B.

Blind duplicates shipped for quality assurance (QA) purposes were routinely included in shipments along with other samples in order to be indistinguishable from normal samples to the laboratory personnel.

2.5 CHEMICAL ANALYTICAL METHODS AND PROCEDURES

Soil samples were analyzed in the laboratory for selected parameters, according to probable contaminants at the site, as described below in Subsection 2.6. The analytical methods employed are summarized in Table 2.1. The detection limits achieved for each method are also presented in Table 2.1.

Soil samples were prepared for analysis in accordance with EPA SW846 methods, except as noted in Table 2.1. Metal in soil samples

TABLE 2.1
CHEMICAL ANALYTICAL METHODS AND DETECTION LIMITS

Analytical Parameter	Method Citation	Detection Limit
Soil Samples		
Semi-Volatile Organics	SW 8270[a]	0.66-4 mg/Kg[b][c]
Volatile Organics	SW 8240	5-100 ug/Kg[b][d]
Total Petroleum Hydrocarbons	SW 3550 + EPA 418.1	100 mg/Kg
Primary Metals:	CA Title 22:66700[e]	
Arsenic		0.005 mg/L[f]
Barium		0.005 mg/L
Cadmium		0.005 mg/L
Chromium		0.01 mg/L
Lead		0.05 mg/L
Mercury		0.001 mg/L
Selenium		0.005 mg/L
Silver		0.005 mg/L
Secondary Metals:	CA Title 22:66700[e]	
Copper		0.006 mg/L
Iron		0.05 mg/L
Manganese		0.005 mg/L
Zinc		0.01 mg/L

(a) Method Sources are:
- SW - Test Methods for Evaluating Solid Waste, (EPA/SW-846), Third Edition
- EPA - Methods for Chemical Analysis of Water and Wastes (EPA600/4-79-020)

(b) Detection limit varies by compound; see Appendix B.

(c) mg/kg = milligrams per kilogram

(d) Detection limits for Volatile Organics were as specified in Appendix B for all individual compounds except where dilution was required due to matrix interferences.

(e) CA Title 22:66700 specifies procedures followed in performing the Waste Extraction Test (WET); it also specifies that subsequent analysis of the resulting extract for individual metals shall in accordance with procedures presented in SW-846. Results from this method are reported as mg/L of the extract solution.

(f) mg/L = milligrams per liter

were determined in accordance with the Waste Extraction Test (WET) published by the State of california (CA Title 22:66700). The WET method involves addition of 500 mL of 0.2 molar sodium citrate extraction solution (pH 4.9 to 5.1) to a 50 g soil sample. Metals are extracted from the soil sample during mechanical agitation over a period of 48 hours, at a temperature of 20 to 40 °C. The extract solution is then filtered, digested, and analyzed for the individual metals by atomic absorption spectroscopy (AAS) or inductively-coupled argon plasma spectroscopy (ICAP). Results are reported as the concentration of the metal in the extract solution (mg/L). Therefore, a value of 1.0 mg/L as determined by the WET method is equivalent to 10 mg/Kg of extractable metal in the original soil sample, because of the 1:10 dilution that occurs during extraction.

Internal quality control (QC) samples were routinely run at a frequency of approximately 10 percent. These included matrix spikes, method blanks, and duplicates. A summary of QC and QA results is presented in Appendix C.

2.6 SITE-SPECIFIC SOIL BORING AND SAMPLING ACTIVITIES

The following is a description of specific field activities conducted at each IRP site. The identifiers of soil samples collected for chemical analysis from each boring are presented in Section 3.

2.6.1. Vehicle Washrack Fire Station No. 1 (Site 24-WF15)

Three soil borings, SB1, SB2, and SB3 were drilled with a hollow stem auger near the centerline of the ditch (Figure 1.3). Soil boring SB1 was located near the leach field adjacent to the vehicle washrack. The second soil boring SB2 was located near the ditch approximately 50-feet north of SB1. The last boring SB3 was located about 100-feet north of SB2, also near the ditch. Each test boring terminated at a depth of 25-feet below ground surface.

A total of nine soil samples from this site were analyzed for total petroleum hydrocarbons (EPA 418.1), volatile organics (SW 8240), and semi-volatile organics (SW 8270),

2.6.2. Vehicle Washrack Fire Station No. 2 (Site 25-WF22)

Three soil borings, SB1, SB2, and SB3, were drilled with a hollow stem auger to a depth of 25 feet below ground surface. Two soil

borings, SB1 and SB3, were located near the vehicle wash-rack leach field which is located west of the fire station (Figure 1.4). Boring SB2 was located approximately 50-feet south from the fire station.

A total of 8 soil samples from this site was analyzed for total petroleum hydrocarbons (EPA 4181), volatile organics (SW 8240), and semi-volatile organics (SW 8270).

2.6.3 Battery Shop, Underground Tank (Site 26-BST5)

Two soil borings, SB1 and SB2, were located on the northeast side of Building 531, as shown in Figure 1.3. Both borings were terminated at a depth of 50-feet below ground surface. Soil boring SB1 was drilled through the former battery acid storage tank pit (the tank was removed in 1984). Boring SB2 was located about 50-feet northeast from SB1.

A total of 9 soil samples from this site were analyzed for total petroleum hydrocarbons (EPA 418.1), and metals As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Cu, Fe, Mn, and Zn.

SECTION 3.0

DISCUSSION OF RESULTS AND SIGNIFICANCE OF FINDINGS

SECTION 3.0

DISCUSSION OF RESULTS AND SIGNIFICANCE OF FINDINGS

This section presents results of the field investigation program described in Section 2, along with general and site-specific discussions of the significance of findings at USAF Plant 42. Subsection 3.1 presents field observations and analytical results. Subsection 3.2 is a discussion of the criteria used to determine the significance of these results. The significance of findings at the individual IRP sites is presented in Subsection 3.3.

3.1 RESULTS OF SOIL SAMPLING AND ANALYSIS

3.1.1 Vehicle Washrack Fire Station No. 1 (24-WF15)

Soil samples were collected from three soil borings, SB1, SB2 and SB3. Soil boring BS1 is located near the leach field just off the vehicle washrack. Soil boring SB2 is located near the ditch approximately 50 feet from SB1. The last boring SB3 is located about 100 feet north of SB2 (see Figure 1.3). Table 3.1 presents observations made during drilling operations, which indicated the absence of contaminants as indicated by HNU readings, visual observations and lack of odors. Table 3.2 presents the analytical results of nine soil samples, which indicate the absence of contaminants.

3.1.2 Vehicle Washrack Fire Station No. 2 (25-WF22)

Three soil borings identified as SB1, SB2 and SB3 were drilled to a depth of 25-feet below ground surface at site 25-WF22. SB1 and SB3 are located near the washrack leach field west of the fire station and SB2 is located south of the washrack (see Figure 1.4). Observations made during drilling operations (Table 3.1) indicated absence of contaminants. Analytical results from samples obtained at Site 25-WF22 are presented in Table 3.2. These results indicate the absence of contaminants.

TABLE 3.1
SUMMARY OF OBSERVATIONS DURING TEST DRILLING AT USAF PLANT 42

Site and Test Boring Identifier	Total Depth (Feet Below Land Surface)	Observation Depth (Feet Below Land Surface)	Observation Reported in Drilling Logs		
			Color[a]	Odor	Organic Vapors in ppm
Site 24-WF15-SB-1	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 24-WF15-SB-2	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 24-WF15-SB-3	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 25-WF22-SB-1	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 25-WF22-SB-2	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 25-WF22-SB-3	25	0-5, 5-10, 10-15, 15-20, 20-25	N	No	0,0,0,0,0
Site 26-BST5-SB-1	50	0-5, 5-10, 10-15, 15-20, 20-25, 25-30, 30-35, 35-40, 40-45, 45-50	N Some discoloration at 5'	Odor present	30-50,0,4,0,0 0,0,0,0,0
Site 26-BST5-BS-2	50	0-5, 5-10, 10-15, 15-20, 20-25, 25-30, 30-35, 35-40, 40-45, 45-50	N	No	0,0,4,12,0,0 0,0,0,0

a: Normal soil color at Sites 24, 25 and 26 ranges from yellowish to grayish brown.

TABLE 3.2
SUMMARY RESULTS OF ANALYSES OF ORGANICS IN SOIL SAMPLES
SITES 24-WF15, 25-WF22 AND 26-BST5

Sample Identifier	Volatile Organics (SW8240) (ug/kg)	Total Petroleum Hydrocarbons (SW3550 & EPA 418.1) (mg/kg)	Semivolatile Organics (SW8270) (mg/kg)
24-WF15-SB-1-SS-1-2.5' ESB	ND	ND	ND
24-WF15-SB-1-SS-1-10' ESB	ND	ND	ND
24-WF15-SB-1-SS-1-25' ESB	ND	ND	ND
24-WF15-SB-2-SS-2-5' ESB	5 ug/kg Chloroform(a)	ND	ND
24-WF15-SB-2-SS-2-10' ESB	ND	ND	ND
24-WF15-SB-2-SS-2-15' ESB	ND	ND	ND
24-WF15-SB-2-SS-2-25' ESB	ND	ND	ND
24-WF15-SB-3-SS-3-2.5' ESB	ND	ND	ND
24-WF15-SB-3-SS-3-25' ESB	ND	ND	ND
25-WF22-SB-1-SS-1-2.5' ESB	ND	ND	ND
25-WF22-SB-1-SS-1-10' ESB	ND	ND	ND
25-WF22-SB-2-SS-1-2.5' ESB	ND	ND	ND
25-WF22-SB-2-SS-1-20' ESB	ND	ND	ND
25-WF22-SB-3-SS-1-2.5' ESB	ND	ND	ND
25-WF22-SB-3-SS-1-10' ESB	ND	ND	ND
25-WF22-SB-3-SS-1-15' ESB	ND	ND	ND
25-WF22-SB-3-SS-1-25' ESB	ND	ND	ND
26-BST5-SB-1-SS-1-5' ESB		230 mg/kg	
26-BST5-SB-1-SS-1-10' ESB		ND	
26-BST5-SB-1-SS-1-15' ESB		ND	
26-BST5-SB-1-SS-1-20' ESB		ND	

TABLE 3.2--Continued
SUMMARY RESULTS OF ANALYSES OF ORGANICS IN SOIL SAMPLES
SITES 24-WF15, 25-WF22 AND 26-BST5

Sample Identifier	Volatile Organics (SW8240) (ug/kg)	Total Petroleum Hydrocarbons (SW3550 & EPA 418.1) (mg/kg)	Semivolatile Organics (SW8270) (mg/kg)
26-BST5-SB-2-SS-1-5' ESB		ND	
26-BST5-SB-2-SS-1-20' ESB		ND	
26-BST5-SB-2-SS-1-30' ESB		ND	
26-BST5-SB-2-SS-1-40' ESB		ND	
26-BST5-SB-2-SS-1-50' ESB		ND	

Notes: (a) This may be an artifact of laboratory atmospheric contamination. This level does not exceed the US EPA Charonic Toxicity Reference Levels (Table C-3, Proposed Rules, Federal Requests, Volume 51, No. 114, 21673-4, June 13, 1986) and is probably insignificant.

3.1.3 Battery Shop, Underground Tank (26-BST5)

Two soil borings (SB1 and SB2) were drilled at site 26-BST5 on the northeast side of building 531 (Figure 1.3). Both borings were terminated at a depth of 50 feet below ground level. Soil boring SB1 is through the former tank pit and SB2 is located about 50 feet northeast from SB1. Table 3.1 displays information obtained during drilling operations. Presence of contaminants was detected in both SB1 and SB2. Soil boring SB1 presented soil discoloration, fuel odors and organic vapors detected with a photoionization meter (HNU). HNU readings indicated 30-50 ppm at the 0-5 feet sampling interval and 4 ppm at the 10-15 feet sampling interval. Contaminants were also observed in soil boring SB2: HNU readings indicated 4 ppm of organic vapors at the 10-15 feet sampling interval and 12 ppm at the 15-20 feet sampling interval.

Chemical analyses of soil samples for Site 26-BST5 are presented in Tables 3.2 and 3.3. Soils from SB1 contained detectable levels of total petroleum hydrocarbons (230 mg/kg) in one sample. A total of 12 metals were analyzed in the soil samples, and low or undetectable concentrations were measured in most samples (Table 3.3).

3.2 CRITERIA FOR DETERMINING SIGNIFICANCE OF RESULTS

The mere presence of contaminants in the environment due to past waste handling or disposal practices does not mean the contaminants pose a significant (unacceptable) threat to human health or the environment. To ensure that resources for further investigation and remedial actions at past spill or disposal sites are efficiently and effectively committed, priorities must be established based on estimates of risk to human health and the environment. The objective of this subsection is to present criteria for determining the significance of the results presented in Subsection 3.1 so that more accurate estimates of risk can be made. Where applicable regulatory standards and guidelines exist, these are used as the criteria for establishing significance. While such regulations exist for surface water and groundwater quality, few have been established for soils. Therefore, established scientific principals must be used to determine the criteria for evaluating the significance of contaminants detected in soils.

TABLE 3.3
SUMMARY RESULTS OF CHEMICAL ANALYSES OF SOIL SAMPLES FROM SITE 26-BST5
EXTRACTABLE METALS
(CA Title 22)

Sample Identifier	Extractable Metal (mg/L)											
	Ag	As	Ba	Cd	Cr	Cu	Fe	Hg	Mn	Pb	Se	Zn
26-BST5-SB1-SS1-5'-ESB	<0.011	0.028	2.6	<.005J	0.04	0.58	22	<0.005	12	0.85	<.010N	0.51J
26-BST5-SB1-SS2-10'-ESB	<0.01	0.024	2.0	<.005J	0.04	0.07	22	<0.005	17	<0.05	<.010N	<0.01J
26-BST5-SB1-SS3-15'-ESB	<0.007	0.022	3.9	<.005J	0.03	0.08	15	<0.005	25	0.07	<.010N	<0.01J
26-BST5-SB1-SS4-20'-ESB	<0.006	0.024	3.7	<.005J	0.03	0.08	18	<0.005	24	0.07	<.010N	0.01J
26-BST5-SB2-SS1-5'-ESB	<0.007	0.035	4.1	<.005J	0.04	0.13	34	<0.005	27	0.07	<.010N	0.10L
26-BST5-SB2-SS4-20'-ESB	<0.007	0.022	2.0	<.005J	0.05	0.06	29	<0.005	27	0.07	<.010N	0.14L
26-BST5-SB2-SS6-30'-ESB	<.007	0.015	2.7	<.005J	0.03	0.06	19	<0.005	16	0.06	<.010N	0.44L
26-BST5-SB2-SS8-40'-ESB	<0.007	0.022	2.5	<.005J	0.03	0.03	14	<0.005	17	0.06	<.010N	0.16L
26-BST5-SB2-SS10-50'-ESB	<0.007	0.014	2.1	<.005J	0.05	0.04	16	<0.005	9.4	<0.05	<.010N	0.13L

N - Spiked sample recovery not within control limits.

J - Sample value is corrected by the analyte concentration found in the blank.

L - Method blank contamination; no blank correction of sample values is performed.

3.2.1 Factors Determining Significance of Environmental Contaminants

Where available, regulatory standards and guidelines establish whether environmental contaminants are present at significant levels. In the absence of regulatory guidance, significance is determined by the potential threat to human health or the environment posed by contaminants at a particular site, which can be estimated by considering the following factors:

- Mobility (migration potential),
- Persistence in the environment,
- Bioaccumulation potential,
- Toxicity (including toxicity of degradation products),
- Environmental setting, and
- Environmental loading (areal extent, depth, and concentration of contaminants).

The first four factors are based on specific characteristics of an individual compound (or a group of closely-related compounds) and are determined by its chemical structure. Such characteristics are therefore fairly constant, making possible general predictions regarding a contaminant's mobility, persistence, bioaccumulation potential, and toxicity under a given set of environmental conditions.

The environmental setting is important for several reasons. It determines the conditions for evaluating a contaminant's mobility and persistence, it establishes potential pathways for contaminant migration, and it identifies potential receptors (including proximity to drinking water supplies) for which bioaccumulation and toxicity must be evaluated.

The environmental loading refers to the amount and extent of contamination present at a particular site, and is of obvious importance to the determination of significance. Also to be considered is whether the source of contaminants still exists or has been eliminated through remedial actions or changes in operating procedures.

The factors identified above (including regulatory standards and guidelines) are mostly contaminant-specific. Therefore, the remainder of this subsection discusses criteria for establishing the environmental significance of the following contaminants.

- o Volatile and Semi-volatile Organic Compounds (VOCs),
- o Total Petroleum Hydrocarbons, and
- o Metals.

3.2.2 Volatile and Semi-volatile Organic Compounds

Volatile organic compounds (VOCs) are low molecular weight compounds typically used as solvents, fuel additives, and raw materials for the production of more complex organics. Semi-volatile compounds generally have higher molecular weights than volatile compounds. The VOCs and semi-VOCs in soil samples were investigated by EPA Method SW 8240 (Volatile Organic Compounds) and SW 8270 (Semi-volatile Organic Compounds). These compounds are not usually detected as naturally occurring substances in soils, and their presence can therefore be considered the result of previous spills, releases, or discharges.

The regulatory standards and guidelines established for VOCs in drinking water are presented in Table 3.4. Had VOCs been detected in the groundwater at USAF Plant 42, these values would determine whether the levels detected were significant. No comparable federal or state guidelines exist for VOCs in soils (unsaturated zone), however. Without regulatory criteria, significance must be determined by considering the persistence, bioaccumulation, and potential for migration into the water table aquifer of the individual compounds detected.

The persistence of VOCs in the soil environment depends primarily on the rate at which biodegradation occurs. Photo-oxidation is not an important elimination mechanism for the VOCs and semi-VOCs (VERSAR 1979), and soil conditions at USAF Plant 42 make significant chemical oxidation or reduction unlikely, leaving biodegradation as the main elimination mechanism for VOCs in the soil. Biodegradation rates for a given compound depend upon several factors including soil pH, temperature, moisture, nutrients present, oxygen content, and the concentration of the compound in the soil.

TABLE 3.4
SUMMARY OF FEDERAL AND STATE DRINKING WATER STANDARDS/GUIDELINES

Parameter	Concentration			Regulatory Criteria
Volatile Organic Compounds				
Carbon Tetrachloride	5	ug/L		California Recommended Action Level
1,2-Dichloroethane	1	ug/L		California Recommended Action Level
1,1-Dichloroethylene	6	ug/L		California Recommended Action Level
Methylene Chloride	40	ug/L		California Recommended Action Level
Tetrachloroethylene	4	ug/L		California Recommended Action Level
1,1,1-Trichloroethane	200	ug/L		California Recommended Action Level
Trichloroethylene	5	ug/L		California Recommended Action Level
Vinyl Chloride	2	ug/L(a)		California Recommended Action Level
Cis-1,2-Dichloroethylene	16	ug/L(a)		California Recommended Action Level
Trans-1,2-Dichloroethylene	16	ug/L		California Recommended Action Level
1,1-Dichloroethane	20	ug/L		California Recommended Action Level
Benzene	0.7	ug/L		California Recommended Action Level
Chlorobenzene	30	ug/L		California Recommended Action Level
1,2-Dichlorobenzene	130	ug/L(a)	[10] ug/L(b)	California Recommended Action Level
1,3-Dichlorobenzene	130	ug/L(a)	[20] ug/L(b)	California Recommended Action Level
1,4-Dichlorobenzene	130	ug/L(a)	[0.3] ug/L(b)	California Recommended Action Level
Toluene	100	ug/L		California Recommended Action Level
Ortho-Xylene	620	ug/L(a)		California Recommended Action Level
Para-Xylene	620	ug/L(a)		California Recommended Action Level
Meta-Xylene	620	ug/L(a)		California Recommended Action Level
Trace Metals				
Arsenic	50	ug/L		Federal Primary Drinking Water Standard
Barium	1,000	ug/L		Federal Primary Drinking Water Standard
Cadmium	10	ug/L		Federal Primary Drinking Water Standard
Chromium	50	ug/L		Federal Primary Drinking Water Standard
Copper	1,000	ug/L		Federal Secondary Drinking Water Standard
Mercury	2	ug/L		Federal Primary Drinking Water Standard
Nickel	150	ug/L		Proposed Federal Guidance Level
Lead	50	ug/L		Federal Primary Drinking Water Standard
Selenium	10	ug/L		Federal Primary Drinking Water Standard
Silver	50	ug/L		Federal Primary Drinking Water Standard
Zinc	5,000	ug/L		Federal Secondary Drinking Water Standard

(a) Action Level applies to either a single isomer or the sum of all isomers.
(b) Action Levels in brackets are based on taste and odor threshold.
(c) Limit of quantification, if lower.

3.2.3 Total Petroleum Hydrocarbons

Petroleum hydrocarbons are nonspecific analytical parameters which measure fluorocarbon-113 extractable organic compounds with medium to high molecular weights. Low molecular weight compounds and light fuels (such as gasoline) volatilize during the analysis and therefore have low recoveries (roughly half of gasoline is lost during the analysis). Nevertheless, both parameters are useful for determining the presence of complex mixtures of hydrocarbons, including gasoline and jet fuels.

The California Regional Water Quality Control Board (San Francisco Bay Region) has established guidelines, based on total petroleum hydrocarbons in soils, for determining appropriate remedial actions for fuel leaks (Guidelines for Addressing Fuel Leaks, 1985). More than 100 mg/Kg total petroleum hydrocarbons in soils is considered significant and generally requires further monitoring. When concentrations exceed 1000 mg/Kg, the soil is considered contaminated and remedial action is often required. No other applicable standards or guidelines exist for total petroleum hydrocarbons in soils. In addition, no federal or state drinking water standards or guidelines exist for either parameter.

The aliphatic organics which constitute most of the petroleum hydrocarbons are generally less toxic than VOCs, and the primary health risk is associated with chronic exposures through ingestion of contaminated food and water.

Most compounds measured as petroleum hydrocarbons are relatively persistent in the environment. Biodegredation is the main elimination mechanism and rates are fairly slow, especially for saturated hydrocarbons. Overall, the relative biodegradation potential for compounds measured by the test is low, and complete biodegradation may require many years or even decades.

The potential for migration of individual compounds measured as petroleum hydrocarbons is low. The aliphatic organics which represent most of these compounds have negligible water solubilities, low vapor pressures, and high sorption coefficients. For example, n-decane ($C_{10}H_{22}$), a medium molecular weight aliphatic organic, has a water solubility of only 0.009 mg/L and a vapor pressure of 2.7 mm Hg at 20 °C (VERSCHUEREN, 1983). Its overall soil sorption coefficient (K_{OC}) can be

estimated from its solubility (S, in mg/L) using the following equation (LYMAN, 1982).

$$\text{Log } K_{oc} = -0.55 \text{ (Log S)} + 3.64$$

Based on an assumed organic fraction in the soil of 0.1 percent (f_{oc} = 0.001), the equilibrium constant (K_{sw}) for n-decane has a value of 58, compared to K_{sw} values of 0.35 to 1.66 estimated for the VOCs. This represents a much greater sorption potential for n-decane than for any of the VOCs. The generally high sorption potential associated with aliphatic organics is the primary reason for concluding the mobility of compounds measured as petroleum hydrocarbons is low. Further, VOCs and other specific organic contaminants associated with petroleum hydrocarbons will generally have lower mobilities, due to partitioning or sorption of these compounds into the aliphatic compounds present. The significance of this is in proportion to a compound's octanol-water partition coefficient (K_{ow}); greater immobilization results for compounds with higher values of K_{oc}.

3.2.4 Metals

Soil samples from USAF Plant 42 were analyzed for twelve metals: arsenic (As), barium (Ba), cadmium (Ca), chromium (Cr), lead (Pb), mercury (Hg), selenium (Se), silver (Ag), iron (Fe), copper (Cu), manganese (Mn) and zinc (Zn). These metals are naturally occurring in soils at trace levels. Most are toxic to plants, animals, or man at fairly low concentrations. The primary health risks associated with heavy metals are derived from chronic exposures through ingestion of contaminated food or water, or inhalation of contaminated dust.

Soil samples from USAF Plant 42 were analyzed for extractable metals using the California Waste Extraction Test (CA Title 22:66700), as described in Section 2.5. This extraction procedure is intended to simulate natural leaching under mildly acidic conditions, such as might occur in a landfill. The fraction of total metals present in the soil that is measured by this procedure depends on the specific metal and the chemical composition of soil.

Existing standards for trace metal concentrations in drinking water are listed in Table 3.4. There are no federal or state standards or

guidelines for metals in soils, but California has established standards for determining whether waste materials are hazardous based on their metals concentrations. Presented in Table 3.5, these include limits for both total and soluble metals, with solubility defined by a specific experimental procedure (Waste Extraction Test, CA Title 22:66700). For soils which exceed the standards in Table 3.5, one can reasonably conclude that significant contamination exists. This is not to imply, however, that *no* potential threat to human health or the environment exists just because the values in Table 3.5 are not exceeded. In such cases, the normal background level of individual metals in soils must be considered. Table 3.6 presents an average and range of typical metals concentrations found in uncontaminated soils.

Unlike organic compounds, metals (which are chemical elements) are not degradable through biological or chemical actions, and can be considered infinitely persistent in the environment. Metals can be oxidized or reduced through the activity of microorganisms, however, causing changes in their chemical and physical properties that affect mobility. For example, biomethylation of lead and mercury can greatly increase their mobility and reduce their soil-sorption potential.

All the metals listed above have a high potential for bioaccumulation, especially cadmium, copper, mercury, and zinc (VERSAR 1979). However, the environmental setting of USAF Plant 42 reduces the significance of this concern. Biological uptake and concentration of metals occurs to the greatest extent in aquatic environments, but no surface water bodies are located either on or downslope of the installation. Bioaccumulation will therefore occur mainly through uptake by terrestrial plants which are consumed by animals. Low population densities and relatively slow growth rates of plants and animals in the local area, combined with the fact that few if any plants or animals in the area are eaten by man, limit the potential adverse impacts of bioaccumulation.

The mobility of metals in the environment is generally low, with sorption being the most important factor controlling their mobility (VERSAR 1979). Most of the metals listed above are all readily sorbed by soils and, especially in the unsaturated zone, can be considered highly immobile. Exceptions are arsenic and selenium when these are

TABLE 3.5
CALIFORNIA LIMITS FOR TRACE METALS IN WASTES

Substance	Soluble Threshold Limit (mg/L)	Total Threshold Limit (mg/Kg)
Arsenic	5.0	500
Barium (excluding barium sulfate)	100	10,000
Cadmium	1.0	100
Chromium VI	5	500
Chromium III	560	2,500
Copper	25	2,500
Lead	5.0	1,000
Mercury	0.2	20
Nickel	20	2,000
Selenium	1.0	100
Silver	5.0	500
Zinc	250	5,000

Source: California Administrative Code, Title 22, Division 4, Chapter 30, Section 66699.

Note: Wastes that exceed these limits are classified as hazardous.

TABLE 3.6
TOTAL METAL CONCENTRATIONS IN UNCONTAMINATED SOILS

Heavy Metal	Average Concentration (mg/Kg)	Range of Concentrations (mg/Kg)
Arsenic (As)	6	0.1 - 40
Barium (Ba)	500	100 - 3,500
Cadmium (Cd)	0.5	0.01 - 0.7
Chromium (Cr)	100	5 - 3,000
Copper (Cu)	20	2 - 100
Mercury (Hg)	0.03	0.01 - 0.3
Nickel (Ni)	40	5 - 5,000
Lead (Pb)	10	2 - 2,000
Selenium (Se)	0.2	0.01 - 38
Silver (Ag)	0.1	0.1 - 5
Zinc (Zn)	50	10 - 300

Source: EPA SW-874 (1980)

Note: Data are for soils distant from known mineral deposits or contamination sites.

present in the form of soluble oxyanions (AsO_4^{-3} and SeO_3^{-2}). Several environmental factors can increase the mobility of metals, such as acidic conditions (low pH), biomethylation, and chemical oxidation or reduction, but these are generally only important in aquatic environments.

3.3 SIGNIFICANCE OF FINDINGS AT INDIVIDUAL IRP SITES

The significance of analytical results and field observations made, are discussed by site, based on the criteria established in Subsection 3.2. A summary of these findings are presented in Table 3.7.

3.3.1 Vehicle Washrack Fire Station No. 1 (24-WF15)

No evidence of contamination was observed during drilling at this site. The 0-5' sample from SB1 contained 5 ug/kg of chloroform. Chloroform has no significance as a contaminant at this low concentration and this measurement may represent an artifact of the laboratory atmosphere. Therefore, no significant contamination was found at this site.

3.3.2 Vehicle Washrack Fire Station No. 2 (25-WF22)

No evidence of contamination was observed during drilling; further, the samples analyzed contained no detectable volatile or semi-volatile organics or total petroleum hydrocarbons. Therefore, no contaminants were found at this site.

3.3.3 Battery Shop, Underground Tank (26-BST5)

Low organic vapor readings were detected during drilling operations. Boring SB1 contained low total petroleum hydrocarbons concentrations (230 mg/kg) and soil discoloration in the 0-5' sample. Low organic vapor readings were found in the 0-5' and the 10'-15' samples. Boring SB2 showed low organic vapor readings in the 10'-15' and the 15'-20' samples. The levels of metals in samples from both borings were within normal ranges for uncontaminated soils. Soil boring SB1 contained 230 mg/kg total petroleum hydrocarbons in one sample. This value is above the level of 100 mg/kg used by the State of California to establish significance. However, the fact that deeper samples held undetectable levels and that none of the samples from SB2 contained detectable levels of petroleum hydrocarbons indicated this is probably not a significant source of contaminants. On the basis of low migration

TABLE 3.7
SUMMARY OF FINDINGS
SITES 24-WF15, 25-WF22, AND 26-BST5

Site Identifier	Site Name/ Description	Significant Results and Major Conclusions
1 - 24-WF15	Vehicle Washrack Fire Station No. 1	No contamination was detected at this site.
2 - 25-WF22	Vehicle Washrack Fire Station No. 2	No contamination was detected at this site.
3 - 26-BST5	Battery Shop, Underground Tank	Low levels of contamination were detected at shallow depths in boring SB1 where total petroleum hydrocarbons exceeded 100 mg/kg. The extent of the contamination is limited (present only in one sample) and the contaminants detected are not a threat to health or the environment.

rate, negligible water solubilities, low vapor pressure and high sorption coefficients of petroleum hydrocarbons, this specific concentration is not considered to represent any threat to human health or the environment.

SECTION 4.0

RECOMMENDATIONS

SECTION 4.0
RECOMMENDATIONS

This section presents recommendations for categorizing IRP sites at USAF Plant 42, based on results of the Phase II, Stage 1 investigation at Sites 24-WF15, 25-WF22 and 26-BTS5. Category I sites are those for which no further action is required. Data for these sites are considered sufficient to conclude that no significant threat to human health or the environment exists. Category II sites are those which require additional monitoring or investigation (Phase II, Stage 2) to assess the extent of current or future contamination. Category III sites are those which will require remedial actions (Phase IV), including long-term monitoring. Data for category III sites are considered sufficient to characterize the extent of contamination or they indicate an immediate threat to human health or the environment exists. Recommendations for the three sites are summarized in Table 4.1.

4.1 CATEGORY I SITES: NO FURTHER ACTION

Individual sites included in this category are:

- Vehicle Washrack Fire Station No. 1 (24-WF15)
- Vehicle Washrack Fire Station No. 2 (25-WF22)
- Battery Shop, Underground Tank (26-BST5)

No significant contamination was found at the three sites, as discussed in Section 3.0. Therefore, these sites are not considered to pose a threat to human health or the environment and require no further action.

4.1.1 Vehicle Washrack Fire Station No. 1 (24-WF15)

No contamination was found at this site based on soil analyses from three test borings. The alternative of no further aaction is the only appropriate choice.

TABLE 4.1
SUMMARY OF RECOMMENDATIONS

Site Category	Site Identifiers	Recommendations	Rationale for Recommendation
Category I	24-WF15 25-WF22	No Further Action	No contamination was found.
	26-BTS5	No Further Action	Location and amount of contaminants detected was insignificant.
Category II	None	None	None
Category III	None	None	None

4.1.2 Vehicle Washrack Fire Station No. 2 (25-WF22)

No contamination was found at this site based on soil analyses from three test borings. The alternative of no further action is the only appropriate choice.

4.1.3 Battery Shop, Underground Tank (26-BST5)

No significant contamination was found at this site based on soil analyses from two test borings. The alternative of no further action is the only appropriate choice.

4.2 CATEGORY II SITES: IRP-PHASE II, STAGE 2 INVESTIGATIONS

None of the three sites indicated significant levels of contaminants, therefore, additional monitoring or investigation is not recommended.

4.3 CATEGORY III SITES: IRP-PHASE IV, REMEDIAL ACTIONS

None of the three sites indicated significant levels of contaminants, therefore, no remedial actions are recommended.

APPENDIX A

DRILLING LOGS

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 24-WF15-SB-1	**Drilling Start Date:** 2-4-88
Location: Firestation #1 Drainage Ditch	**Drilling Completion Date:** 2-4-88
Client: AF Plant 42	**Drilling Method:** Hollow Stem Auger 6" ø
Project No.: 56394	**Sampling Method:** Split Spoon
Geologist: Stuart M. Berg	**Borehole Coordinates:**
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		6 FIRM 8 to 13 STIFF		SILT - Dark Yellowish Brown (4/6), Arkosic, trace very coarse sand, and gravel, dry.	HNU - 0 ppm
10 ft		5 7 LOOSE 4		SAND - Dark Yellowish Brown (4/6), Arkosic, micaceous, fine to very coarse grains with some silt, gravel and pebbles, subangular, moist.	HNU - 0 ppm
15 ft		3 6 LOOSE 7		as above but with some clay	HNU - 0 ppm
20 ft		3 SOFT 5 to 6 FIRM		CLAY AND SILT - Dark Yellowish Brown (4/4), Arkosic, micaceous, trace coarse to very coarse sand, subangular, moist.	HNU - 0 ppm
25 ft		4 SOFT 5 to 6 FIRM		as above No silts; mottled texture DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 24 - WF15-SB-2	**Drilling Start Date:** 2-4-88
Location: Fire Station #1 Drainage Ditch	**Drilling Completion Date:** 2-4-88
Client: AF Plant 42	**Drilling Method:** Hollow Stem Auger 6" Ø
Project No.: 56394	**Sampling Method:** Split Spoon
Geologist: Stuart M. Bay	**Borehole Coordinates:**
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		3 SOFT 4 to 6 FIRM		SILT - Dark Yellowish Brown (4/6), Arkosic, trace very coarse sand and gravel, dry.	HNU - 0 ppm
10 ft		4 V.LOOSE 5 to 4 LOOSE		SAND - Dark Yellowish Brown (4/6), Arkosic, micaceous, fine to very coarse grains with some silt, gravel and pebbles, subangular, moist.	HNU - 0 ppm
15 ft		5 FIRM 7 to 11 STIFF		SILT - Dark Yellowish Brown, arkosic, micaceous, moist.	HNU - 0 ppm
20 ft		5 7 FIRM 8		as above but with trace coarse to very coarse sand.	HNU - 0 ppm
25 ft		5 7 FIRM 9		SILT AND CLAY - Dark Yellowish Brown (4/4), Arkosic, micaceous, trace coarse to very coarse sand, subangular, moist. DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 24-WF15-SB-3	**Drilling Start Date:** 2-4-88
Location: Fire Station #1 Drainage Ditch	**Drilling Completion Date:** 2-4-88
Client: AF Plant 42	**Drilling Method:** Hollow Stem Auger 6"
Project No.: 56394	**Sampling Method:** Split Spoon Sampler
Geologist: Shari M. Bay	**Borehole Coordinates:**
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		4 SOFT 4 to 7 FIRM		SILT - Dark Yellowish Brown (4/6), Arkosic, trace very coarse sand, dry.	HNU - 0 ppm
10 ft		6 6 LOOSE 9		SAND - Dark Yellowish Brown (4/4), Arkosic, micaceous, medium to very coarse sands with some gravel and pebbles, subangular, moist.	HNU - 0 ppm
15 ft		6 7 LOOSE 7		as above but with little gravel and pebbles	HNU - 0 ppm
20 ft		17 VERY 19 STIFF 23		SILT AND CLAY - Dark Yellowish Brown (4/4), Arkosic, micaceous, trace coarse to very coarse sands, subangular, moist.	HNU - 0 ppm
25 ft		13 VERY 19 STIFF 21		as above DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 25 - WP22-SB-1	**Drilling Start Date:** 2-5-88
Location: Fire Station #2	**Drilling Completion Date:** 2-5-88
Client: AF Plant 42	**Drilling Method:** Hollow Stem Auger 6"
Project No.: 56394	**Sampling Method:** Split Spoon
Geologist: Stuart M. Berger	**Borehole Coordinates:**
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		4 5 LOOSE 7		SAND - Dark Yellowish Brown (4/6), Arkosic, micaceous, fine to medium sand, little coarse to very coarse sand, some silts, subangular, moist.	HNU - 0 ppm
10 ft		7 LOOSE 8 to 11 FIRM		as above Trace pebbles.	HNU - 0 ppm
15 ft		6 LOOSE 9 to 12 FIRM		as above Trace gravel and pebbles.	HNU - 0 ppm
20 ft		4 V.LOOSE 5 to 10 LOOSE		as above Some coarse to very coarse sand, trace gravel and pebbles.	HNU - 0 ppm
25 ft		7 LOOSE 9 to 12 FIRM		as above Medium to coarse sand, some very coarse, trace gravel and pebbles. DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 25 - MF22-SB-2	Drilling Start Date: 2-5-88
Location: Fire Station #2	Drilling Completion Date: 2-5-88
Client: AF Plant 42	Drilling Method: Hollow Stem Auger 6" ø
Project No.: 56394	Sampling Method: Split Spoon
Geologist: Stuart M. Berger	Borehole Coordinates:
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		3 VERY 4 LOOSE 2		SAND - Dark Yellowish Brown (4/6), Arkosic, micaceous, very fine to fine sand, little coarse and very coarse sand, trace gravel, subangular, moist.	HNU - 0 ppm
10 ft		6 LOOSE 8 to 12 FIRM		as above Trace pebbles, no gravel.	HNU - 0 ppm
15 ft		5 6 LOOSE 9		as above No pebbles and no gravel.	HNU - 0 ppm
20 ft		9 LOOSE 12 to 13 FIRM		as above and coarse to very sand, some very coarse, trace gravel and pebbles.	HNU - 0 ppm
25 ft		9 LOOSE 11 to 17 FIRM		SAND - Dark Yellowish Brown (4/4), Arkosic, medium to coarse sand, some very coarse, trace gravel, subangular, moist. DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 25 - WP22-SB-3	Drilling Start Date: 2-5-88
Location: Fire Station #2	Drilling Completion Date: 2-5-88
Client: AF Plant 42	Drilling Method: Hollow Stem
Project No.: 56394	Sampling Method: Split Spoon
Geologist: Stuart M. Berg	Borehole Coordinates:
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		4 SOFT 4 to 5 FIRM		SILT - Dark Yellowish Brown (4/6), little coarse to very coarse grain, subangular, dry.	HNU - 0 ppm
10 ft		10 LOOSE 12 to 11 FIRM		SAND - Dark Yellowish Brown (4/6), Silt to very fine sand, trace gravel, subangular, dry.	HNU - 0 ppm
15 ft		10 LOOSE 12 to 14 FIRM		as above Little coarse, trace gravel.	HNU - 0 ppm
20 ft		8 9 LOOSE 10		as above Little medium and coarse sand, moist.	HNU - 0 ppm
25 ft		17 FIRM 21 to 23 V.FIRM		SAND - Dark Yellowish Brown (4/4), Arkosic, medium to coarse sand, some very coarse, trace gravel and pebbles, subangular, moist. DRILLING TERMINATED at 25'	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 26-BST5-5B-1	Drilling Start Date: 2-4-88
Location: NE Side of Building 531	Drilling Completion Date: 2-4-88
Client: AF Plant 42	Drilling Method: Hollow Stem Auger 6" ø
Project No.: 56394	Sampling Method: Split Spoon
Geologist: Stuart M. Berge	Borehole Coordinates:
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft				ASPHALT	6"
5 ft		4 LOOSE 5 7		SAND - Dark Yellowish Brown (4/4) Fine Sand to some pebbles, pebbles are subrounded, micaceous, moist.	HNU 30 - 50 ppm; cuttings contain concrete and metal pieces. Odor present, minor black discoloration of the soil.
10 ft		2 VERY 2 LOOSE 3		SILT AND CLAY - Dark Yellowish Brown (4/4), Little pebbles, micaceous, moist.	HNU - 0 ppm
15 ft		5 7 LOOSE 8		as above no pebbles	HNU - 4 ppm
20 ft		7 FIRM 8 to 14 STIFF		as above	HNU - 0 ppm
25 ft		7 FIRM 9 to 12 STIFF		as above	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID 26-BST5-SB-1 Page 2 of 2

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
30 ft		7 FIRM 9 to 12 STIFF		SILT AND CLAY - Dark Yellowish Brown (4/4) with some medium to coarse sand, angular, feldspathic, moist.	HNU - 0 ppm
35 ft		13 STIFF 16 to 17 V.STIFF		as above Dark Yellowish Brown (4/4) No Sand Grains.	HNU - 0 ppm
40 ft		9 STIFF 17 to 22 V.STIFF		as above Little fine to very Coarse sand.	HNU - 0 ppm
45 ft		6 7 LOOSE 9		SAND - Dark Yellowish Brown (4/4), Arkosic, subrounded, very fine to coarse sand some silt and little very coarse sand, moist.	HNU - 0 ppm
50 ft.		19 VERY 24 FIRM 31		as above with little gravels	HNU - 0 ppm
				DRILLING TERMINATED at 50'	

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID: Site 26 - BST5-SB-2	Drilling Start Date: 2-4-88
Location: NE Side of Bldg. 531 (Plant 42)	Drilling Completion Date: 2-4-88
Client: AF Plant 42	Drilling Method: Hollow Stem Auger 6" ø
Project No.: 56394	Sampling Method: Split Spoon
Geologist: Grant M. Berge	Borehole Coordinates:
Land Surface Datum:	

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
0 ft					
5 ft		2 SOFT 4 to 6 FIRM		SILT AND CLAY - Dark Yellowish Brown (4/4), Arkosic, some medium to coarse sand, subrounded, moist.	HNU - 0 ppm
10 ft		6 V.LOOSE 7 to 2 LOOSE		SAND - Dark Yellowish Brown (4/4), Arkosic, very fine to very coarse sand, with some gravel and pebbles, subangular, moist.	HNU - 0 ppm
15 ft		8 LOOSE 11 to 14 FIRM		as above some silts, with little gravel and pebbles.	HNU - 4 ppm
20 ft		7 LOOSE 12 to 17 FIRM		SAND - Dark Grayish Brown (4/2), Arkosic, fine to very coarse sand, with little gravel, angular, moist.	HNU - 12 ppm
25 ft		5 FIRM 7 to 10 STIFF		CLAY - Brown (5/3) Micaceous with some coarse sand, moist.	HNU - 0 ppm

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID 26-BST5-SB-2 Page 2 of 2

Depth Below LS (feet)	Sample ID	Sampler Blows	Percent Recovery	Sample Description	Notes
30 ft		13 15 FIRM 18		SAND - Yellowish Brown (5/6), Arkosic, micaceous, fine to medium sand, with some coarse and trace pebbles, subangular, moist.	HNU - 0 ppm
35 ft		13 15 FIRM 18		SAND - Yellowish Brown (5/4), Arkosic, fine to coarse sand, with some gravel and very coarse sand, subrounded, moist.	HNU - 0 ppm
40 ft		7 LOOSE 12 to 14 FIRM		as above Some silts, No gravel.	HNU - 0 ppm
45 ft		NA		as above Medium to coarse, some very coarse, trace gravel.	HNU - 0 ppm
50 ft		12 STIFF 15 to 19 V.STIFF		CLAY AND SILT - Dark Yellowish Brown (4/4), Arkosic, some coarse to very coarse sand, with trace pebbles & gravel, subrounded, moist. DRILLING TERMINATED at 50'	HNU - 0 ppm

APPENDIX B

CHAIN OF CUSTODY FORMS AND ANALYTICAL DATA

APPENDIX B

CHAIN OF CUSTODY FORMS AND ANALYTICAL DATA

An error in field identification occurred so that the sample identifiers on the Chain-of-Custody forms and laboratory reports in this appendix do not follow the numbering methods described in Section 2.3 of the report. The following shows the text and Appendix B sample identifiers, as well as laboratory ID numbers, for comparison of laboratory reports with text discussion:

Text Field ID	Appendix B Field ID	Laboratory ID
24-WF15-SB1-SS1-2.5-ESB	24-WF15-SB-1-SS-1-2.5-ESB	880269
24-WF15-SB1-SS2-10-ESB	24-WF15-SB-1-SS-1-10-ESB	880270
24-WF15-SB1-SS5-25-ESB	24-WF15-SB-1-SS-1-25-ESB	880271
24-WF15-SB2-SS1-5-ESB	24-WF15-SB-2-SS-1-5-ESB	880272
24-WF15-SB2-SS2-10-ESB	24-WF15-SB-2-SS-1-10-ESB	880273
24-WF15-SB2-SS3-15-ESB	24-WF15-SB-2-SS-1-15-ESB	880274
24-WF15-SB2-SS5-25-ESB	24-WF15-SB-2-SS-1-25-ESB	880275
24-WF15-SB3-SS1-2.5-ESB	24-WF15-SB-3-SS-1-2.5-ESB	880276
24-WF15-SB3-SS5-25-ESB	24-WF15-SB-3-SS-1-25-ESB	880277
25-WF22-SB1-SS1-2.5-ESB	25-WF22-SB-1-SS-1-2.5-ESB	880278
25-WF22-SB1-SS2-10-ESB	25-WF22-SB-1-SS-1-10-ESB	880279
25-WF22-SB2-SS1-2.5-ESB	25-WF22-SB-2-SS-1-2.5-ESB	880280
25-WF22-SB2-SS4-20-ESB	25-WF22-SB-2-SS-1-20-ESB	880281
25-WF22-SB3-SS1-2.5-ESB	25-WF22-SB-3-SS-1-2.5-ESB	880282
25-WF22-SB3-SS2-10-ESB	25-WF22-SB-3-SS-1-10-ESB	880283
25-WF22-SB3-SS3-15-ESB	25-WF22-SB-3-SS-1-15-ESB	880259
25-WF22-SB3-SS5-25-ESB	25-WF22-SB-3-SS-1-25-ESB	880260
26-BST5-SB1-SS1-5-ESB	26-BST5-SB-1-SS-1-5-ESB	880261
26-BST5-SB1-SS2-10-ESB	26-BST5-SB-1-SS-1-10-ESB	880262
26-BST5-SB1-SS3-15-ESB	26-BST5-SB-1-SS-1-15-ESB	880263
26-BST5-SB1-SS4-20-ESB	26-BST5-SB-1-SS-1-20-ESB	880264
26-BST5-SB2-SS1-5-ESB	26-BST5-SB-2-SS-1-5-ESB	880265
26-BST5-SB2-SS4-20-ESB	26-BST5-SB-2-SS-1-20-ESB	880266
26-BST5-SB2-SS6-30-ESB	26-BST5-SB-2-SS-1-30-ESB	880267
26-BST5-SB2-SS8-40-ESB	26-BST5-SB-2-SS-1-40-ESB	880284
26-BST5-SB2-SS10-50-ESB	26-BST5-SB-2-SS-1-50-ESB	880268

ENGINEERING-SCIENCE

486-1

CHAIN OF CUSTODY RECORD

ES JOB NO.	PROJECT NAME/LOCATION	SHIP TO:
56394	PLANT 42 / PALMDALE	ENGINEERING-SCIENCE, INC. 600 Bancroft Way Berkeley, CA. 94710 (415) 841-7353

SAMPLER(S): (Signature) Stuart M. Berge

DATE	TIME	SAMPLE DESCRIPTION	NO. OF CONTAINERS	SW 3550/E418.1	SW 8240	SW 8270	CAM METALS [illegible]					REMARKS
2-5-88	2:08	AF PLANT 42 25-WE22-SB-3-SS-1-15'-ESB	3	X	X	X						880259
2-5-88		AF PLANT 42 25-WF22-SB-3-SS-1-25'-ESB	3	X	X	X						880260
2-4-88		AF PLANT 42 26-BST5-SB-1-SS-1-5'-ESB	1	X			X					880261
2-4-88		AF PLANT 42 26-BST5-SB-1-SS-1-10'-ESB	1	X			X					880262
2-4-88		AF PLANT 42 26-BST5-SB-1-SS-1-15'-ESB	1	X			X					880263
2-4-88		AF PLANT 42 26-BST5-SB-1-SS-1-20'-ESB	1	X			X					880264
2-4-88		AF PLANT 42 26-BST5-SB-2-SS-1-5'-ESB	1	X			X					880265
2-4-88		AF PLANT 42 26-BST5-SB-2-SS-1-20'-ESB	1	X			X					880266
2-4-88		AF PLANT 42 26-BST5-SB-2-SS-1-30'-ESB	1	X			X					880267
2-4-88		AF PLANT 42 26-BST5-SB-2-SS-1-50'-ESB	1	X			X					880268
2-4-88		26-BST5-SB-2-SS-1-40'-ESB	1	X			X					880284

CAM METALS - As, Ba, Cd, Cr, Pb, Hg, Se, Ag plus, Cu, Fe, Mn, Zn

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Stuart M. Berge	2-5-88 / 1700				

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks
		Bill Friedman	2/6/88 / 14:00	rec'd cold & intact Added to by Bill Friedman according to information to Stuart Berge on 2/8

Distribution: Original Accompanies Shipment, Copy to Coordinator Field Files

486-2

ENGINEERING-SCIENCE

CHAIN OF CUSTODY RECORD

ES JOB NO.: 56394

PROJECT NAME/LOCATION: PLANT 42 / PALMDALE

SAMPLER(S): (Signature) Stuart M. Berge

SHIP TO: ENGINEERING-SCIENCE, INC., 600 Bancroft Way, Berkeley, CA. 94710, (415) 841-7353

ANALYSES REQUIRED: SW3550/E418.1; SW8240; SW 8270; Cal METALS (CA T.T.L.C.)

DATE	TIME	SAMPLE DESCRIPTION	NO. OF CONTAINERS	SW3550/E418.1	SW8240	SW 8270	Cal METALS					REMARKS
2-4-88		AF PLANT 42 24-WF15-SB-1-SS-1-2.5'-ESB	3	X	X	X						880269
2-4-88		AF PLANT 42 24-WF15-SB-1-SS-1-10'-ESB	3	X	X	X						880270
2-4-88		AF PLANT 42 24-WF15-SB-1-SS-1-25'-ESB	3	X	X	X						880271
2-4-88		AF PLANT 42 24-WF15-SB-2-SS-1-5'-ESB	3	X	X	X						880272
2-4-88		AF PLANT 42 24-WF15-SB-2-SS-1-10'-ESB	3	X	X	X						880273
2-4-88		AF PLANT 42 24-WF15-SB-2-SS-1-15'-ESB	3	X	X	X						880274
2-4-88		AF PLANT 42 24-WF15-SB-2-SS-1-25'-ESB	3	X	X	X						880275
2-4-88		AF PLANT 42 24-WF15-SB-3-SS-1-2.5'-ESB	3	X	X	X						880276
2-4-88		AF PLANT 42 24-WF15-SB-3-SS-1-25'-ESB	3	X	X	X						880277
2-5-88		AF PLANT 42 25-WF22-SB-1-SS-1-2.5'-ESB	3	X	X	X						880278
2-5-88		AF PLANT 42 25-WF22-SB-1-SS-1-10'-ESB	3	X	X	X						880279
2-5-88		AF PLANT 42 25-WF22-SB-2-SS-1-2.5'-ESB	3	X	X	X						880280
2-5-88		AF PLANT 42 25-WF22-SB-2-SS-1-20'-ESB	3	X	X	X						880281
2-5-88		AF PLANT 42 25-WF22-SB-3-SS-1-2.5'-ESB	3	X	X	X						880282
2-5-88		AF PLANT 42 25-WF22-SB-3-SS-1-10'-ESB	3	X	X	X						880283

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Stuart M. Berge	2-5-88 / 1700				

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks
		Bill Friedman	2/6/88 14:00	discrepancies between I.D.'s on COC and those on bottles. COC information changed by Bill Friedman according information from Stuart Berge on 2/8

Distribution: Original Accompanies Shipment, Copy to Coordinator Field Files

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880269	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988

P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880269	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880271	880272
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB	AF Plant 42 24-WF15 -SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	5
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880271	880272
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB	AF Plant 42 24-WF15 -SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880273	880274
Sample No.:	AF Plant 42 24-WF15 -SB-2-SS-1-10'-ESB	AF Plant 42 24-WF15 -SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-10-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988

P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880273	880274
Sample No.:	AF Plant 42 24-WF15 -SB-2-SS-1-10'-ESB	AF Plant 42 24-WF15 -SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-10-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880275	880276
Sample No.:	AF Plant 42 24-WF15 -SB-2-SS-1-25'-ESB	AF Plant 42 24-WF15 -SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 8, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880275	880276
Sample No.:	AF Plant 42 24-WF15 -SB-2-SS-1-25'-ESB	AF Plant 42 24-WF15 -SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88	2-4-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880277	880278
Sample No.:	AF Plant 42 24-WF15 -SB-3-SS-1-25'-ESB	AF Plant 42 25-WF22 -SB-1-SS-1-2 5'-ESB
Date Sampled:	2-4-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988

P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880277	880278
Sample No.:	AF Plant 42 24-WF15 -SB-3-SS-1-25'-ESB	AF Plant 42 25-WF22 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880279	880280
Sample No.:	AF Plant 42 25-WF22 -SB-1-SS-1-10'-ESB	AF Plant 42 25-WF22 -SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880279	880280
Sample No.:	AF Plant 42 25-WF22 -SB-1-SS-1-10'-ESB	AF Plant 42 25-WF22 -SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-10-88	2-10-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880281	880282
Sample No.:	AF Plant 42 25-WF22 -SB-2-SS-1-20'-ESB	AF Plant 42 25-WF22 -SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-11-88	2-11-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880281	880282
Sample No.:	AF Plant 42 25-WF22 -SB-2-SS-1-20'-ESB	AF Plant 42 25-WF22 -SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-11-88	2-11-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Analyzed:	2-11-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg
Chloromethane	10	ND
Bromomethane	10	ND
Vinyl Chloride	10	ND
Chloroethane	10	ND
Dichloromethane	5	ND
Trichlorofluoromethane	10	ND
1,1-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
trans-1,2-Dichloroethene	5	ND
Chloroform	5	ND
1,2-Dichloroethane	5	ND
1,1,1-Trichloroethane	5	ND
Carbon Tetrachloride	5	ND
Bromodichloromethane	5	ND
1,2-Dichloropropane	5	ND
trans-1,3-Dichloropropene	5	ND
Trichloroethene	5	ND
Benzene	5	ND
Dibromochloromethane	5	ND
1,1,2-Trichloroethane	5	ND
cis-1,3-Dichloropropene	5	ND
2-Chloroethyl vinyl ether	10	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
Chlorobenzene	5	ND
Ethylbenzene	5	ND
Styrene	5	ND
Total Xylenes	5	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988

P.O. No.:
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Analyzed:	2-11-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg
Acetone	100	ND
Acrolein	10	ND
Acrylonitrile	10	ND
2-Butanone (MEK)	100	ND
Carbon Disulfide	10	ND
Dibromomethane	10	ND
1,4-Dichloro-2-butene	10	ND
Dichlorodifluoromethane	10	ND
Ethyl methacrylate	10	ND
2-Hexanone	50	ND
Iodomethane	10	ND
4-Methyl-2-pentanone	50	ND
1,2,3-Trichloropropane	10	ND
Vinyl acetate	50	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880259	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limit ug/kg	Analytical Results ug/kg	ug/kg
Chloromethane	10	ND	ND
Bromomethane	10	ND	ND
Vinyl Chloride	10	ND	ND
Chloroethane	10	ND	ND
Dichloromethane	5	ND	ND
Trichlorofluoromethane	10	ND	ND
1,1-Dichloroethene	5	ND	ND
1,1-Dichloroethane	5	ND	ND
trans-1,2-Dichloroethene	5	ND	ND
Chloroform	5	ND	ND
1,2-Dichloroethane	5	ND	ND
1,1,1-Trichloroethane	5	ND	ND
Carbon Tetrachloride	5	ND	ND
Bromodichloromethane	5	ND	ND
1,2-Dichloropropane	5	ND	ND
trans-1,3-Dichloropropene	5	ND	ND
Trichloroethene	5	ND	ND
Benzene	5	ND	ND
Dibromochloromethane	5	ND	ND
1,1,2-Trichloroethane	5	ND	ND
cis-1,3-Dichloropropene	5	ND	ND
2-Chloroethyl vinyl ether	10	ND	ND
Bromoform	5	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND	ND
Chlorobenzene	5	ND	ND
Ethylbenzene	5	ND	ND
Styrene	5	ND	ND
Total Xylenes	5	ND	ND

ENGINEERING SCIENCE
Priority Pollutant Analysis
Volatile Organics - Method 8240
Matrix: Soil

Date Received: February 6, 1988
Date Reported: February 12, 1988
P.O. No.: .....
Job No.: 56394

For: ES:Atlanta/Plant 42
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880259	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88	2-5-88
Time Sampled:	Not Supplied	Not Supplied
Date Analyzed:	2-8-88	2-8-88

Compound	Detection Limits ug/kg	Analytical Results ug/kg	ug/kg
Acetone	100	ND	ND
Acrolein	10	ND	ND
Acrylonitrile	10	ND	ND
2-Butanone (MEK)	100	ND	ND
Carbon Disulfide	10	ND	ND
Dibromomethane	10	ND	ND
1,4-Dichloro-2-butene	10	ND	ND
Dichlorodifluoromethane	10	ND	ND
Ethyl methacrylate	10	ND	ND
2-Hexanone	50	ND	ND
Iodomethane	10	ND	ND
4-Methyl-2-pentanone	50	ND	ND
1,2,3-Trichloropropane	10	ND	ND
Vinyl acetate	50	ND	ND

Analyst

Laboratory Supervisor

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880269
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No. .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880269
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880269
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880269
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880269
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880270
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880271
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880271
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

For: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880271
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880271
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880271
Sample No.:	AF Plant 42 24-WF15 -SB-1-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880272
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880272
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880272
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880272
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880272
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880273
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES.Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880273
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880273
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880273
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880273
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-10'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988 P.O. No.: .....
Date Reported: March 18, 1988 Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale ATTN: Mr. Craig Sprinkle
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

Lab Number:	880274
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880274
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
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ATTN: Mr. Craig Sprinkle

Lab Number:	880274
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880274
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880274
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-15'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880275
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	5.8
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880275
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
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ATTN: Mr. Craig Sprinkle

Lab Number:	880275
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880275
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880275
Sample No.:	AF Plant 42 24-WF15 SB-2-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880276
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880276
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988 P.O. No.: .....
Date Reported: March 18, 1988 Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale ATTN: Mr. Craig Sprinkle
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

Lab Number:	880276
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880276
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880276
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880277
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988 P.O. No.: .....
Date Reported: March 18, 1988 Job No. 56394

FOR: ES:Atlanta/Plant 42/Palmdale ATTN: Mr. Craig Sprinkle
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

Lab Number:	880277
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880277
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880277
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880277
Sample No.:	AF Plant 42 24-WF15 SB-3-SS-1-25'-ESB
Date Sampled:	2-4-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880278
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880278
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880278
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880278
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880278
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880279
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880279
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880279
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880279
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880279
Sample No.:	AF Plant 42 25-WF22 SB-1-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880280
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880280
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880280
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880280
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880280
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880281
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-20'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988 P.O. No.: .....
Date Reported: March 18, 1988 Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale ATTN: Mr. Craig Sprinkle
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

Lab Number:	880281
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-20'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880281
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-20'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880281
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-20'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880281
Sample No.:	AF Plant 42 25-WF22 SB-2-SS-1-20'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-3-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880282
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-9-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880282
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-9-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880282
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-9-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880282
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-9-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	__*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880282
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-2.5'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-9-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No. .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-8-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
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ATTN: Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-8-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988 P.O. No.: .....
Date Reported: March 18, 1988 Job No. : 56394

For: ES:Atlanta/Plant 42/Palmdale ATTN: Mr. Craig Sprinkle
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-8-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN:Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-8-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES:Atlanta/Plant 42/Palmdale
Address:57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880283
Sample No.:	AF Plant 42 25-WF22 SB-3-SS-1-10'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-9-88
Date Analyzed:	3-8-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880259
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: ....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880259
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880259
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 10, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880259
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880259
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-15'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING SCIENCE
Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988
P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329
ATTN: Mr. Craig Sprinkle

Lab Number:	880260
Sample No.	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
1,3-Dichlorobenzene	0.66	ND
1,4-Dichlorobenzene	0.66	ND
Hexachloroethane	0.66	ND
Bis(2-chloroethyl)ether	0.66	ND
1,2-Dichlorobenzene	0.66	ND
N-Nitrosodimethylamine	2.5	ND
Bis(2-chloroisopropyl)ether	0.66	ND
N-Nitrosodi-n-propyl amine	0.66	ND
Hexachlorobutadiene	0.66	ND
1,2,4-Trichlorobenzene	0.66	ND
Nitrobenzene	0.66	ND
Isophorone	0.66	ND
Naphthalene	0.66	ND
Bis(2-chloroethoxy)methane	0.66	ND
2-Chloronaphthalene	0.66	ND
Hexachlorocyclopentadiene	0.66	ND
Acenaphthylene	0.66	ND
Acenaphthene	0.66	ND
Dimethyl phthalate	0.66	ND
2,6-Dinitrotoluene	0.66	ND
Fluorene	0.66	ND
2,4-Dinitrotoluene	0.66	ND
Diethyl phthalate	0.66	ND
N-Nitrosodiphenylamine	0.66	ND
Hexachlorobenzene	0.66	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limit mg/kg	ANALYTICAL RESULTS mg/kg
Phenanthrene	0.66	ND
Anthracene	0.66	ND
Dibutyl phthalate	0.66	ND
Fluoranthene	0.66	ND
4-Chlorophenyl phenyl ether	0.66	ND
Pyrene	0.66	ND
Butyl Benzyl phthalate	0.66	ND
Bis(2-ethylhexyl) phthalate	0.66	ND
Chrysene	0.66	ND
4-Bromophenyl phenyl ether	0.66	ND
Benzo(a)anthracene	0.66	ND
Di-n-octylphthalate	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Benzidine	6.0	ND
3,3'-Dichlorobenzidine	1.3	ND
Benzo(a)pyrene	0.66	ND
Indeno(1,2,3-cd)pyrene	0.66	ND
Dibenzo(a,h)anthracene	0.66	ND
Benzo(ghi)perylene	0.66	ND
Benzyl Alcohol	1.3	ND

Priority Pollutant Analysis
Base Neutrals - SW 8270
Matrix: Soil
(continued)

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

For: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	Analytical Results mg/kg
Acetophenone	--*	ND
Aniline	--*	ND
4-Aminobiphenyl	--*	ND
4-Chloroaniline	1.3	ND
1-Chloronaphthalene	--*	ND
Dibenzofuran	0.66	ND
p-Dimethylaminoazobenzene	--*	ND
7,12-Dimethylbenz(a)anthracene	--*	ND
a-,a-Dimethylphenethylamine	--*	ND
Diphenylamine	--*	ND
1,2-Diphenylhydrazine	--*	ND
Ethyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
Methyl methanesulfonate	--*	ND
3-Methylcholanthrene	--*	ND
2-Methylnaphthalene	0.66	ND
1-Naphthylamine	--*	ND
2-Naphthylamine	--*	ND
2-Nitroaniline	3.3	ND
3-Nitroaniline	3.3	ND
4-Nitroaniline	3.3	ND
N-Nitroso-di-n-butylamine	--*	ND
N-Nitrosopiperidine	--*	ND
Pentachlorobenzene	--*	ND
Pentachloronitrobenzene	--*	ND
Phenacetin	--*	ND
2-Picoline	--*	ND
Pronamide	--*	ND
1,2,4,5-Tetrachlorobenzene	--*	ND

*EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Pesticides and PCBs - SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
Alpha-BHC	--*	ND
Gamma-BHC	--*	ND
Beta-BHC	0.4	ND
Heptachlor	0.2	ND
Delta-BHC	0.3	ND
Aldrin	0.2	ND
Heptachlor epoxide	0.2	ND
Endosulfan I	--*	ND
Dieldrin	0.3	ND
4,4'-DDE	0.6	ND
Endrin	--*	ND
Endosulfan II	--*	ND
4,4'-DDD	0.3	ND
4,4'-DDT	0.5	ND
Endosulfan Sulfate	0.6	ND
Endrin aldehyde	--*	ND
Endrin Ketone	--*	ND
Chlordane	4.0	ND
Methoxychlor	--*	ND
Toxaphene	4.0	ND
Aroclor-1016	4.0	ND
Aroclor-1221	4.0	ND
Aroclor-1232	4.0	ND
Aroclor-1242	4.0	ND
Aroclor-1248	4.0	ND
Aroclor-1254	4.0	ND
Aroclor-1260	4.0	ND

* EPA has not yet determined detection limits for these compounds.

Priority Pollutant Analysis
Acid Extractables -- SW 8270
Matrix: Soil

Date Received: February 6, 1988
Date Reported: March 18, 1988

P.O. No.: .....
Job No. : 56394

FOR: ES: Atlanta/Plant 42/Palmdale
Address: 57 Executive Park S.E., Suite 590
Atlanta, Georgia 30329

ATTN: Mr. Craig Sprinkle

Lab Number:	880260
Sample No.:	AF Plant 42 25-WF22 -SB-3-SS-1-25'-ESB
Date Sampled:	2-5-88
Time Sampled:	Not Supplied
Date Extracted:	2-8-88
Date Analyzed:	3-2-88

Compound	Detection Limits mg/kg	ANALYTICAL RESULTS mg/kg
2-Chlorophenol	0.66	ND
2-Nitrophenol	0.66	ND
Phenol	0.66	ND
2,4-Dimethylphenol	0.66	ND
2,4-Dichlorophenol	0.66	ND
2,4,6-Trichlorophenol	0.66	ND
4-Chloro-3-methylphenol	1.3	ND
2,4-Dinitrophenol	3.3	ND
2,6-Dichlorophenol	--*	ND
2-Methyl-4,6-Dinitrophenol	3.3	ND
Pentachlorophenol	3.3	ND
4-Nitrophenol	3.3	ND
Benzoic Acid	3.3	ND
2-Methylphenol	0.66	ND
3- & 4-Methylphenol	0.66	ND
2,3,4,6-Tetrachlorophenol	--*	ND
2,4,5-Trichlorophenol	0.66	ND

Analyst

Laboratory Supervisor

*EPA has not yet determined detection limits for these compounds.

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

ENGINEERING-SCIENCE, INC.

RESEARCH AND DEVELOPMENT
LABORATORY
600 BANCROFT WAY
BERKELEY, CALIFORNIA 94710
(415) 841-7353

Job No.: 56394
Client: ES Atlanta
Attention: Craig Sprinkle
Address: 57 Executive Park South, NE Suite 590
Atlanta, GA 30329

Project: Plant 42/Palmdale

Attached are the analytical reports for the soil samples received by this laboratory on 2-06-88.

Sample preparation data

Laboratory Sample No.	Test	Date collected	Time collected	Date* extracted	Date analyzed	Date* 2nd col.
88020259	418.1	2-05-88	Not given	2-07-88	2-26-88	
88020260	418.1	2-05-88	Not given	2-07-88	2-26-88	
88020261	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020261	Metals	2-04-88	Not given		3-31-88	
88020262	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020262	Metals	2-04-88	Not given		3-31-88	
88020263	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020263	Metals	2-04-88	Not given		3-31-88	
88020264	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020264	Metals	2-04-88	Not given		3-31-88	
88020265	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020265	Metals	2-04-88	Not given		3-31-88	
88020266	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020266	Metals	2-04-88	Not given		3-31-88	
88020267	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020267	Metals	2-04-88	Not given		3-31-88	
88020268	418.1	2-04-88	Not given	2-07-88	2-26-88	
88020268	Metals	2-04-88	Not given		3-31-88	
88020269	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020270	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020271	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020272	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020273	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020274	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020275	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020276	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020277	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020278	418.1	2-05-88	Not given	2-08-88	2-26-88	
88020279	418.1	2-05-88	Not given	2-08-88	2-26-88	

177.24.1

Laboratory Sample No.	Test	Date collected	Time collected	Date* extracted	Date analyzed	Date* 2nd col.
88020280	418.1	2-05-88	Not given	2-08-88	2-26-88	
88020281	418.1	2-05-88	Not given	2-08-88	2-26-88	
88020282	418.1	2-05-88	Not given	2-08-88	2-26-88	
88020283	418.1	2-05-88	Not given	2-08-88	2-26-88	
88020284	418.1	2-04-88	Not given	2-08-88	2-26-88	
88020284	Metals	2-04-88	Not given		3-31-88	

* If applicable

177.24.2

CASE NARRATIVE
Samples No.: 88020265-0268, 88030284
Work Order Number 486

This group of samples was received at Berkeley Laboratory on 2-06-88. It consisted of 25 samples to be analyzed for 418.1 and metals.

Analysis of the method blanks prepared for this sample batch resulted in levels of the analyte listed that are greater than 5 times the reporting limit. The sample values are reported, uncorrected, with a flag: Zinc (88020265-0268 only)

Results have been corrected for any level of contaminant found in the extraction blanks prepared and analyzed with the samples.

The spike recovery for Selenium is below normal limits due to matrix inteference that required sample dilution.

The reporting limits for silver and manganese were changed due to the high background levels in the samples.

177.24.3

LEGEND FOR RESULT QUALIFIERS

B - Reported value is less than reporting limit but equal to or greater than the MDL

N - Spiked sample recovery not within control limits

S - Reported value was determined by the method of standard additions

* - Duplicate analysis not with control limits

J - Sample value is corrected by the analyte concentration found in the blank

R - The MDL used for this compound is as reported by the subcontracting laboratory

L - Method blank contamination; no blank correction of sample values is performed.

177.24.4

CAL LAB
Reporting Levels and MDLs for Metals
Samples No.: 88020261-88020284

Metal 200.7	Reporting Limits mg/L
Aluminum	0.05
Antimony	0.05
Barium	0.005
Beryllium	0.001
Boron	0.02
Cadmium	0.005
Calcium	0.1
Chromium	0.01
Cobalt	0.01
Copper	0.006
Iron	0.05
Lead	0.05
Magnesium	0.1
Manganese	0.005
Molybdenum	0.02
Nickel	0.04
Potassium	5.0
Silica	--
Silver	0.005
Sodium	0.05
Thallium	0.4
Vanadium	0.01
Zinc	0.01

177.24.5

Detection Limits
Environmental Quality Parameters
Samples No.: 88020259-88020284

Parameter	Units	Detection Limits
418.1		
Petroleum Hydrocarbons	mg/Kg	100

The method detection limits listed are based upon the EPA method listed. Dilution or other deviations from the normal procedures, required due to characteristics of a sample, will influence these values. These changes are described in the report narrative if applicable.

177.24.6

ANALYSIS REPORT

WORK ORDER NUMBER: 486
JOB NUMBER : ZB0000000407
WORK ORDER DATE : 02/08/88

APPROVED BY _____
Lab Supervisor

REPORT DATA:
ES ATLANTA/ PLANT 42
57 EXECUTIVE PARK,SUITE 590
ATLANTA, GA 30329
CRAIG SPRINKLE

CLIENT DATA:
ES ATLANTA/ PLANT 42 (95)
57 EXECUTIVE PARK,SUITE 590
ATLANTA, GA 30329

OF REPORT COPIES: 1

CONTRACT / PO # : 56394
CONTACT : CRAIG SPRINKLE
(404)-325-0770

TASK: 2, UNITS: ug/L

TEST COMPOUND	26-BST5-SB-1-SS-1-5'-ESB 88020261	26-BST5-SB-1-SS-1-10'-ESB 88020262	26-BST5-SB-1-SS-15'-ESB 88020263	26-BST5-SB-1-SS-1-20'-ESB 88020264	26-BST5-SB-2-SS-1-5'-ESB 88020265	26-BST5-SB-2-SS-1-20'-ESB 88020266
3010	NA	NA	NA	NA	NA	NA
3020	NA	NA	NA	NA	NA	NA
AG-A	<0.011	<0.01	<0.007	<0.006	<0.007	<0.007
AS-F	0.028	0.024	0.022	0.024	0.035	0.022
BA-A	2.6	2.0	3.9	3.7	4.1	2.0
CD-A	<.005J	<.005J	<.005J	<.005J	<.005J	<.005J
CR-A	0.04	0.04	0.03	0.03	0.04	0.05
CU-A	0.58	0.07	0.08	0.08	0.13	0.06
FE-A	22	22	15	18	34	29
HG-C	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MN-A	12	17	25	24	27	9.3
PB-A	0.85	<0.05	0.07	0.07	0.07	<0.05
SE-F	<.010N	<.010N	<.010N	<.010N	<.010N	<.010N
TN-A	0.51J	<0.01J	<0.01J	0.01J	0.10L	0.14L

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 2, UNITS: mg/L

TEST COMPOUND	26-BST5-SB-2-SS-1-30'-ESB 88020267	26-BST5-SB-2-SS-1-50'-ESB 88020268	26-BST5-SB-2-SS-1-40'-ESB 88020284
3010	NA	NA	NA
3020	NA	NA	NA
AG-A	<.007	<0.007	<0.007
AS-F	0.015	0.014	0.022
BA-A	2.7	2.1	2.5
CD-A	<.005J	<.005J	<.005J
CR-A	0.03	0.05	0.03
CU-A	0.06	0.04	0.03
FE-A	19	16	14
HG-C	<0.005	<0.005	<0.005
MN-A	16	9.4	17
PB-A	0.06	<0.05	0.06
SE-F	<.010N	<.010N	<.010N
ZN-A	0.44L	0.13L	0.16L

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 3, UNITS: mg/Kg

TEST COMPOUND	25-WF22-SB-3-SS-1-15'-ESB 88020259	25-WF22-SB-3-SS-1-25'-ESB 88020260	26-BGTS-SB-1-SS-1-5'-ESB 88020261	26-BGTS-SB-1-SS-1-10'-ESB 88020262	26-BGTS-SB-1-SS-15'-ESB 88020263	26-BGTS-SB-1-SS-1-20'-ESB 88020264
418.1 PETROLEUM HYDROCARBONS	<100	<100	230	<100	<100	<100
STLC EXTRACTION			NA	NA	NA	NA

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 3, UNITS: mg/Kg

TEST COMPOUND	26-BGTS-SB-2-SS-1-5'-ESB 88020265	26-BGTS-SB-2-SS-1-20'-ESB 88020266	26-BGTS-SB-2-SS-1-30'-ESB 88020267	26-BGTS-SB-2-SS-1-50'-ESB 88020268	24-WF15-SB-1-SS-1-2.5'-ESB 88020269	24-WF15-SB-1-SS-1-10'-ESB 88020270
418.1 PETROLEUM HYDROCARBONS	<100	<100	<100	<100	<100	<100
STLC EXTRACTION	NA	NA	NA	NA		

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 3, UNITS: mg/Kg

TEST COMPOUND	24-WF15-SB-1-SS-1-25'-ESB 88020271	24-WF15-SB-2-SS-1-5'-ESB 88020272	24-WF15-SB-2-SS-1-10'-ESB 88020273	24-WF15-SB-2-SS-1-15'-ESB 88020274	24-WF15-SB-2-SS-1-25'-ESB 88020275	24-WF15-SB-3-SS-1-2.5'-ESB 88020276
418.1 PETROLEUM HYDROCARBONS STLC EXTRACTION	<100	<100	<100	<100	<100	<100

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 3, UNITS: ug/Kg

TEST COMPOUND	24-WF15-SB-3-SS-1-25'-ESB 88020277	25-WF22-SB-1-SS-1-2.5'-ESB 88020278	25-WF22-SB-1-SB-1-10'-ESB 88020279	25-WF22-SB-2-SS-1-2.5'-ESB 88020280	25-WF22-SB-2-SB-1-20'-ESB 88020281	25-WF22-SB-3-SS-1-2.5'-ESB 88020282
418.1 PETROLEUM HYDROCARBONS STLC EXTRACTION	<100	<100	<100	<100	<100	<100

ANALYSIS REPORT FOR WORK ORDER NUMBER 486

TASK: 3, UNITS: mg/Kg

TEST COMPOUND	25-WF22-SB-3-SS-1-10'-ESB 88020283	26-BST5-SB-2-SS-1-40'-ESB 88020284
418.1 PETROLEUM HYDROCARBONS	<100	<100
STLC EXTRACTION		NA

APPENDIX C

ANALYTICAL QA/QC DATA

TABLE C.1
SUMMARY OF HOLDING TIMES FOR SOIL SAMPLE ANALYSES

Field Sample Identifier	Laboratory ID	Date Sample Collected	Date Analyzed / Holding Time in Days			
			Volatile Organics (SW8240)	Semi-Volatiles (SW8270)	Petrol. Hydrocarbons[1] (SW3550 + E418.1)	Extractable Metals (CA Title 22)
24-WF15-SB1-SS1-2.5-ESB	880269	2-4-88	2-8 / 4	3-2 / 27	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB1-SS2-10-ESB	880270	2-4-88	2-8 / 4	3-2 / 27	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB1-SS5-25-ESB	880271	2-4-88	2-8 / 4	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB2-SS1-5-ESB	880272	2-4-88	2-8 / 4	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB2-SS2-10-ESB	880273	2-4-88	2-8 / 4	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB2-SS3-15-ESB	880274	2-4-88	2-10 / 6	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB2-SS5-25-ESB	880275	2-4-88	2-10 / 6	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB3-SS1-2.5-ESB	880276	2-4-88	2-10 / 6	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
24-WF15-SB3-SS5-25-ESB	880277	2-4-88	2-10 / 6	3-3 / 28	E 2-08 / 4 A 2-26 / 22	--
25-WF22-SB1-SS1-2.5-ESB	880278	2-5-88	2-10 / 5	3-3 / 27	E 2-08 / 3 A 2-26 / 21	--
25-WF22-SB1-SS2-10-ESB	880279	2-5-88	2-10 / 5	3-3 / 27	E 2-08 / 3 A 2-26 / 21	--
25-WF22-SB2-SS1-2.5-ESB	880280	2-5-88	2-10 / 5	3-3 / 27	E 2-08 / 3 A 2-26 / 21	--
25-WF22-SB2-SS4-20-ESB	880281	2-5-88	2-11 / 6	3-3 / 27	E 2-08 / 3 A 2-26 / 21	--
25-WF22-SB3-SS1-2.5-ESB	880282	2-5-88	2-11 / 6	3-9 / 33	E 2-08 / 3 A 2-26 / 21	--
25-WF22-SB3-SS2-10-ESB	880283	2-5-88	2-11 / 6	3-8 / 32	E 2-08 / 3 A 2-26 / 21	--

883J121

TABLE C.1 - Continued
SUMMARY OF HOLDING TIMES FOR SOIL SAMPLE ANALYSES

Field Sample Identifier	Laboratory ID	Date Sample Collected	Date Analyzed / Holding Time in Days			
			Volatile Organics (SW8240)	Semi-Volatiles (SW8270)	Petrol. Hydrocarbons[1] (SW3550 + E418.1)	Extractable Metals (CA Title 22)
25-WF22-SB3-SS3-15-ESB	880259	2-5-88	2-8 / 3	3-2 / 26	E 2-07 / 2 A 2-26 / 21	--
25-WF22-SB2-SS5-25-ESB	880260	2-5-88	2-8 / 3	3-2 / 26	E 2-07 / 2 A 2-26 / 21	--
26-BST5-SB1-SS1-5-ESB	880261	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB1-SS2-10-ESB	880262	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB1-SS3-15-ESB	880263	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB1-SS4-20-ESB	880264	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB2-SS1-5-ESB	880265	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB2-SS4-20-ESB	880266	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB2-SS6-30-ESB	880267	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56
26-BST5-SB2-SS8-40-ESB	880284	2-4-88	--	--	E 2-08 / 4 A 2-26 / 22	3-31-88 / 56
26-BST5-SB2-SS10-50-ESB	880268	2-4-88	--	--	E 2-07 / 3 A 2-26 / 22	3-31-88 / 56

FOOTNOTES: 1 -- Letter E denotes date of extraction.
-- Letter A denotes date of analysis.

TABLE C.2
SUMMARY OF QUALITY ASSURANCE RESULTS
FOR ORGANIC ANALYSES

Blind Duplicate	Field Samples	Laboratory IDs		Detection Limits	Analytical Results (ug/kg)			Relative % Difference
					Sample 1	Sample 2	Average	
SW8240 - Volatile Organics								
24-WF15-SB2-SS2-10	24-WF15-SB2-SS3-15	880273	880274	5 - 10 ug/kg	--	--	--	--
No SW8240 compounds were detected.								
25-WF22-SB3-SS2-10	25-WR22-SB3-SS3-15	880283	880259	5 - 10 ug/kg	--	--	--	--
No SW8240 compounds were detected.								
SW8270 - Semi-Volatile Organics								
24-WF15-SB2-SS2-10	24-WF15-SB2-SS3-15	880273	880274	0.2 - 6 mg/kg	--	--	--	--
No SW8270 compounds were detected.								
25-WF22-SB3-SS2-10	25-WF22-SB3-SS3-15	880283	880259	0.2 - 6 mg/kg	--	--	--	--
No SW8270 compounds were detected.								
SW3550/E418.1 - Petroleum Hydrocarbons								
24-WF15-SB2-SS2-10	24-WF15-SB2-SS3-15	880273	880274	100 mg/kg	--	--	--	--
No petroleum hydrocarbons were detected.								
25-WF22-SB3-SS2-10	25-WF22-SB3-SS3-15	880283	880259	100 mg/kg	--	--	--	--
No petroleum hydrocarbons were detected.								
26-BST5-SB1-SS4-20	26-BST5-SB1-SS3-15	880264	880263	100 mg/kg	--	--	--	--
No petroleum hydrocarbons were detected.								

TABLE C.3
SUMMARY OF QUALITY ASSURANCE RESULTS
FOR METALS ANALYSES

Blind Duplicate	Field Samples	Laboratory IDs	Detection Limits (mg/L)[a]	Analytical Results (ug/kg)			Relative % Difference
				Sample 1	Sample 2	Average	
26-BST5-SB1-SS4-20	26-BST5-SB1-SS3-15	880264 880263					
Metals							
Ag			0.005	<0.006	<0.007	<0.007	0
As			0.002	0.024	0.022	0.023	9
Ba			0.005	3.7	3.9	3.8	5
Cd			0.005	ND	ND	ND	0
Cr			0.010	0.03	0.03	0.03	0
Cu			0.006	0.08	0.08	0.08	0
Fe			0.050	18	15	16	19
Hg			0.0002	<0.005	<0.005	<0.005	0
Mn			0.005	24	25	24	4
Pb			0.050	0.07	0.07	0.07	0
Se			0.002	<0.01	<0.01	<0.01	0
Zn			0.010	0.01	ND	ND	0

(a) Soils were extracted 1:10 with mild acid. The metals content of the extract is reported in mg/L. The probable metal concentration in the soil is 10X (in mg/kg).

TABLE C.4
SUMMARY OF QUALITY CONTROL RESULTS
FOR ORGANIC ANALYSES

Metal	Number of Duplicate Sets	Relative % Difference			Number of Spikes	Spike Concentration (mg/L)	Percent Recovery		
		Low	Average	High			Low	Average	High
1,1-Dichloroethene	2	0	--	1	4	50 ug/kg	76	76	77
Trichloroethene	2	0	--	5	4	50 ug/kg	96	100	101
Chlorobenzene	2	0	--	3	4	50 ug/kg	100	104	106
Toluene	2	2	--	4	4	50 ug/kg	101	104	105
Benzene	2	1	--	2	4	50 ug/kg	100	102	104
1,2,4-Trichlorobenzene	2	7	--	20	4	3.33 mg/kg	53	61	74
Acenaphthene	2	3	--	12	4	3.33 mg/kg	63	71	82
2,4-Dinitrotoluene	2	1	--	6	4	3.33 mg/kg	77	80	82
Pyrene	2	3	--	18	4	3.33 mg/kg	57	64	76
N-Nitroso-Di-n-Propylamine	2	3	--	17	4	3.33 mg/kg	52	61	65
1,4-Dichlorobenzene	2	5	--	24	4	3.33 mg/kg	56	62	71
Pentachlorophenol	2	4	--	25	4	6.67 mg/kg	76	84	98
Phenol	2	13	-	22	4	6.67 mg/kg	56	65	78
2-Chlorophenol	2	11	--	19	4	6.67 mg/kg	58	64	72
4-Chloro-3-methylphenol	2	4	--	9	4	6.67 mg/kg	66	68	72
4-Nitrophenol	2	4	--	5	4	6.67 mg/kg	77	85	93
Petroleum Hydrocarbons	2	--	ND	--	2	1,000 mg/kg	75	--	77

TABLE C.5
SUMMARY OF QUALITY CONTROL RESULTS
FOR METAL ANALYSES

Metal	Number of Duplicate Sets	Relative % Difference			Number of Spikes	Spike Concentration (mg/L)	Percent Recovery		
		Low	Average	High			Low	Average	High
Barium	2	--	0	--	2	2.0	85	--	90
Cadmium	2	--	ND	--	2	0.050	82	--	86
Chromium	2	--	0	--	2	0.20	--	85	--
Copper	2	0	--	16	2	0.250	86	--	96
Iron	2	0	--	6	2	1.0	--	0[a]	--
Lead	2	--	ND	--	2	0.50	84	--	86
Manganese	2	0	--	1	2	0.20	--	0[a]	--
Silver	2	--	0	--	2	0.040	95	--	105
Zinc	2	--	0	--	2	0.20	75	--	90
Arsenic	2	9	--	15	2	0.04	92	--	98
Selenium	2	--	0	--	2	0.04	42	--	45

a Spike added was too small to affect significant digits in sample and spiked sample results.

ENGINEERING-SCIENCE, INC.

QUALITY CONTROL REPORT
EPA METHOD 625/8270
MATRIX: SOIL

Client: ES Atlanta
Plant 42/Palmdale
Attn: Craig Sprinkle
Address: 57 Executive Park South, N.E., Suite 590

Job No.: 56394

QC Report No.: BNA-S-0015-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

QC Report for Samples: 88020259-0260, 88020269-0276

UNIT: mg/Kg

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

FRACTION	COMPOUND	CONC. SPIKE ADDED	SAMPLE RESULT	CONC.: MS	% REC:	CONC.: MSD	% REC:	RPD:	EPA QC LIMIT RPD	RECOVE
	1,2,4-Trichlorobenzene	3.33	ND**	2.03	61	2.47	74	20	23	38-107
B/N	Acenaphthene	3.33	ND	2.73	82	2.43	73	12	19	31-137
SMO	2,4-Dinitrotoluene	3.33	ND	2.57	77	2.73	82	6	47	28-89
SAMPLE NO	Pyrene	3.33	ND	2.12	64	2.53	76	18	36	35-142
	N-Nitroso Di-n-Propylamine	3.33	ND	1.74	52	2.07	62	17	38	41-126
88020260	1,4-Dichlorobenzene	3.33	ND	1.85	56	2.36	71	24	27	28-104
ACID	Pentachlorophenol	6.67	ND	5.10	76	6.53	98	25	47	17-109
SMO	Phenol	6.67	ND	4.13	62	5.17	78	22	35	26-90
SAMPLE NO	2-Chlorophenol	6.67	ND	4.00	60	4.83	72	19	50	25-102
	4-Chloro-3-Methylphenol	6.67	ND	4.40	66	4.83	72	9	33	26-103
88020260	4-Nitrophenol	6.67	ND	5.97	90	6.23	93	4	50	11-114

Date analyzed: 3/04/88

* Asterisked values are outside of EPA QC limits
** ND = Not Detected

BLANK SUMMARY

Blank Summary for Samples: 88020259-0260, 88020269-0276 Date analyzed: 3/02/88

Compound	Quantity
None detected	--

NOTE: ALL SAMPLE RESULTS ARE BLANK-SUBTRACTED

178.3.1

ENGINEERING-SCIENCE, INC.

QUALITY CONTROL REPORT
EPA METHOD 625/8270
MATRIX: SOIL

Client: ES Atlanta
Plant 42/Palmdale
Attn: Craig Sprinkle
Address: 57 Executive Park South,
N.E., Suite 590

Job No.: 56394

QC Report No.: ESA-S-0014-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

QC Report for Samples: 88020277-0283

UNIT: mg/Kg

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

FRACTION	COMPOUND	CONC. SPIKE ADDED	SAMPLE RESULT:	CONC.: MS	% REC:	CONC.: MSD	% REC:	RPD:	EPA QC LIMIT RPD	RECOVE
	1,2,4-Trichlorobenzene	3.33	ND**	1.78	53	1.91	57	7	23	38-107
B/N	Acenaphthene	3.33	ND	2.10	63	2.17	65	3	19	31-137
SMO	2,4-Dinitrotoluene	3.33	ND	2.72	82	2.68	80	1	47	28-89
SAMPLE NO	Pyrene	3.33	ND	1.95	59	1.89	57	3	36	35-142
	N-Nitroso Di-n-Propylamine	3.33	ND	2.10	63	2.16	65	3	38	41-126
88020282	1,4-Dichlorobenzene	3.33	ND	1.95	59	2.06	62	5	27	28-104
ACID	Pentachlorophenol	6.67	ND	5.54	83	5.32	80	4	50	17-109
SMO	Phenol	6.67	ND	3.73	56	4.23	63	13	35	26-90
SAMPLE NO	2-Chlorophenol	6.67	ND	3.88	58	4.32	65	11	50	25-102
	4-Chloro-3-Methylphenol	6.67	ND	4.42	66	4.61	69	4	33	26-103
88020282	4-Nitrophenol	6.67	ND	5.43	81	5.16	77	5	50	11-114

Date analyzed: 3/17/88

* Asterisked values are outside of EPA QC limits
** ND = Not Detected

BLANK SUMMARY

Blank Summary for Samples: 88020277-0283

Date analyzed: 3/03/88

Compound	Quantity
None detected	--

NOTE: ALL SAMPLE RESULTS ARE BLANK-SUBTRACTED

178.3.2

QUALITY CONTROL REPORT
EPA METHOD 624/8240
MATRIX: SOIL

Client: ES Atlanta
Plant 42/Palmdale
Attn: Craig Sprinkle
Address: 57 Executive Park South,
N.E., Suite 590
Atlanta, GA 30329

Job No.: 56394

QC Report No.: VOA-S-0010-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

QC Report for Samples: 88020259-0260, 88020269-0273

UNIT: ug/Kg

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

FRACTION	COMPOUND	CONC. SPIKE ADDED	SAMPLE RESULT	CONC.: % REC: MS	CONC.: % REC: MSD	RPD	EPA QC LIMITS* RPD	EPA QC LIMITS* RECOVERY
VOA	1,1-Dichloroethene	50	ND**	38.2: 76:	38.5: 77:	1	22	59-172
SMO	Trichloroethene	50	ND	47.9: 96:	50.5:101:	5	24	62-137
SAMPLE NO	Chlorobenzene	50	ND	50.2:100:	51.6:103:	3	21	60-133
	Toluene	50	ND	50.4:101:	52.6:105:	4	21	59-139
88020259	Benzene	50	ND	51.5:103:	51.9:104:	1	21	66-142

Date analyzed: 2/08/88

* Asterisked values are outside of EPA QC limits
** ND = Not Detected

BLANK SUMMARY

Blank Summary for Samples: 88020259-0260, 88020269-0273 Date analyzed: 2/08/88

Compound	Quantity
Methylene chloride	12
Acetone	33
2-Butanone	15

NOTE: ALL SAMPLE RESULTS ARE BLANK-SUBTRACTED

178.4.1

QUALITY CONTROL REPORT
EPA METHOD 624/8240
MATRIX: SOIL

Client: ES Atlanta
Plant 42/Palmdale
Attn: Craig Sprinkle
Address: 57 Executive Park South,
N.E., Suite 590
Atlanta, GA 30329

Job No.: 56394

QC Report No.: VOA-S-0011-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

QC Report for Samples: 88020274-0283

UNIT: ug/Kg

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

FRACTION	COMPOUND	CONC. SPIKE ADDED	SAMPLE RESULT: MS	CONC.: % REC: MS	CONC.: % REC: MSD	RPD	EPA QC LIMITS*: RPD	RECOVERY
VOA	1,1-Dichloroethene	50	ND**	37.9: 76:	38.0: 76:	0	22	59-172
SMO	Trichloroethene	50	ND	50.3:101:	50.4:101:	0	24	62-137
SAMPLE NO	Chlorobenzene	50	ND	52.8:106:	53.1:106:	0	21	60-133
	Toluene	50	ND	51.4:103:	52.6:105:	2	21	59-139
88020274	Benzene	50	ND	50.0:100:	50.8:102:	2	21	66-142

Date analyzed: 2/10/88

* Asterisked values are outside of EPA QC limits
** ND = Not Detected

BLANK SUMMARY

Blank Summary for Samples: 88020274-0280 Date analyzed: 2/10/88

Compound	Quantity
Methylene chloride	8.97
Acetone	4.7

Blank Summary for Samples: 88020281-0283 Date analyzed: 2/11/88

Compound	Quantity
Methylene chloride	5.53
Acetone	17.1

NOTE: ALL SAMPLE RESULTS ARE BLANK-SUBTRACTED

178.4.2

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Environmental Quality Parameters

ES Job No.: 56394
Client: Atlanta/AFB Plant #42
Attn.: Craig Sprinkle
Address: 57 Executive Park South
N.E., Suite 590
Atlanta, GA

QC Report No.: TPH-S-0019-88
Date Reported: 4-22-88
Laboratory Supervisor Approval:

Sample Matrix:
Soil (mg/Kg)

*Moisture: NA

QC Report for Sample Nos.: 88020268-0275, 88020277-0278

Analytical Parameter	Laboratory Duplicates	Sample Nos. Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Petroleum Hydrocarbons	88020268	88020268	2-26-88	418.1	<100	<100	<100	NC	1000	<100	770	77	

* If % moisture is reported, results are presented on a dry-weight basis.
NA = Not applicable
NC = Not calculated

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

179.6.1

CASE NARRATIVE
Samples No.: 88020265-0268, 88020284
Work Order Number 486

This group of samples was received at Berkeley Laboratory on 2-06-88. It consisted of 25 samples to be analyzed for 418.1 and metals.

Analysis of the method blanks prepared for this sample batch resulted in levels of the analyte listed that are greater than 5 times the reporting limit. The sample values are reported, uncorrected, with a flag: Zinc (88020265-0268 and 88020284 only)

Results have been corrected for any level of contaminant found in the extraction blanks prepared and analyzed with the samples.

The spike recovery for Selenium is below normal limits due to matrix inteference that required sample dilution.

The reporting limits for silver and manganese were changed due to the high background levels in the samples.

The Relative Percent Difference is not calculated for the analyte listed since the sample values are less than five times the detection limit. Acceptable RPD in this case is defined as duplicate values within one detection limit of each other: Cr.

All samples have been blank corrected for the analytes: Cd, Zn (88020261-88020264 only).

177.24.3

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Environmental Quality Parameters

ES Job No.: 56394
Client: Atlanta/AFB Plant #42
Attn.: Craig Sprinkle
Address: 57 Executive Park South
N.E., Suite 590
Atlanta, GA

QC Report No.: TPH-S-0020-88
Date Reported: 4-22-88
Laboratory Supervisor Approval:

Sample Matrix:
Soil (mg/Kg)

*Moisture: NA

QC Report for Sample Nos.: 88020276, 88020279-0284

Analytical Parameter	Laboratory Duplicates	Sample Nos. Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Petroleum Hydrocarbons	88020276	88020276	2-26-88	418.1	<100	<100	<100	NC	1000	<100	750	75	

* If % moisture is reported, results are presented on a dry-weight basis.
NA = Not applicable
NC = Not calculated

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

179.6.2

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Metals

ES Job No.: 56394
Client: ES Atlanta/AFB Plant #42
Attn: Craig Sprinkle
Address: 57 Executive Park South, N.E., Suite 590

QC Report No.: ICP-W-0013-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

Sample Matrix:
Water (mg/L)

Dilution Factor: NA
QC Report for Samples No.:
88020261-0264

Metal	Laboratory Duplicates	Sample Nos. Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Barium	88020262	88020263	3/31/88	E200.7	<0.005	2.0	2.0	0	2.0	3.9	5.6	85	
Cadmium	88020262	88020263	3/31/88	E200.7	0.011J	<0.005	<0.005	NC	0.050	<0.005	0.041	82	
Chromium	88020262	88020263	3/31/88	E200.7	<0.01	0.04	0.03	NC	0.20	0.03	0.20	85	
Copper	88020262	88020263	3/31/88	E200.7	<0.006	0.07	0.07	0	0.25	0.08	0.32	96	
Iron	88020262	88020263	3/31/88	E200.7	<0.05	22	22	0	1.0	15	15	NC	*
Lead	88020262	88020263	3/31/88	E200.7	<0.05	<0.05	<0.05	NC	0.50	0.069	0.50	86	
Manganese	88020262	88020263	3/31/88	E200.7	<0.005	17	17	0	0.2	25	25	NC	*
Silver	88020262	88020263	3/31/88	E200.7	<0.005	<0.01	<0.01	NC	0.040	<0.007	0.042	105	
Zinc	88020262	88020263	3/31/88	E200.7	0.022J	<0.01	<0.01	NC	0.20	<0.01	0.18	90	

* See case narrative
NA = Not applicable
NC = Not calculated
J = See Legend attached

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

178.2.4

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Metals

ES Job No.: 56394
Client: ES Atlanta/AFB Plant #42
Attn: Craig Sprinkle
Address: 57 Executive Park South, N.E., Suite 590

QC Report No.: ICP-W-0014-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

Dilution Factor: NA
QC Report for Samples No.:
88u20265-0268, 88020284

Sample Matrix:
Water (mg/L)

Metal	Laboratory Sample Nos. Duplicates	Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Barium	88020268	88020265	3/31/88	E200.7	<0.005	2.1	2.1	0	2.0	4.1	5.9	90	
Cadmium	88020268	88020265	3/31/88	E200.7	0.010J	<0.005	<0.005	NC	0.050	<0.005	0.043	86	
Chromium	88020268	88020265	3/31/88	E200.7	<0.01	0.050	0.050	0	0.20	0.040	0.21	85	
Copper	88020268	88020265	3/31/88	E200.7	<0.006	0.040	0.034	16	0.250	0.13	0.346	86	
Iron	88020268	88020265	3/31/88	E200.7	<0.05	16	15	6	1.0	34	36	NC	*
Lead	88020268	88020265	3/31/88	E200.7	<0.05	<0.05	<0.05	NC	0.50	0.07	0.49	84	
Manganese	88020268	88020265	3/31/88	E200.7	<0.005	9.4	9.3	1	0.2	27	28	NC	*
Silver	88020268	88020265	3/31/88	E200.7	<0.005	<0.007	<0.007	NC	0.040	<0.007	0.038	95	
Zinc	88020268	88020265	3/31/88	E200.7	<0.02*	0.13	0.13	0	0.20	0.10	0.25	75	

* See case narrative
NA = Not applicable
NC = Not calculated
J = See Legend attached

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

178.2.3

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Metals

ES Job No.: 56394
Client: ES Atlanta/AFB Plant #42
Attn: Craig Sprinkle
Address: 57 Executive Park South, N.E., Suite 590

QC Report No.: AAF-W-0011-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

Sample Matrix:
Water (mg/L)

Dilution Factor: NA
QC Report for Samples No.:
88020261-0264

Metal	Laboratory Duplicates	Sample Nos. Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Arsenic	88020262	88020262	4/01/88	E206.2	<0.005	0.024	0.028	15	0.040	0.024	0.061	92	
Selenium	88020262	88020262	4/05/88	E270.2	<0.010	<0.010	<0.010	NC	0.040	<0.010	0.017	42	N*

* See case narrative
NA = Not applicable
NC = Not calculated
N = See Legend attached

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

178.2.2

Engineering-Science
Berkeley Laboratory

QUALITY CONTROL RESULTS SUMMARY
Metals

ES Job No.: 56394
Client: ES Atlanta/AFB Plant #42
Attn: Craig Sprinkle
Address: 57 Executive Park South, N.E., Suite 590

QC Report No.: AAF-W-0010-88
Date Reported: 4/19/88
Laboratory Supervisor Approval:

Dilution Factor: NA
QC Report for Samples:
88020265 - 0268, 88020284

Sample Matrix:
Water (mg/L)

Metal	Laboratory Duplicates	Sample Nos. Spike	Date Anal	Anal Method	Blank	Duplicate C1	Duplicate C2	Duplicate RPD	Spike Recovery SA	Spike Recovery SR	Spike Recovery SSR	Spike Recovery PR	Notes
Arsenic	88020266	88020266	4/01/88	E206.2	<0.003	0.022	0.024	9	0.040	0.022	0.061	98	
Selenium	88020266	88020266	4/06/88	E270.2	<0.010	<0.010	<0.010	NC	0.040	<0.010	0.018	45	N*

* See case narrative
NA = Not applicable
NC = Not calculated
N = See Legend attached

$$\text{Relative Percent Difference (RPD)} = \frac{C1 - C2}{(C1 + C2)/2} \times 100$$

C1 = Concentration One
C2 = Concentration Two

$$\text{Percent Recovery (PR)} = \frac{SSR - SR}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added (Concentration)

178.2.1

APPENDIX D

STATEMENT OF WORK

50X (1g)

CONTRACTORS

68X

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

PAGE 1 OF 28

Contract/Instrument ID No. (PIIN)	SPIIN	Effective Date	Requisition/Purchase Request Project No.
33615-84-D-4403	001104	MAIL DATE	FY7624-87-01825

Issued by — Code FQ8419

DEPARTMENT OF THE AIR FORCE
AIR F RCE SYSTEMS COMMAND
AERONAUTICAL SYSTEMS DIV/PMRSC
WRIGHT-PATTERSON AFB, OH 45433-6503
NEGOTIATOR: ERIC M. STARK
PHONE: (513) 255-5911

Administered by (if other than block 7) — Code S1103A

DCASMA ATLANTA
805 WALKER STREET
MARIETTA GA 30060-2789

Contractor name and address — Code 4W803 — Facility code

ENGINEERING-SCIENCE
57 EXECUTIVE PARK SOUTH, N.E.
SUITE 590
ATLANTA GA 30329
PHONE: (404) 325-0770
COUNTY: DE KALB

MAILING DATE

SEP 01 1987

DUPLICATE ORIGINAL

10. SECURITY CLAS U

11. DISCOUNT FOR PROMPT PAYMENT

12. PURCHASE OFFICE POINT OF CONTACT
LQQ/L83/LQQ

13. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

14. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS

☐ THIS CHANGE IS ISSUED PURSUANT TO ______ THE CHANGES SET FORTH HEREIN ARE MADE TO THE ABOVE NUMBERED CONTRACT/ORDER.

☐ THE ABOVE NUMBERED CONTRACT IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (SUCH AS CHANGES IN PAYING OFFICE, APPROPRIATION DATA, ETC.) SET FORTH HEREIN.

☐ THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF ______ IT MODIFIES THE ABOVE NUMBERED CONTRACT AS SET FORTH HEREIN.

X THIS MODIFICATION IS ISSUED PURSUANT TO THE "ORDERING" CLAUSE OF THE SPECIAL PROVISIONS

15. CONTRACT ADMINISTRATION DATA

a. Kind of mod: B — d. Change in contract amount: $

16. ENTER ANY APPLICABLE CHANGES

17. REMARKS (Except as provided herein, all items and conditions of the contract, as heretofore changed, remain unchanged and in full force and effect.)

SUBJECT: REVISED TASK DESCRIPTION
PROJECT ENGINEER: EMILE BALADI, USAFOEHL/TS, BROOKS AFB TX 78235-5501
FINANCE OFFICE: (S1102A) DCASR ATLANTA, 805 WALKER ST., MARIETTA GA 30060-2789

18. [X] CONTRACTOR OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT ☐ CONTRACTOR OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE

19. CONTRACTOR OFFEROR (Signature of person authorized to sign)

22. UNITED STATES OF AMERICA (Signature of Contracting Officer)
BY Barbara A. Mumma

23. NAME OF CONTRACTING OFFICER: BARBARA A. MUMMA — 24. DATE SIGNED: 17 AUG 1987

AFSC FORM 702 AUG 84 PREVIOUS EDITION WILL BE USED. AFSC—Andrews AFB DC 1984

SCHEDULE OF CHANGES

FIRST: The Task Description, dated 86 Jun 09, is replaced and superseded by the Task Description dated 87 Jun 02, as shown on pages 5 through 26, hereof.

SECOND: Section B of the Schedule, AFSC Form 705 (70E), is amended to include Special ACRN XA as shown on pages 3 and 4, hereof.

THIRD: Section F of the Schedule, AFSC Form 706 (70H), is amended as shown on page 27, hereof.

FOURTH: Section G of the Schedule, AFSC Form 703 (69K), is amended by adding the information shown on page 28, hereof.

FIFTH: This modification is issued at no increase or decrease in the ceiling price of the order.

SIXTH: The contractor's letter, dated 23 Jun 87, indicating concurrence with this action, is hereby incorporated by reference.

PART I SECTION B OF THE SCHEDULE SUPPLIES LINE ITEM DATA	1. PIIN/SIIN/MOD NO. (PIIN) F33615-84-D-4403	2. SPIIN 001104	3. PAGE 3 OF 28

4. ITEM NO. 0001 | 5. QUANTITY 1 | 6. PURCH UNIT LO | 7. UNIT PRICE $ N | 8. TOTAL ITEM AMOUNT $ N

9. SCTY CLAS U | 10. ACRN XA | 11. MSN N | 12. FSCM AND PART NUMBER | 13. CIIC

14. SITE CODES A.PGA B.ACP C.POE | 15. MGMT | 16. SVC/AGENCY USE

17. PR/MIPR DATA | 18. AUTHORIZED RATE A.PROGRESS PAY % B.RECOUP % | 19. CONTRACT PERCENT FEE % | 20. SVC ID NO. | 21. ITEM/PROJ MGR

22. 1ST DISCOUNT A. % B. DAYS | 23. 2ND DISCOUNT A. % B. DAYS | 24. 3RD DISCOUNT A. % B. DAYS | 25. NET DAYS | 26. QUANTITY VARIANCE A. OVER % B. UNDER % | 27. TYPE CONTRACT | 28. OPR

29. DESCRIPTIVE DATA

CONDUCT WORK IN ACCORDANCE WITH SECTION C, THE DESCRIPTION/ SPECIFICATIONS OF THE BASIC CONTRACT, AND THE REVISED TASK DESCRIPTION, DATED 87 JUN 02, AS SET FORTH ON PAGES 5 THROUGH 26 HEREOF. SUBMIT DATA IN ACCORDANCE WITH ATTACHMENT #1, THE CONTRACT DATA REQUIREMENTS LIST OF THE BASIC CONTRACT AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION.

4. ITEM NO. 0002 | 5. QUANTITY 1 | 6. PURCH UNIT LO | 7. UNIT PRICE $ N | 8. TOTAL ITEM AMOUNT $ N

9. SCTY CLAS U | 10. ACRN XA | 11. MSN N | 12. FSCM AND PART NUMBER | 13. CIIC

14. SITE CODES A.PGA B.ACP C.POE | 15. MGMT | 16. SVC/AGENCY USE

17. PR/MIPR DATA | 18. AUTHORIZED RATE A.PROGRESS PAY % B.RECOUP % | 19. CONTRACT PERCENT FEE % | 20. SVC ID NO. | 21. ITEM/PROJ MGR

22. 1ST DISCOUNT A. % B. DAYS | 23. 2ND DISCOUNT A. % B. DAYS | 24. 3RD DISCOUNT A. % B. DAYS | 25. NET DAYS | 26. QUANTITY VARIANCE A. OVER % B. UNDER % | 27. TYPE CONTRACT | 28. OPR

29. DESCRIPTIVE DATA

PROVIDE SUPPORT IN ACCORDANCE WITH SECTION C, THE DESCRIPTION/ SPECIFICATIONS OF THE BASIC CONTRACT, AND THE REVISED TASK DESCRIPTION, DATED 87 JUN 02, AS SET FORTH ON PAGES 5 THROUGH 26 HEREOF.

(PRESENTS NET AMOUNT OF INCREASE/DECREASE WHEN MODIFYING EXISTING ITEM NO.

A = NOT APPLICABLE
U = UNDISTRIBUTED
NSP = NOT SEPARATELY PRICED

E = ESTIMATED
- (IN QTY AND $) = DECREASE
+ OR - (IN ITEM NO.) = ADDITION OR DELETION
CIIC: CONTROLLED ITEM IDENTIFICATION CODE

SITE CODES: $ = SOURCE, D = DESTINATION, O = INTERMEDIATE

AFSC FORM 705 PREVIOUS EDITION MAY BE USED. AFSC—Andrews AFB Md 1989

PART I SECTION B OF THE SCHEDULE SUPPLIES LINE ITEM DATA	1. PRIME CONTRACT ID NO. (PIIN) F33615-84-D-4403	2. SPIIN 001104	3. PAGE 4 OF 28

4. ITEM NO.	5. QUANTITY*	6. PURCH UNIT	7. UNIT PRICE	8. TOTAL ITEM AMOUNT*
0004	1	LO	$ N	$ N

9. SCTY CLAS	10. ACRN	11. NSN	12. FSCM AND PART NUMBER	13. CIRR
U	XA	N		

14. SITE CODES A.POA B.ACP C.POD 15. NOUN 16. SVC/AGENCY USE

17. PR/MIPR DATA	18. AUTHORIZED RATE A.PROGRESS PAY % B.RECOUP %	19. CONTRACT PERCENT FEE %	20. SVC IR NO.	21. ITEM/PROJ MGR

22. 1ST DISCOUNT A. % B. DAYS	23. 2ND DISCOUNT A. % B. DAYS	24. 3RD DISCOUNT A. % B. DAYS	25. NET DAYS	26. QUANTITY VARIANCE A. OVER % B. UNDER %	27. TYPE CONTRACT	28. OPR

29. DESCRIPTIVE DATA

PERFORM CHEMICAL TESTS IN ACCORDANCE WITH SECTION C, THE DESCRIPTION/ SPECIFICATIONS OF THE BASIC CONTRACT, AND THE REVISED TASK DESCRIPTION, DATED 87 JUN 02, AS SET FORTH ON PAGES 5 THROUGH 26 HEREOF. SUBMIT DATA IN ACCORDANCE WITH ATTACHMENT #3, THE CONTRACT DATA REQUIREMENTS LIST OF THE BASIC CONTRACT, AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION.

4. ITEM NO.	5. QUANTITY*	6. PURCH UNIT	7. UNIT PRICE	8. TOTAL ITEM AMOUNT*
			$	$

9. SCTY CLAS	10. ACRN	11. NSN	12. FSCM AND PART NUMBER	13. CIRR

14. SITE CODES A.POA B.ACP C.POD 15. NOUN 16. SVC/AGENCY USE

17. PR/MIPR DATA	18. AUTHORIZED RATE A.PROGRESS PAY % B.RECOUP %	19. CONTRACT PERCENT FEE %	20. SVC IR NO.	21. ITEM/PROJ MGR

22. 1ST DISCOUNT A. % B. DAYS	23. 2ND DISCOUNT A. % B. DAYS	24. 3RD DISCOUNT A. % B. DAYS	25. NET DAYS	26. QUANTITY VARIANCE A. OVER % B. UNDER %	27. TYPE CONTRACT	28. OPR

29. DESCRIPTIVE DATA

*REPRESENTS NET AMOUNT OR INCREASE/DECREASE WHEN MODIFYING EXISTING ITEM NO

N = NOT APPLICABLE
U = UNDISTRIBUTED
NSP = NOT SEPARATELY PRICED

E = ESTIMATED
- (IN QTY AND $) = DECREASE
+ OR - (IN ITEM NO.) = ADDITION OR DELETION
CIRR: CONSIDERED ITEM NOT REQUIRED

SITE CODES: S = SOURCE, D = DESTINATION, O = INTERMEDIATE

INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION (STAGE 1)
USAF Plant 42, Palmdale, California*

I. DESCRIPTION OF WORK

The overall objective of the Phase II investigation is to define the magnitude, extent, direction and rate of movement of identified contaminants. A series of staged field investigations may be required to meet this objective. The contractor shall recommend any additional investigations required beyond this stage (Stage 1), including an estimate of costs.

The purpose of this task is to undertake a field investigation at Plant 42, California: (1) to determine the presence or absence of contamination within the specified areas of investigation; (2) if possible, to determine the magnitude of contamination and the potential for migration of those contaminants in the various environmental media; and (3) to identify significant public health and environmental hazards of migrating pollutants based on State or Federal standards for those contaminants.

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

A. General

1. The contractor shall monitor all exploratory well drilling and borehole operations with a photoionization meter or equivalent organic vapor analyzer to identify potential generation of hazardous and/or toxic materials. In addition, the contractor shall monitor drill cuttings for discoloration and odor. During drilling operations, if soil cuttings are suspected to be hazardous, the contractor shall containerize them in new, unused drums and test them for EP Toxicity and waste solvents. The results of these tests shall be included in boring logs. A maximum of 20 samples shall be collected for EP Toxicity and waste solvents. In addition, the contractor shall comply with all applicable EPA, AFOSH, OSHA, State and any other agencies' regulations/procedures concerning safety during drilling, sampling, and analysis procedures. If required, a safety plan shall be filed directly with <u>these</u> agencies.

2. All water samples collected shall be analyzed on site by the contractor for pH, temperature, and specific conductance. Sampling, maximum holding time, and preservation of samples shall strictly comply with the following references: Standard Methods for the Examination of Water and Wastewater, 15th ed. (1980), pp.35-42; ASTM, Section 11, Water and Environmental Technology; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057; and Methods for Chemical Analysis of Waters and Wastes, EPA Manual 600/4-79-020, pp.xiii to xix (1983). All chemical analyses (water and soil) shall meet the required limits of detection for the applicable EPA method identified in Appendix 1.

3. Locations where surface or sediment samples are taken or where

*Highlights of modification underscored

soil exploratory borings are drilled shall be marked with a permanent marker; and the location marked on a project map of the site.

4. Field data collected for each site shall be plotted and mapped. The nature, magnitude, and potential for contaminant flow within each zone to receiving streams and groundwaters shall be 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. All raw data shall be in the lab for one year, and will be provided to the USAF upon request.

5. Determine the areal extent of the sites by reviewing available aerial photos of the plant, both historical and the most recent panchromatic and infrared. If possible, remote sensing photos may be acquired from the Plant; USDA Agricultural Stabilization and Conservation Service's Aerial Photography Division at 2505 Parleys's Way, Salt Lake City, UT 84109; EROS Data Center, Sioux Falls, SD 57198; or USGS National Cartographic Information Center, Mail Stop 507, National Center, Reston, VA 22092.

6. Split all water and soil samples as part of the contractor's specific Quality Assurance/Quality Control (QA/QC) protocols and procedures. One set of samples shall be analyzed by the contractor. The other set of samples shall be forwarded for analysis through overnight delivery to the laboratory listed below. At the same time of collection, samples may be split with the State of California agencies and the County of Los Angeles. The agencies will provide their own sample containers. The contractor shall inform the agencies two weeks before executing field sampling.

USAFOEHL/SA
Bldg 140
Brooks AFB, TX 78235-5501

The samples sent to the USAFOEHL/SA shall be accompanied by the following information:

(a) Purpose of sample (analyte)

(b) Installation name (base)

(c) Sample number (on container)

(d) Source/location of sample

(e) Contract order numbers and title of project

(f) Method of collection (bailer, suction pump, air-lift pump, etc.)

(g) Volumes removed before sample taken

(h) Special conditions (use of surrogate standard, special nonstandard preservations, etc.)

(i) Preservatives used

(j) Date and time of sampling

(k) Sampler's name

Forward this information with each sample by properly completing an AF Form 2752 (copy of form and instruction on completion mailed under separate cover). In addition, copies of field logs documenting sample collection should accompany the samples.

Maintain chain-of-custody records for all samples, field blanks, and quality control samples.

7. Analyze an additional 10% of all samples, as duplicates, for each parameter, for quality control purpose, as indicated in Appendix 1. Include all quality control procedures and data in draft and final reports.

8. Measure water levels at all monitoring wells as feet below the ground surface or below the top of casing elevation to the nearest 0.01 feet. Report water level in terms of feet above Mean Sea Level (MSL). Measure static water levels in wells prior to sampling and at time of well development.

For the production wells that are in operation, the contractor shall ensure that sufficient time is given for the well to recover to its approximate static level before taking measurement and record the time lag between pump shut off and measurement. The contractor shall also notice the possible interference of other production/fire protection wells nearby to the well when water level measurement is taken.

9. The exact location and number of borings and augerings for each site shall be determined in the field by the contractor in consultation with the USAFOEHL project manager and Plant representatives. The approximate locations and recommended number and depth of borings and augerings for sites under investigation are given in the site specific section of this task. Borings at all landfill sites shall be drilled around the perimeter of the landfill areas unless the geophysical survey indicates that there is no safety problems or buried drums.

10. Drill all borings using the following specifications:

(a) Drill all borings by the hollow-stem auger technique using a center stem and reverse spiral lead bit to prevent free material from entering the center (hollow-stem) of the auger. Collect soil samples for chemical analysis and lithological control using split-spoon samplers to be driven ahead of the drilling bit through the center (hollow-stem) of the auger. Soil samples shall be taken for lithology and stratigraphic control purposes at the surface and at 2.5-foot intervals to a depth of 15 feet. From 15 to 100 feet, these samples shall be taken at 5-foot intervals; and below 100 feet, samples shall be taken at 10-foot intervals. Record and store lithology samples for one year.

The contractor shall follow ASTM D1452-65, Soil Investigation

and Sampling by Auger Boring; ASTM D1586-67, Penetration Test and Split-Barrel Sampling of Soils; ASTM D2487-83, Unified Soil Classification System; and ASTM D2488-69, Rec. Practices for Visual-Manual Description of Soils. The contractor shall also correlate the strata with local geological formations. Any visual observation of discoloration, odor, organic vapor or photonization meter readings, or other anomalies shall be recorded on soil boring logs. Include all boring logs in the Draft and Final Reports (as specified in Item VI below).

Near-surface soil samples (less than 5 feet deep) shall be collected manually. An initial hole is to be dug using a shovel or hand auger and cleaned out to the initial sampling depth. The sample shall then be collected by digging downward, into the undisturbed soil in the bottom of this hole, using a post-hole digger or Shelby-tube sampler. A portion of this sample shall be retained for lithology purpose.

(b) Total footage of all borings in this task shall not exceed 2150 linear feet. The maximum depth of individual soil boring is 200 ft. After soil sampling, place Type I Portland cement and bentonite grout from the bottom of the hole to the land surface using tremie pipe with pressure grouting. The suggested proportions are 3 to 5 lbs of bentonite per 94 lbs sack of cement mixed with 6.5 gal of water. Clean sand may be mixed with the grout to form a hard protective cap in the top two feet of the hole, for use in ditches and other areas subject to traffic or erosion.

(c) The total number of near-surface samples collected manually shall not exceed 16, and the maximum depth of any such boring shall be 5 feet. These holes shall be backfilled with native materials and compacted to prevent a tripping hazard.

11. Purge all production/fire protection wells prior to sampling. Purging will be complete when three well bore volumes of water have been displaced or until pH, temperature, specific conductance, color, and odor of the discharge is stabilized. Conduct purging operation using a submersible pump. Conduct all sampling using a Teflon bailer.

For existing plant production/fire protection wells, sampling with Teflon bailer is not possible. Water samples should be collected using spigot near the well head and before the pressure tank. The contractor shall minimize the potential of losing volatile organics in the water by agitation and depressurization.

12. Decontamination Procedures

(a) All sampling equipment, including components of sampling interface, shall be decontaminated prior to use between samples, and between sampling locations to avoid cross-contamination. Sampling equipment and interface shall be thoroughly washed with a laboratory-grade detergent followed by clean water, solvent (methanol), and distilled water rinses. Sufficient time shall be allowed for the solvent to evaporate and for the equipment to dry completely. The monofilament line or steel wire used to lower bailers into the well shall be dedicated to each well or discarded after each use. The calibrated water level indicator for measuring well volume and

product elevation must be decontaminated before use in each well. Water sampling shall be conducted from the background monitoring wells to the "least" contaminated and finally the "most" contaminated wells, if possible.

(b) The drilling rig and tools shall receive thorough initial cleaning and be decontaminated after each borehole. As a minimum, drilling bits shall be steam cleaned after each borehole is installed. Drilling shall proceed from the "least" to the "most" contaminated areas, if possible.

13. Second-column confirmation shall be required when detection limits exceed values identified in Appendix 1 for EPA Methods 8010, 8020, 608, 601 and 602 and for Standard Methods 509A and 509B. Conduct second-column confirmation on a maximum of 50% of the samples collected for these analyses. Total number of samples for Methods 8010, 8020, 608, 509A, 509B, 601, and 602 in Appendix 1 include these confirmation analyses. Report all procedures and conditions used. Second column results and parameters shall be reported with the other analysis results.

14. The maximum depth of soil borings, excluding shallow soil augering, shall be 200 feet for individual hole. Perform a maximum of 60 borings. Collect soil samples for chemical analysis at depths suspected of being contaminated and at major soil interface. Otherwise, collect samples at 10-foot depth in a 10-foot boring; at 5 and 20-foot depths in 20-foot borings; at 10, 30, and 50 foot depths in 50-foot borings; at 10, 30, 50, 70, and 100 foot depths in 100-foot borings; and at 10, 30, 50, 70, 100, 150 and 200 foot depths in 200-foot borings. The maximum number of samples collected for chemical analysis from any individual borehole shall be one in boreholes up to 10 feet deep; two in boreholes from 10 to 20 feet deep; three in boreholes from 20 to 30 feet deep; four in boreholes from 30 to 50 feet deep; five in boreholes from 50 to 75 feet deep; six in boreholes from 75 to 100 feet deep; seven in boreholes from 100 to 150 feet deep; and eight in boreholes from 150 to 200 feet deep. Obtain stainless steel split-spoon soil samples for chemical analysis using ASTM D-1586, except for near-surface samples collected manually.

15. Whenever possible, measure water levels in all boreholes after the water level has stabilized.

16. Conduct a literature search to complement the Phase I Report (mailed under separate cover) for local hydrogeologic conditions. Data generated in this literature search shall complement Phase I report data such that the following list will be complete. This list of data shall be utilized by the contractor to pinpoint well locations, sampling points, etc., and data shall be included in Appendix D of the Final Report (Sequence 4, Item VI).

a. Topographic data

b. Geologic data

(1) Structure

(2) Stratigraphy

(3) Lithology

c. Hydrologic data

(1) Location of existing wells, observation holes and springs within a one-mile radius of sites to be investigated

(2) Groundwater table and potentiometric contours

(3) Depth to water

(4) Quality of water

(5) Recharge, discharge, and contributing areas

d. Data on existing wells, observation holes, and springs within a 1-mile radius of sites to be investigated

(1) Location, depth, diameter, type of wells, and logs

(2) Static and pumping water level, hydrographs, yield, specific capacity, quality of water

(3) Present and projected groundwater development and use

(4) Corrosion, encrustation, well interference, and similar operation and maintenance problems

(5) Location, type, geologic setting, and hydrographs of springs

(6) Observation well networks

(7) Existing water sampling sites

e. Aquifer data

(1) Type, such as unconfined, artesian, or perched

(2) Thickness, depths, and formational designation

(3) Boundaries

(4) Transmissivity, storativity, and permeability

(5) Specific retention

(6) Discharge and recharge

(7) Ground and surface water relationship

(8) Aquifer models

f. Climatic data

(1) Precipitation

(2) Evapotranspiration

17. All well drilling, development, purging, and sampling methods must conform to State and other applicable regulatory agencies' standards.

18. Summarize sampling methods used, detection levels, and holding times in a table included in Appendix of this Final Report. The sample holding times shall not be exceeded. The contractor shall coordinate with his(her) laboratory before executing field sampling to assure the holding time will not be exceeded.

19. Include second column confirmation results in the report. These shall include what columns were used, conditions, and the two different retention times for major components.

20. Internal quality control procedures and data (lab blanks, lab spikes, and lab duplicates) as well as field quality control measures shall be included in the draft and final reports.

21. Include in the report an inventory of all wells on base (active and abandoned).

B. In addition to items delineated in Section A above, conduct the following specific actions at the following sites (Appendix 4):

1. FCD2, Fuel-Contaminated Ditch (Old Site 2-9)

a. Perform two soil borings up to 75 feet deep, two soil borings up to 70 feet deep, two soil borings up to 50 feet deep, two soil borings up to 30 feet deep, and one soil boring up to 20 feet deep, for a maximum of 470 linear feet of hollow-stem auger drilling. Also collect three near-surface (<5 feet) soil samples manually. Collect a maximum of 34 samples to be analyzed for petroleum hydrocarbon (SW3550 then EPA 418.1) and volatile organics (SW 8010 and 8020).

b. The contractor shall review the 1982 study of this site (Report of Fuel Contact Analysis of Soil at Site 2 AF Plant 42, mailed under separate cover) and use the information contained therein, along with field reconnaissance, to locate deepest boreholes in area where the potential for contamination is the greatest.

c. Collect two groundwater samples one each from the drinking water well in Site 2 (DW2-1) and fire water well 2B (FW-2B) to be analyzed for purgeable organics (EPA 601 and 602).

2. PWD2, Paint Waste Disposal Ditch (Old Site 2-1)

Install five 50-foot soil borings and collect a maximum of 19 soil samples to be analyzed for oil and grease (SW 3550, then EPA 413.2),

phenols (SM 510A then 510C), purgeable organics (EPA 8010 and 8020), and eight primary metals (California Assessment Methods for Hazardous Waste Title 22).

3. ERA7, Engine Run-Up Area (Old Site 5-1)

Conduct four 20-foot soil borings. Collect a maximum of eight soil samples to be analyzed for oil and grease (SW 3550/EPA 413.2) and purgeable organics (EPA 8010 and 8020).

4. VWT5, Vehicle Washrack and Leaking Underground Storage Tank (Old Site 7-1)

Install two 50-ft borings and two, 20-ft borings. Collect a maximum of 11 soil samples for oil and grease (SW 3550, then EPA 413.2), purgeable organics (EPA 8010 and 8020), and eight primary heavy metals (CAM Title 22).

5. AFTC, Abandoned Fire Department Training Area (Old Site C-1)

a. Install one 50 ft soil boring and one, 10-ft boring. Collect a maximum of four samples to be analyzed for oil and grease (SW 3550, then EPA 413.2) and purgeable organics (EPA 8010 and 8020).

b. Collect one near-surface (< 5 feet) soil sample to be analyzed for PCBs (SW 8080) and eight primary metals (CAM).

6. OFTC, Original Fire Department Training Area (Old Site 7-2)

a. Install one 50-foot soil boring. Collect a maximum of four soil samples to be analyzed for oil and grease (EPA 3550, then 413.2) and purgeable organics (EPA 8010 and 8020).

b. Collect one near-surface (< 5 feet) soil sample to be analyzed for PCBs (SW 8080) and eight metals (CAM).

7. ERA2, Engine Run-Up Area (Old Site 2-7)

Perform one soil boring up to 200 feet, one boring up to 100 feet, and five borings up to 50 feet deep for a maximum of 550 linear feet. Collect a maximum of 30 samples to be analyzed for petroleum hydrocarbon (SW 3550, then EPA 418.1).

8. FTA8, Fuel Transfer Area (Old Site 4-1)

Install one 20-ft boring. Collect a maximum of two soil samples to be analyzed for petroleum hydrocarbon (SW 3550 then 418.1).

9. PWM2, Paint Waste Disposal Area—West (Old Site 2-2)

Collect two near-surface (< 5 feet) soil samples to be analyzed for oil and grease (SW 3550, then EPA 413.2), phenols (SW 510A/510C) and purgeable organics (EPA 8010 and 8020).

10. PWN2, Paint Waste Disposal Area—North (Old Site 2-3)

Collect four near-surface (<5 feet) soil samples to be analyzed for oil and grease (SW 3550/EPA 413.2), phenols (SW 510A then 510C), and purgeable organics (SW 8010 and 8020).

11. DAA2, Disposal Area — A (Old Site 2-6)

Install two 10-ft soil borings. Collect a maximum of two soil samples to be analyzed for oil and grease (SW 3550/EPA 413.2) and purgeable organics (EPA 8010 and 8020).

12. ERA1, Engine Run-Up Area (Old Site 1-1)

a. Perform two soil borings up to 20 feet deep. Collect a maximum of four samples to be analyzed for oil and grease (SW 3550/EPA 413.2).

b. Collect one groundwater sample from one of the western-most of the two drinking water wells in Site 1 (DW1-1) to be analyzed for purgeable organics (EPA 601 and EPA 602).

13. DAB2, Disposal Area—B (Old Site 2-5)

Collect four near-surface (< 5 ft) soil samples to be analyzed for oil and grease (SW 3550/EPA 413.2) and purgeable organics (EPA 8020 and 8010).

14. EBA2, Engine Build-Up Area (Old Site 2-8)

Install two 10-foot borings. Collect one sample (total of two) from each hole. Analyze for oil and grease (SW 3550, then EPA 413.2).

15. TEB2, TEB Disposal Area (Old Site 2-12)

Install two 10-foot soil borings. Collect two samples (one at each hole) to be analyzed for oil and and grease (SW 3550, then EPA 413.2).

16. EVP3, Evaporation Ponds (Old Site 3-2)

a. Perform four soil borings up to 50-ft deep, for a maximum of 200 linear feet. Collect a maximum of 15 soil samples for purgeable organics (SW 8010 and 8020), eight primary metals (CAM Title 22), nickel (SW 3010/7520), and total cyanide (SM412B/412E).

b. Collect two groundwater samples from Site 3 (DW3-1) well and Site 4 (DW4-1) well to be analyzed for purgeable organics (EPA 601 and 602), cyanide (SW 412B/412E), and nickel (EPA 249.1).

17. NFTC, New Fire Department Training Area (Old Site C-2)

a. Perform one soil boring up to 15-ft deep and one soil boring up to 35-ft deep. Collect a maximum of three samples to be analyzed for oil

and grease (SW 3550/ EPA 413.2).

b: Collect one near-surface (< 5-ft) sample to be analyzed for petroleum hydrocarbon (SW 3550/EPA 418.1).

18. ADA2, Abandoned Disposal Area (Old Site 2-4)

Install one 20-ft soil boring. Collect two soil samples to be analyzed for oil and grease (SW 3550, then EPA 413.2) and purgeable organics(EPA 8010 and 8020).

19. ERA3, Engine Run-Up Area (Old Site 3-1)

Install two 10-ft borings. Collect two soil samples (one from each borings) to be analyzed for oil and grease (SW 3550/EPA 413.2).

20. NLA2, Noise Level Area (Old Site 2-11)

Install one 20-ft boring. Collect a maximum of two samples to be analyzed for oil and grease (SW 3550, then EPA 413.2) and purgeable organics (EPA 8010 and 8020).

21. FDA7, Fuel Disposal Area (Old Site 5-2)

a. Install three soil borings up to 20-ft. Collect a maximum of six soil samples to be analyzed for petroleum hydrocarbon (SW 3550/EPA 419.1).

b. Collect one groundwater sample from Fire Water Well 1 (FW-1) to be analyzed for purgeable organics (EPA 601 and 602).

22. ERA7, Engine Run-Up Area and Flightline (Old Site 6-1)

Install two 10-ft soil borings. Collect two soil samples (one from each boring) to be analyzed for oil and grease (SW 3553, then EPA 413.2).

23. BDD8, Building 27 Ditch Discharge (New Site 4-3)

a. Install two soil borings up to 20-ft deep. Collect a maximum of four soil samples to be analyzed for oil and grease (SW3550/EPA 413.2), purgeable organics (SW 8010 and 8020), four secondary metals (CAM Title 22) and eight primary metals (CAM Title 22).

b. Collect one groundwater sample from Well DW8-1 in Site 8 to be analyzed for purgeable organics (EPA 601 and 602).

24. Soil Gas Survey

Perform a soil gas survey at the Abandoned Fire Training area (Site 5-AFTC), the New Fire Training Area (Site 17-NFTC), the Original Fire Training Area (Site 6-OFTC), the Engine Run up Area (Site 7 ERA2), and the Fuel Contaminated Ditch (Site 1 FDC2). The purpose of this soil gas survey is to determine the approximate areal extent of contamination based on volatile organic compounds in the soil. Readings shall be taken on grid patterns with

50 feet spacings between readings over the areas used for fire training activities and fuel spills, the approximate dimensions of which are 400 by 400 feet, for up to 64 readings at Site 6, 1000 by 500 feet at Sites 5 and 17 for 200 readings, and a maximum of 80 readings for Sites 7 and 1. The maximum number of readings for the five sites shall not exceed 350. A report shall be submitted as indicated in Item VI, Sequence 3. One advanced copy shall be sent to UNIVAC prior to mass printing. The report shall include concentration maps of indicator chemicals and recommend locations of soil borings for future study. The contractor shall follow Sections 3, 4, and 6 of the Stage 1 report format (mailed under separate cover).

25. FONSIs

The purpose of this assessment is to formally document through a record of decision the "finding of no significant impact" at all Category I sites. The contractor shall prepare draft FONSIs for those IRP sites where the results of the site evaluation indicate that there is no significant threat to human health, welfare, and the environment. These are the Category 1 sites of the Stage 1 report (Sequence 4, Item VI).

26. Work Plan

The contractor shall prepare the work plan for the follow-on integrated IRP task order. The work plan shall detail the contractor's data quality objectives (DQOs) and recommendations for additional work to be performed (i.e., number of wells/borings, well locations, type of geophysical surveys, etc.) to fully characterize each IRP sites and for performing the detailed technical, environmental, public health, institutional, and cost analyses of the remedial alternatives. This plan shall also be explicit with regard to Quality Assurance Project Plan (QAPP): field and laboratory procedures, field decontamination operations, sampling protocol, QA/QC for field and laboratory procedures, field schedule, etc. Use the Work Plan Format provided under separate cover. Submit the work plan for regulatory agencies' review. (Item VI, Sequence 4)

In a separate letter to the final work plan, submit a lump sum cost estimate of the effort required to perform the work plan (Item VI, Sequence 2).

C. Borehole Cleanup

Remove all boring area drill cuttings and clear the general area following the completion of each boring. Only those drill cuttings suspected as being a hazardous waste (based on discoloration, odor, or organic vapor detection instrument) shall be properly containerized and moved to locations within the installation (according to Plant 42 commander designation) for temporary storage by the contractor. The suspected hazardous waste shall be tested by the contractor for EP Toxicity, if liquid waste, ignitibility, and solvents. The contractor will be responsible for the disposal of the hazardous drill cuttings. Insure that hazardous waste are properly labeled and arranged for licensed transporter to dispose of in a permitted landfill. Plant 42 will act as the generator, and be responsible for manifesting and tracking of chain of custody records for the waste cuttings.

D. Health and Safety

Comply with USAF, OSHA, EPA, State and local health and safety regulations regarding the proposed work effort. Use EPA guidelines for designating the appropriate levels of protection at study sited. Prepare a written Health and Safety Plan for the proposed work and coordinate it directly with applicable regulatory agencies. Provide an information copy of the Health and Safety Plan to the USAFOEHL prior to commencing field operations (i.e., drilling and sampling) (Sequence 7, Item VI).

E. Data Review

1. Tabulate field and analytical laboratory results, including field and laboratory parameters and QA/QC data, and incorporate them into the monthly R&D Status Reports (Sequence 1, Item VI). Forward them to the USAFOEHL for review as soon as they become available (as specified in Item VI below). Field and laboratory parameters shall include time and dates for sample collection, extraction, and analysis.

2. Upon completion of all analyses, tabulate and incorporate all results into an Informal Technical Information Report (Atch 1, Seq 3 as specified in Item VI below) and forward the report to USAFOEHL for review.

3. Data/results, generated through this undertaking, indicating a possibility of health risk (e.g., contaminated drinking water aquifer) shall be reported immediately via telephone to the USAFOEHL Program Manager.

F. Reporting

1. A draft report delineating all findings of this field investigation shall be prepared and forwarded to the USAFOEHL (as specified in Item VI, Sequence 4 below) for Air Force review and comment. This report shall include a discussion of the regional/site specific hydrogeology, well and boring logs, data from water level surveys, groundwater surface and gradient maps, water quality and soil analysis results, available hydrogeologic cross sections, and laboratory and field quality assurance/quality control information. The report shall follow the USAFOEHL format (mailed under separate cover). The format is an integral part of this task.

2. The results section of the report shall include water and soil analysis results, field quality control sample data, internal laboratory control data (lab blanks, spikes, and duplicates), and laboratory quality assurance procedures. Provide second column confirmation results and include which columns were used, the conditions, and retention times. Summarize the specific collection techniques, analytical method, holding time, and limit of detection for each analyte (Standard Methods, EPA, etc.).

3. The recommendation section shall address each site and list them by categories. Category I shall consist of sites where no further action (including remedial action) is required. Data for these sites are considered sufficient to rule out significant public health or environmental hazards.

Category II sites are those requiring additional monitoring or work to quantify or further assess the extent of current or future contamination. Category III sites are sites that will require remedial actions (ready for IRP Phase IV actions). Recommendations for Category III sites shall include any possible influence on sites in Category I and/or II due to their connection to the same hydrologic system. Any dependency between sites in different categories shall be clearly stated.

The contractor shall include a list of candidate remedial action alternatives including Long Term Monitoring (LTM) as remedial action and corresponding rationale, that, as a minimum, should be considered in selecting the remedial action for a given site. The list shall encompass alternatives that could potentially attain applicable environmental standards. For contaminants that do not have standards, the contractor may use EPA recommended safe levels for non-carcinogens (Health Advisory of Suggested-No-Adverse-Response Levels) and target levels for carcinogens (one-one millionth cancer risk level).

If not specifically requested, comprehensive cost or technical analyses of alternatives shall not be included. However, in those situations where field survey data indicate immediate corrective action is necessary, the contractor shall present specific, detailed recommendations. For each category above, the contractor shall summarize the results of field data, environmental or regulatory criteria, or other pertinent information supporting conclusions and recommendations.

4. A Technical Operation Plan (TOP) shall be prepared (site specific) based on the technical requirements specified in this task description (Sequence 20, Item VI). This plan will be explicit with regards to field procedures. It will include, but is not limited to, field decontamination operations, health and safety procedures, sampling protocol, QA/QC field procedures, updated field schedule, etc.

5. The contractor shall prepare a briefing package for presentation (Sequence 9, Item VI). Presentation shall be site by site and include the following:

a. a brief description of each site with overheads or slides included;

b. a summary of the investigation of each site, i.e., work done, parameters examined, and methods used;

c. the findings of each site;

d. the recommendations for each site; and

e. an overview of all sites.

Upon completion of Phase II work (second draft report), an out briefing will be presented by the contractor to all concerned parties. Presentation materials shall be given to the government for future use as a part of the Phase II data requirement.

G. MEETINGS

The contractor's project leader shall attend three (3) meetings to take place at times to be specified by the USAFOEHL. The meetings shall take place at Plant 42 for a duration of one day each.

II. SITE LOCATION AND DATES;

- o Plant 42, Palmdale, California
- o Date to be established

III. BASE SUPPORT:

1. Plant personnal will assign the temporary storage points within the installation of all hazardous drill cuttings. A plant representative will be designated to sign manifest for the disposal of hazardous cuttings.

2. Assist with field identification and location of underground utilities (clear the site from drilling).

3. Provide site area identification passes and necessary security escort within Sites 3 & 8.

4. Clear access to locations identified for testing by the IRP Phase I report.

5. An equipment storage area, approximately 75'x75' at Site 3.

IV. GOVERNMENT FURNISHED PROPERTY: None

V. GOVERNMENT POINTS OF CONTACT :

A. USAFOEHL Monitor

Dr. John K. Yu
USAFOEHL/TSS
Brooks AFB, TX 78235-5501
(512) 536-2158
AV 240-2158
800-821-4528

B. Plant Monitor

Mr. Michael J. Graciano
DET 2, AFSC (DE-1)
Air Force Plant 42
2503 East Avenue P
Palmdale, CA 93550
(805) 272-6720
AV 350-6720

C. MAJCOM

Lt. Peter Reynolds
HQ AMD/PMDA
Wright-Patterson AFB, OH
45433-6503
(513) 255-3076
AV 785-3076

D. MAJCOM Monitor

Maj. Joe Martin
HQ AFSC/SGAR
Andrews AFB, DC 20334-5000

(301) 981-5235
AV 858-5235

VI. CONTRACT DATA ITEM DESCRIPTIONS (DID)

In addition to sequence numbers 1, 5, and 11 in Attachment 1 to the

contract, which are applicable to all orders, the sequence numbers listed below are applicable to this order. Also shown are data applicable to this order.

Seq.No.	Block 10	Block 11	Block 12	Block 13	Block 14
3 (para I.B.24)	O/TIME	87 Oct 15	87 Nov 30	----	15
4 (para I.B.25)	ONE/R	87 AUG 31	87 SEP 30	87 NOV 30	5
4 (para I.B.26)	ONE/R	87 NOV 30	87 DEC 15	88 Mar 15	15
2 (para I.B.26)	O/TIME	87 FEB 15	88 Mar 15	----	5
3	O/TIME	*	*	-	5
4	ONE/R	86 Oct 31	86 Nov 06	87 Mar 02	**
7	O/TIME	85 Nov 22	85 Nov 29	----	7
9	ONE/R	86 Oct 31	87 Feb 23	87 Apr 27	1
14	MTHLY	85 Oct 15	85 Nov 01	***	3
15	MTHLY	85 Oct 15	85 Nov 01	***	3
20	O/TIME	85 Oct 15	85 Oct 17	----	5

* Upon completion of analytical effort before submission of 1st draft report.

** Two draft reports (25 copies each) will be required. After incorporating Air Force comments concerning the first draft report, the contractor shall supply the USAFOEHL with one copy of the second draft report. Upon acceptance of the second draft, the USAFOEHL will furnish a distribution list for the remaining 24 copies of the second draft. The contractor shall supply 50 copies plus the original camera ready copy of the final report.

*** Monthly thereafter.

Appendix 1
AF PLANT 42 - PHASE II, Stage 1
Analytical Methods, Detection Limits, and Number of Samples

Parameter	Method	Detection Limit	No. of Samples	No. of QA Samples	Total Samples
Ground-Water Samples					
Purgeable Organics	EPA 601/602	(a)	7	1	12(b)
Cyanide	SM 412B/412E	10 ug/L	2	1	3
Nickel	EPA 249.1	100 ug/L	2	1	3
pH (field)	EPA 150.1	-	7	-	7
Conductance (field)	-	-	7	-	7
Temperature (field)	-	-	7	-	7
Soil Samples					
Purgeable Organics	SW 8010/8020	(c)	115	11	189
Oil & Grease	SW 3550/EPA 413.2	-	81	8	89
Petrol Hydrocarbons	SW 3550/EPA 418.1	-	73	7	80
Total Phenolics	SW 510A/510C	-	25	2	27
Cyanide	SM 412B/412E	200 ug/g	15	1	16
PCBs	SW 8080	(e)	2	1	3
Primary Metals:	(f)				
Arsenic	EPA 206.3	1 ug/g	51	5	56
Barium	EPA 208.2	20 ug/g	51	5	56
Cadmium	EPA 213.2	1 ug/g	51	5	56
Chromium (VI)	SM 312B	5 ug/g	51	5	56
Lead	EPA 239.2	2 ug/g	51	5	56
Mercury	EPA 245.1	0.1 ug/g	51	5	56
Selenium	EPA 270.2	1 ug/g	51	5	56
Silver	EPA 272.1	1 ug/g	51	5	56

Appendix 1 (cont.)
AF PLANT 42 - PHASE II, Stage 1
Analytical Methods, Detection Limits, and Number of Samples

Parameter	Method	Detection Limit	No. of Samples	No. of QA Samples	Total Samples
Second Metals:	(f)				
Copper	EPA 220.1	25 ug/g	4	0	4
Iron	EPA 236.1	50 mg/g	4	0	4
Manganese	EPA 243.1	50 ug/g	4	0	4
Zinc	EPA 289.1	25 ug/g	4	0	4
Other Metals:	(f)				
Nickel	EPA 249.1	10 ug/g	15	1	16

(a) Detection limits for Purgeable Organics (Halocarbons and Aromatics) shall be as specified for the compounds by EPA Methods 601 and 602. Methods 601 and 602 for Purgeable Organics require positive confirmation by a second gas chromatographic column. This must be done before reporting positive values. Methods 601 and 602 specify the two columns to use. Second column confirmation is required when values exceed:

Benzene	0.7 ug/L
Carbon Tetrachloride	4.0 ug/L
1,2 Dichloroethane	0.1 ug/L
Methylene Chloride	4.0 ug/L
Tetrachloroethylene	4.0 ug/L
Trichloroethylene	1.0 ug/L
Vinyl Chloride	1.0 ug/L
Dichlorobenzene isomers	Sum greater than 10 ug/L
Other organics	Greater than 10 ug/L

Retention times on both columns must match before reporting positive value. If no match, it will be considered an interference.

If questions are encountered about certain contaminants, both chromatograms will be available for inspection by OEHL to rule out possible interference.

(b) Total of 12 determinations includes second column confirmation for up to 50% of the samples.

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(c) Detection limits for Volatile Organics (Halogenated and Aromatic) shall be as specified for compounds by SW Methods 8010 and 8020. If analytes analyses exceed 10 ug/g in soil, second column confirmation is required.

(d) Total of 189 determination includes second column confirmation for up to 50% of the samples.

(e) Detection limits for PCBs shall be as specified for compounds by SW Method 8080.

(f) Where it is applicable, use extraction procedures published in the California Assessment manual for Hazardous Test Method. If CAM is used, the contractor needs not to use EPA extraction procedures. Following extraction, ICAP (Inductively Coupled Argon Plasma) spectrometer or AAS (Atomic Absorption Spectrophotometer) may be used for metal detection.

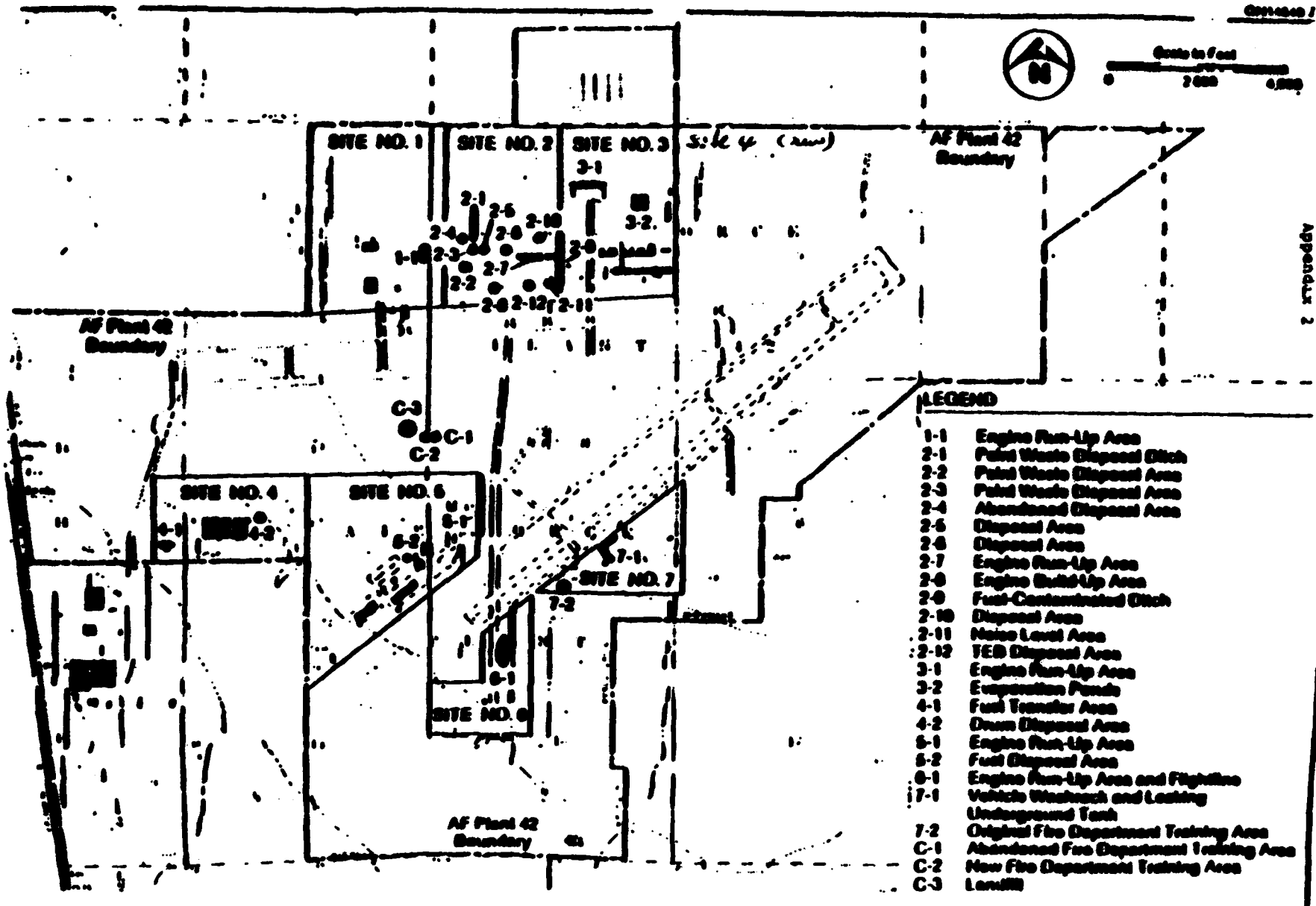
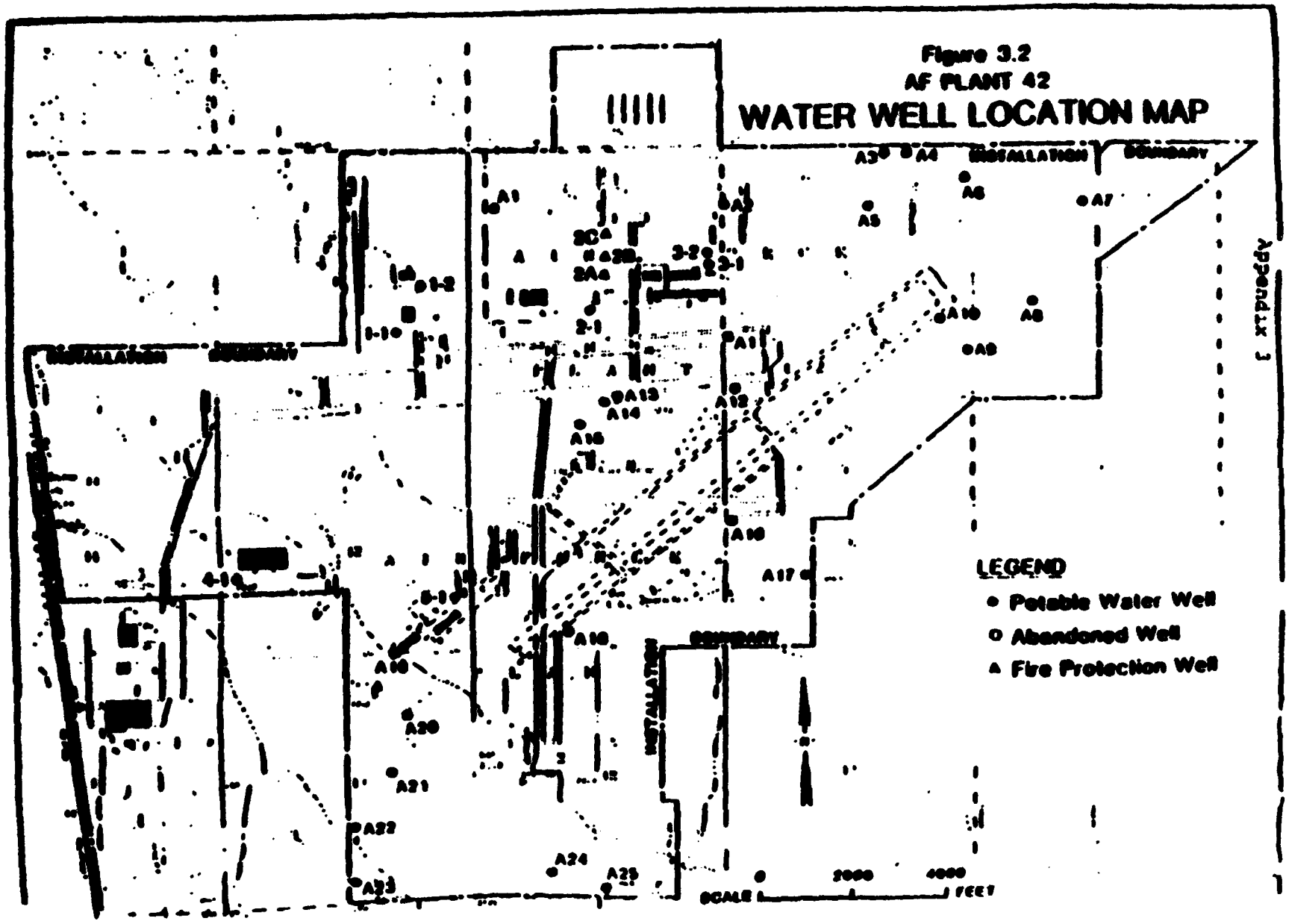


FIGURE 19.
Location Map of Identified Disposal and Spill Sites at AF Plant 42

Figure 3.2
AF PLANT 42
WATER WELL LOCATION MAP



Appendix J

Appendix 4
AF PLANT 42 - PHASE II, Stage 1
Site Specific Work Plan Summary Table

Site Number	Site Description	Activity	Analyses*
1-FCD2	Fuel Contam Ditch	2-75 feet borings 2-70 feet borings 2-50 feet borings 2-30 feet borings 1-20 feet borings 3 surface samples	TPH, VO's
		sample well DW2-1 sample well FW-2B	PO's
2-PWD2	Paint Waste Ditch	5-50 feet borings	O&G, VO's, Phenolics, Primary Metals
3-ERA7	Engine Run-up Area	4-20 feet borings	O&G, VO's
4-VWT5	Vehicle Wash/Tank	2-50 feet borings 2-20 feet borings	O&G, Primary Metals, VO's
5-AFTC	Abandoned Fire Trn	1-50 feet boring 1-10 feet boring	O&G, VO's
		1 surface sample	Primary Metals, PCB's
6-OFTC	Original Fire Trn	1-50 feet boring	O&G, VO's
		1 surface sample	Primary Metals, PCB's
7-ERA2	Engine Run-up Area	1-200 feet boring 1-100 feet boring 5-50 feet borings	TPH
8-FTA8	Fuel Transfer Area	1-20 feet boring	TPH
9-PWW2	Paint Waste West	2 surface samples	O&G, Phenolics, VO's
10-PWN2	Paint Waste North	4 surface samples	O&G, Phenolics, VO's
11-DAA2	Disposal Area A	2-10 feet borings	O&G, VO's

Appendix 4 (cont.)
AF PLANT 42 - PHASE II, Stage 1

Site Number	Site Description	Activity	Analyses
12-ERA1	Engine Run-up Area	2-20 foot borings	O&G
		sample well DW1-1	PO's
13-DAB2	Disposal Area B	4 surface samples	O&G, VO's
14-ERA2	Engine Build Area	2-10 foot borings	O&G
15-TEB2	TEB Disposal Area	2-10 foot borings	O&G
16-EVP3	Evaporation Ponds	4-50 foot borings	VO's, Primary Metals, Cyanide, Nickel
		sample well DW3-1	PO's, Nickel, Cyanide
		sample well DW4-1	
17-HFTC	Haz Fire Trn Area	1-15 foot boring	O&G
		1-35 foot boring	
		1 surface sample	TPH
18-ADA2	Aban Disposal Area	1-20 foot boring	O&G, VO's
19-ERA3	Engine Run-up Area	2-10 foot borings	O&G
20-NLA2	Noise Level Area	1-20 foot boring	O&G, VO's
21-FDA7	Fuel Disposal Area	3-20 foot borings	TPH
		sample well FW-1	PO's
22-ERAT	Engine Run/Terminal	2-10 foot borings	O&G
23-BDD8	Bldg Ditch Discharg	2-20 foot borings	O&G, Primary Metals, Secondary Metals, VO's

*TPH = petroleum hydrocarbon
VO's = PO's = purgeable organics

PART I SECTION F OF THE SCHEDULE SUPPLIES SCHEDULE DATA	1. PIIN F33615-84-D-4403	2. SPIIN 001104	3. PAGE 27 OF 28

4. ITEM NO.	5. ACRN	6. TYP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0001	XA					

11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *	14. SCTY CLAS	15. SHIP TO	16. MARK FOR
A. 88MAR15	A.	A. 1	U	FY7624	

	11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *
B.	B.	B.	B.
C.	C.	C.	C.

17. DESCRIPTIVE DATA

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 87 NOV 30.
THE DATE IN BLOCK 11A ABOVE IS THE DATE FOR GOVERNMENT ACCEPTANCE OF DATA.
ALL DATA SHALL BE DELIVERED IN ACCORDANCE WITH ATTACHMENT #1 OF THE BASIC CONTRACT AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION, NO LATER THAN 88 MAR 15.

4. ITEM NO.	5. ACRN	6. TYP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0002	XA					

11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *	14. SCTY CLAS	15. SHIP TO	16. MARK FOR
A. 88MAR15	A.	A. 1	U	FY7624	

	11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *
B.	B.	B.	B.
C.	C.	C.	C.

17. DESCRIPTIVE DATA

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 87 NOV 30.

4. ITEM NO.	5. ACRN	6. TYP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0004	XA					

11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *	14. SCTY CLAS	15. SHIP TO	16. MARK FOR
A. 88MAR15	A.	A. 1	U	FY7624	

	11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY *
B.	B.	B.	C.
C.	C.	C.	C.

17. DESCRIPTIVE DATA

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 87 NOV 30.
THE DATE IN BLOCK 11A ABOVE IS THE DATE FOR GOVERNMENT ACCEPTANCE OF DATA.
ALL DATA SHALL BE DELIVERED IN ACCORDANCE WITH ATTACHMENT #1 OF THE BASIC CONTRACT AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION NO LATER THAN 88 MAR 15.

* * REPRESENTS A NEW INCREASE/DECREASE WHEN NO + OR - APPEARS AFTER THE ITEM NO ESTIMATED

- (IN QTY) = DECREASE

+ OR - (IN ITEM NO.) = ADDITION OR DELETION

AFSC FORM JAN 1. 706 PREVIOUS EDITION WILL BE USED. AFSC — Address AFB MAR 1979

PART I SECTION G OF THE SCHEDULE ACCOUNTING CLASSIFICATION DATA	1. PROC INSTRUMENT ID NO. (PIIN) F33615-84-D-4403	2. SPIIN 001104	3. PAGE 28 OF 28

4. APPROPRIATION AND ACCOUNTING DATA — a. ACTY CLAS b. ACRN — c. APPROPRIATION — d. LIMIT SUBHEAD — e. SUPPLEMENTAL ACCTG CLASSIFICATION

U XA+ SPECIAL

f. CPN RECIPIENT DODAAD — g. OBLIGATION AMOUNT* $ — h. NON-CLIN/CLIN — i. PR/MIPR DATA — j. PAYING OFC CODE

k. DESCRIPTIVE DATA

MAKE PAYMENT FROM OLDEST YEAR FUNDS FIRST

4. APPROPRIATION AND ACCOUNTING DATA — a. ACTY CLAS b. ACRN — c. APPROPRIATION — d. LIMIT SUBHEAD — e. SUPPLEMENTAL ACCTG CLASSIFICATION

f. CPN RECIPIENT DODAAD — g. OBLIGATION AMOUNT* $ — h. NON-CLIN/CLIN — i. PR/MIPR DATA — j. PAYING OFC CODE

k. DESCRIPTIVE DATA

4. APPROPRIATION AND ACCOUNTING DATA — a. ACTY CLAS b. ACRN — c. APPROPRIATION — d. LIMIT SUBHEAD — e. SUPPLEMENTAL ACCTG CLASSIFICATION

f. CPN RECIPIENT DODAAD — g. OBLIGATION AMOUNT* $ — h. NON-CLIN/CLIN — i. PR/MIPR DATA — j. PAYING OFC CODE

k. DESCRIPTIVE DATA

4. APPROPRIATION AND ACCOUNTING DATA — a. ACTY CLAS b. ACRN — c. APPROPRIATION — d. LIMIT SUBHEAD — e. SUPPLEMENTAL ACCTG CLASSIFICATION

f. CPN RECIPIENT DODAAD — g. OBLIGATION AMOUNT* $ — h. NON-CLIN/CLIN — i. PR/MIPR DATA — j. PAYING OFC CODE

k. DESCRIPTIVE DATA

4. APPROPRIATION AND ACCOUNTING DATA — a. ACTY CLAS b. ACRN — c. APPROPRIATION — d. LIMIT SUBHEAD — e. SUPPLEMENTAL ACCTG CLASSIFICATION

f. CPN RECIPIENT DODAAD — g. OBLIGATION AMOUNT* $ — h. NON-CLIN/CLIN — i. PR/MIPR DATA — j. PAYING OFC CODE

k. DESCRIPTIVE DATA

*REPRESENTS NET AMOUNT OF INCREASE DECREASE WHEN MODIFYING AN EXISTING ACRN
+ OR - IN ACRN : ADDITION OR DELETION IN $ - DECREASE

NOTE TO CONTRACTOR: Submit invoices to paying office unless otherwise specified in the descriptive data item hereon.

AFSC FORM JAN 83 703 — PREVIOUS EDITION WILL BE USED — AFSC—Andrews AFB Md 1980

(pf) CJS 68X

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

PAGE 1 OF 5

2. AMENDMENT/MODIFICATION NO. (P1111)	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQUEST PROJECT NO.	5. PRIORITY RATING
F33615-84-D-4403	001105	88MAR01	FY7624-88-01818

6. ISSUED BY — CODE FQ8419
DEPARTMENT OF THE AIR FORCE
AIR FORCE SYSTEMS COMMAND
AERONAUTICAL SYSTEMS DIV/PMRSC
WRIGHT-PATTERSON AFB, OH 45433-6503
NEGOTIATOR: VICKY J. WILLIAMS
PHONE: (513) 255-5911

7. ADMINISTERED BY (IF OTHER THAN BLOCK 7) — CODE S1102A
DCASMA ATLANTA
805 WALKER STREET
MARIETTA GA 30060-2789

8. CONTRACTOR NAME AND ADDRESS — CODE 4W803 — FACILITY CODE
ENGINEERING-SCIENCE
57 EXECUTIVE PARK SOUTH, N.E.
SUITE 590
ATLANTA GA 30329
PHONE: (404) 325-0770
COUNTY: DE KALB

IF "9" FOR MULTIPLE FACILITIES SEE SECT "K"

MAILING DATE
FEB 29 1988

[redacted]CATE ORIGINAL

10. SECURITY CLAS: U

11. DISCOUNT FOR PROMPT PAYMENT

1ST	%	DAYS	NET DAYS
2ND	%	DAYS	OTHER IF "9" SEE SECT "E"
3RD	%	DAYS	

12. PURCHASE OFFICE POINT OF CONTACT
L00/L05/L00

13. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in block 17. The hour and date specified for receipt of Offers ☐ is extended ☐ is not extended

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended by one of the following methods:
(a) By signing and returning _____ copies of this amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE OFFICE DESIGNATED IN THE SOLICITATION OR AS AMENDED BY ONE OF THE ABOVE METHODS MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS

☐ THIS CHANGE IS ISSUED PURSUANT TO _____
THE CHANGES SET FORTH HEREIN ARE MADE TO THE ABOVE NUMBERED CONTRACT/ORDER.

☐ THE ABOVE NUMBERED CONTRACT IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (SUCH AS CHANGES IN PAYING OFFICE, APPROPRIATION DATA, ETC.) SET FORTH HEREIN.

☐ THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF _____
IT MODIFIES THE ABOVE NUMBERED CONTRACT AS SET FORTH HEREIN.

☒ THIS MODIFICATION IS ISSUED PURSUANT TO THE "ORDERING" CLAUSE OF THE CONTRACT CLAUSES

15. CONTRACT ADMINISTRATION DATA

A. KIND OF MOD	B. MOD ASST RECIPIENT ADD BY	C. DATE OF SIGNATURE MODIFICATION	D. CHANGE IN CONTRACT AMOUNT INCREASE (+) DECREASE (-)	E. LOSING PO/CAO ON TRANSFER	F. GAINING PO/CAO ON TRANSFER	G. SVC/AGENCY USE
B			$			

16. ENTER ANY APPLICABLE CHANGES

A. PAY CODE	B. EFFECTIVE DATE OF AWARD	C. CONTRACT (1) TYPE (2) SIGNS	D. TYPE CONTR	E. SURV CRIT	F. SPL CONTR PROVISIONS	G. PAYING OFC CODE	H. DATE SIGNED	I. SECURITY (1) CLAS (2) DATE OF DD 254

17. REMARKS (*Except as provided herein, all items and conditions of the contract, as heretofore changed, remain unchanged and in full force and effect.*)
SUBJECT: REVISED TASK DESCRIPTION AND NO COST TIME EXTENSION
PROJECT ENGINEER: EMILE BALADI, USAFOEHL/TS, BROOKS AFB TX 78235-5501
FINANCE OFFICE: DCASR ATLANTA, 805 WALKER ST., MARIETTA GA 30060-2789 (S1102A)

18. ☒ CONTRACTOR OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT ☐ CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN _____ COPIES TO ISSUING OFFICE

19. CONTRACTOR OFFEROR (*Signature of person authorized to sign*)

NAME AND TITLE OF SIGNER (*Type or print*) — 21. DATE SIGNED

20. UNITED STATES OF AMERICA (*Signature of Contracting Officer*)
BY

22. NAME OF CONTRACTING OFFICER (*Type or print*)
JOHN M. LIPKER

23. DATE SIGNED
8 MAR 88

AFSC FORM 702 AUG 84 PREVIOUS EDITION WILL BE USED. AFSC—Andrews AFB DC 1984

SCHEDULE OF CHANGES

FIRST: The task description, of subject delivery order, dated 87 Jun 02, is amended as shown below on pages 3 and 4 herein.

SECOND: Section F of the Schedule, AFSC Form 706 (70H) is amended as shown on page 5 herein.

THIRD: This modification will result in no increase or decrease in the not-to-exceed delivery order ceiling price.

FOURTH: The contractor's letter, dated 88 Jan 14 and 88 Jan 19, showing concurrence with this action, is hereby incorporated by reference and made a part herein.

FIFTH: This modification constitutes full settlement of any claims of the contractor, including the clause entitled "Changes-Time-and-Materials or Labor Hours," arising out of or by reason of the changes effected hereby.

Revision 2: Installation Restoration Program
Phase II - Convirmation/Quantification (Stage 1)
USAF Plant 42, Palmdale, CA

Date: 88 Jan 15

Paragraph	Changes
I.A.10.(b)	Change Sentence 1. Total footage of all borings in this task shall not exceed 2400 linear feet.
I.A.14.	Change Sentence 2. Perform a maximum of 68 Borings.
I.B.27.	Insert "WF15, Vehicle Washrack at Fire Station 1" Perform three (3) soil borings up to 25 ft. deep for a maximum of 75 linear ft. Collect a maximum of nine (9) soil samples for petroleum hydrocarbon (SW 3550 then EPA 418.1), purgeable organics (SW 5030 then 8240) and Base Neutral and Acid extractable (SW 3550 then SW 8270)
I.B.28.	Insert "WF22, Vehicle Washrack at Fire Station 2" Perform three (3) soil borings up to 25 ft. deep for a maximum of 75 linear ft. Collect a maximum of nine (9) soil samples for petroleum hydrocarbon (SW 3550 then EPA 418.1), purgeable organics (SW 5030 then 8240) and Base Neutral and Acid extractable (SW 3550 than 8270).

I.B.29 Insert

"BST 5, Battery Acid Storage Tank (New Site 5-3)"
Perform two (2) soil borings up to 50 ft deep for a maximum of 100 linear ft. Collect a maximum of eight (8) soil samples for petroleum hydrocarbon (SW 3550 then EPA 418.1), eight (8) primary metals (CAM Title 22), plus four secondary metals (CAM Title 22).

I.B.30. Insert

"Site Inspection Report"
A report of site inspections (Sites WF15, WF22, and BST 5) shall be submitted as indicated in Item VI, Sequence 3. An advanced copy shall be sent to USAFOEHL prior to mass printing. The report shall include location maps of test borings, results of soil chemical analyses and recommend further action if appropriate. The contractor shall follow Section 3,4, and 6 of the Stage 1 report format (mailed under separate cover).

Appendix 1 Change

Parameter	Method	No. of Samples	No. of QA Samples	Total Samples
Soil Samples				
Petrol. Hydrocarbons	(SW 3550/ EPA 418.1)	99	10	109
Primary Metals	(f)			
Arsenic		59	6	65
Barium		59	6	65
Cadmium		59	6	65
Chromium		59	6	65
Lead		59	6	65
Mercury		59	6	65
Selenium		59	6	65
Silver		59	6	65
Second Metals	(f)			
Copper		12	1	13
Iron		12	1	13
Manganese		12	1	13
Zinc		12	1	13

Appendix 1 Insert

Purgeable Organics	(SW 5030/ 8240)	18	2	20
Base Neutral and Acid extractable	(SW 3550/ 8270)	18	2	20

VI Insert

Seq	Para	BLK 10	BLK 11	BLK 12	BLK 13	BLK 14
3	I.B.30.	O/TIME	88 May 15	88 Jun 15	---	15

PART I SECTION F OF THE SCHEDULE SUPPLIES SCHEDULE DATA	1. PROC INSTRUMENT ID NO. (PIIN) F33615-84-D-4403	2. SPIIN 001105	3. PAGE 5 OF 5

4. ITEM NO.	5. ACRN	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0001	XA					

11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY.*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR
A. 88SEP30	A.	A. 1	U	FY7624	
B.	B.	B.	B.	B.	B.
C.	C.	C.	C.	C.	C.

17. DESCRIPTIVE DATA

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.

TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 88MAY15.
THE DATE IN BLOCK 11A ABOVE IS THE DATE FOR GOVERNMENT ACCEPTANCE OF DATA.
ALL DATA SHALL BE DELIVERED IAW ATTACHMENT #1 OF THE BASIC CONTRACT AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION NO LATER THAN 88SEP30.

4. ITEM NO.	5. ACRN	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
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A. 88SEP30	A.	A. 1	U	FY7624	
B.	B.	B.	B.	B.	B.
C.	C.	C.	C.	C.	C.

17. DESCRIPTIVE DATA

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B.	B.	B.	B.	B.	C.
C.	C.	C.	C.	C.	C.

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TO LATER THAN 88SEP30.

*REPRESENTS A NET INCREASE/DECREASE WHEN NO + OR - APPEARS AFTER THE ITEM NO.
E = ESTIMATED
- (IN QTY) = DECREASE
+ OR - (IN ITEM NO.) = ADDITION OR DELETION