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FINAL

REMEDIAL REMOVAL
INTEGRATED INVESTIGATION REPORT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, ORLEANS PARISH, LOUISIANA
VOLUME 1

March 1995

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
Dallas, Texas 75202
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Prepared by:

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LIST OF ACRONYMS

The following list represents many of the acronyms appearing frequently in the text of the Agriculture Street Landfill Remedial Removal Integrated Investigation. These acronyms are defined within the text; this list is provided as a reference guide for the reader.

ACM	asbestos-containing material
ARARs	Applicable or Relevant and Appropriate Requirements
ASD	Agriculture Street Dump
ASL	Agriculture Street Landfill
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
BGS	below ground surface
BHC	hexachlorocyclohexane
BMSL	below mean sea level
BNA	base/neutral and acid-extractable organic compound
BTEX	benzene, toluene, ethylbenzene, and xylene
BTU	British thermal unit
°C	degrees Celcius
CAA	Clean Air Act
CDC	United States Centers for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm	centimeter
COC	Contaminants of Concern
COD	chemical oxygen demand
COPC	Chemical of Potential Concern
CRP	Community Relations Plan
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
dL	deciliter
DL	detection limit
DOT	United States Department of Transportation
DQO	Data Quality Objective
EAS	Environmental Analytical Solutions, Inc.

E & E	Ecology and Environment, Inc.
EM	electromagnetic
EMSL	Environmental Monitoring Systems Laboratory
EP	Extraction Procedure
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
ERB	Emergency Response Branch
ESAT	Environmental Services Assistance Team
ESD	Environmental Services Division
ESI	Expanded Site Inspection
°F	degrees Fahrenheit
FDA	Food and Drug Administration
FDM	Fugitive Dust Model
$feet^2$	square feet
FFL	Feed and Fertilizer Laboratory
FID	flame ionization detector
FIT	Field Investigation Team
FOD	frequency of detection
FOE	frequency of exceedence
FS	Feasibility Study
FSP	Field Sampling Plan
GIS	Geographic Information System
gpd	gallons per day
gpm	gallons per minute
GPR	Ground-Penetrating Radar
GPS	Global Positioning System
H1	horizontal dipole/north-south
H2	horizontal dipole/east-west
H_2S	hydrogen sulfide
HANO	Housing Authority of New Orleans
HARN	High Accuracy Reference Network
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
HRS	Hazard Ranking System
HUD	United States Department of Housing and Urban Development
ID	inside diameter
IDW	Investigation-Derived Wastes
IEUBK	Integrated Exposure Uptake Biokinetic
IRIS	Integrated Risk Information System
kg	kilogram
L	liter
LAWQC	Louisiana Ambient Water Quality Criteria

LADWF	Louisiana Department of Wildlife and Fisheries
LCES	Louisiana Cooperative Extension Service
LDEQ	Louisiana Department of Environmental Quality
LDHHR	Louisiana Department of Health and Human Resources
LDNR	Louisiana Department of Natural Resources
LDR	Land disposal restriction
LEL	Lowest effects level
LOAEL	Lowest observed adverse effect level
(LTAPPAS)	Louisiana Toxic Air Pollutant Ambient Air Standards
m	meter
MAG	Magnetometer
MCL	Maximum contaminant level
mg	milligram
MDL	method detection limit
meq/l	milliequivalents per liter
MGD	Million gallons per day
mmhos	millimhos
MS/MSD	Matrix spike/matrix spike duplicate
MSL	Mean sea level
MSW	Municipal solid waste
NAD	North American Datum
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NGS	National Geodetic Survey
NOAA	National Oceanic and Atmospheric Administration
NOAEL	No observed adverse effect level
NPL	National Priorities List
NTU	Nephelometric turbidity unit
NWS	National Weather Service
O_2	Oxygen
OD	Outside diameter
OME-SQC	Ontario Ministry of Environment Sediment Quality Criteria
OPSB	Orleans Parish School Board
OSC	On-site Coordinator
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OVA	Organic Vapor Analyzer
PA	Preliminary Assessment
PAHs	Polynuclear aromatic hydrocarbons
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCA	Tetrachloroethane
PCBs	Polychlorinated biphenyls
PCDD	Polychlorinated dibenzo-p-dioxin
PCDF	Polychlorinated dibenzofuran
PCE	Tetrachloroethene

ppb	parts per billion
ppbv	parts per billion by volume
PPE	Personal protective equipment
ppm	parts per million
PRG	Preliminary Remediation Goal
psi	pounds per square inch
psig	pound per square inch gauge
PVC	polyvinyl chloride
QA	Quality Assurance
QAPjP	Quality Assurance Project Plan
QC	Quality Control
RAO	Remedial Action Objective
RAS	Routine Analytical Services
RBC	Risk-Based Concentration
RBSC	Risk-Based Soil Concentration
RCRA	Resource Conservation and Recovery Act
RH	relative humidity
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RRII/FS	Remedial Removal Integrated Investigation/Feasibility Study
RRII	Remedial Removal Integrated Investigation
SACM	Superfund Accelerated Cleanup Model
SARA	Superfund Amendments and Reauthorization Act of 1986
SAS	Special Analytical Services
SDWA	Safe Drinking Water Act
SI	Site Inspection
SOP	standard operating procedure
SOPC	Stressor of Potential Ecological Concern
SOW	Statement of Work
STAR	Stability array
TAL	Target Analyte List
TAT	Technical Assistance Team
TBC	To Be Considered
TBV	Toxicity Benchmark Value
TCA	trichloroethane
TCB	trichlorobenzene
TCDD	tetrachlorodibenzo-p-dioxin
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TDD	Technical Direction Document
TDS	Total Dissolved Solids
TEF	Toxicity Equivalency Factor
TMB	trimethylbenzene

TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRV	Toxicity reference value
TSCA	Toxic Substances Control Act
TSD	Treatment, storage, and disposal
TSS	Total suspended solids
TSP	trisodium phosphate
μg	microgram
μmhos	micromhos
USDA	United States Department of Agriculture
USDC	United States Department of Commerce
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V1	Verticle depole/north-south
V2	Verticle dipole/east-west
VOA	volatile organic analysis
VOC	volatile organic compound
WP	Work Plan
XRF	X-ray fluorescence

EXECUTIVE SUMMARY

In February 1994, Ecology and Environment, Inc., (E & E), the Region 6 Technical Assistance Team (TAT), was tasked by the United States Environmental Protection Agency (EPA), under Contract No. 68-WO-0037 and Technical Directive Document (TDD) nos. T06-9402-015 and T06-9410-054, to conduct a Remedial Removal Integrated Investigation/Feasibility Study (RRII/FS) of the Agriculture Street Landfill (ASL) site in New Orleans, Louisiana. Previous investigations of the site indicated the presence of hazardous substances, pollutants, or contaminants at concentrations above background and/or regulatory levels. On August 23, 1994, the ASL site was proposed to the EPA Superfund National Priorities List (NPL) as part of NPL update No. 17. On December 16, 1994, EPA Headquarters placed the ASL site on the NPL. Notification of the placement was published in the Federal Register (59FR, 65206). The RRII evaluated the nature and distribution of hazardous substances, pollutants, and contaminants; defined operational site boundaries of the former landfill; and examined potential risks to human health and the environment. The RRII field activities were performed from April through June 1994 in accordance with the EPA-approved work plan.

Background. The ASL site is located in the City of New Orleans, approximately 3 miles northeast of the central business district. Records indicate that during its operational history, the 95-acre landfill received municipal waste, ash from the incineration of municipal waste, construction debris, and debris and ash from open burning. Operations at ASL began in approximately 1909 and continued until the landfill was closed in the late 1960s, but unauthorized dumping reportedly occurred at the site until 1994. From the 1970s through the late 1980s, approximately 47 acres of the ASL site were developed for private and public use that included: private single-family homes, multiple-family private and public housing units,

Press Park Community Center, a recreation center, retail businesses, Moton Elementary School, and an electrical substation. The remaining 48 acres of the former landfill are currently undeveloped and covered with dense vegetation.

Operational History. From a review of city records related to refuse disposal, none of the known six city incinerators was located on the site. In addition, review of historic aerial photographs did not indicate the presence of an on-site incinerator. However, open burning did occur at various times and locations during its operational history. Records indicate that disposal of municipal waste and municipal waste incinerator ash occurred at the former landfill; however, records did not indicate that industrial or chemical wastes were ever transported to, or disposed of at, the ASL site. Records also show that some ash was removed and transported to off-site locations.

Operational Boundaries. The operational boundaries of the former landfill coincide with the landfill perimeter shown in a 1952 aerial photograph. The boundaries are Higgins Boulevard on the north, above-grade railroad rights-of-way on the south and west, and a line extending from the southern end of Clouet Street to Higgins Boulevard between Press and Montegut streets on the east. Landfill material extends from ground surface to a maximum measured depth of approximately 17 feet below ground surface (BGS) in the interior of the former landfill. The material thickness decreases as the perimeter of the former landfill is approached. Based on current site topography and geotechnical studies conducted prior to construction on the developed portion of the site, landfill material could possibly be thicker than the maximum measured value in a few locations (e.g., current topographically highest points) within the interior of the site.

Soils. Compared to background, surface and subsurface soil contained elevated concentrations of metals and polynuclear aromatic hydrocarbons (PAHs). Urban anthropogenic (man-made) contaminants, especially pesticides, were widespread across the site and in background areas. In general, surface soils on the undeveloped portion of the former landfill exhibited higher concentrations of contaminants than soils on the developed portion. Contamination exceeding background values is present at a maximum thickness of approximately 22.5 feet near the center of the former landfill and thins to 0 feet at the former landfill perimeter. Dioxins were never detected at concentrations exceeding 1 microgram per

kilogram (μg/kg), a criteria historically used for residential cleanup at other Superfund sites. Surface fill used in the construction of Moton Elementary School does not contain contaminant concentrations above background or regulatory levels.

Principle contaminants in soil were identified based on frequency of occurrence, frequency of exceedance of background concentrations, frequency of exceedance of regulatory criteria, and source evaluation (anthropogenic [man-made] versus site-related). The regulatory criteria used for comparison included draft risk-based concentrations (RBCs) identified by EPA Region 6 or EPA Region 3 (in the absence of EPA Region 6 values) associated with a 10^{-6} cumulative cancer risk and hazard indices of one. These are the most conservative and protective numbers of the target range from 10^{-4} to 10^{-6} cumulative cancer risk in which EPA generally makes risk management decisions. Other EPA guidance used as regulatory criteria included the 400 milligram per kilogram (mg/kg) screening level for lead in residential land use. Based on these criteria, lead, arsenic, and PAHs were identified as principle contaminants. Arsenic and lead were found above regulatory criteria in soils to depths of 22.5 feet BGS, whereas PAHs were only found above RBCs in soils to depths of 10 feet BGS. In some background soil samples, arsenic, lead, and PAHs exceeded the regulatory criteria used for evaluation. Arsenic and benzo(a)pyrene also exceeded the 10^{-4} cumulative cancer risk level at locations throughout the site.

Groundwater. Two distinct groundwater units, a near surface shallow zone and a deeper sand unit, were identified. The shallow zone is located above a sequence of silts and clays which is approximately 50 feet thick. This sequence of silts and clays functions as a confining unit between the shallow zone and sand unit. Most wells completed in the confined sand unit, which was encountered at depths of 55 to 67 BGS, exhibit flowing artesian characteristics. Flow in the shallow zone is radial at a velocity that ranges from 12 to 200 feet per year. Groundwater flow in the sand unit is predominantly from north to south across the site at a rate of 2 to 30 feet per year. Shallow zone groundwater from the interior of the former landfill contains lead and other metals at concentrations above regulatory levels defined by the Safe Drinking Water Act or Maximum Contaminant Levels (MCLs). Sand unit groundwater is not impacted by site-related contamination primarily as a result of the upward vertical hydraulic gradient between the sand unit and the unconfined shallow zone.

Surface Water. Surface water and sediments in man-made storm water drainage canals (Florida Avenue and Peoples Avenue canals) did not appear impacted by the ASL site based on comparison to background values.

Air. Indoor and outdoor air quality does not appear impacted by site-related contamination. Concentrations of organic compounds detected in indoor and outdoor ambient air samples were typical of urban environments. Fugitive dust modeling, based on historical information, indicates that major off-site impacts from former landfill operations are not expected.

Fate and Transport. Off-site contaminant migration is expected to be limited due to the chemical and physical properties of the contaminants, urban development, and vegetative cover over the landfill material. The surface water pathway is the most probable route of potential contaminant transport. Contaminants may enter this pathway by the transportation of eroded contaminated soils passing through storm drains and discharging to man-made storm water drainage canals, or by infiltration of contaminated groundwater through fractures in canal walls.

Ecological Risk Assessment. Due to the lack of suitable habitat in the Florida Avenue and Peoples Avenue canals, potential risks to aquatic and semi-aquatic wildlife were not evaluated. The ecological significance of potential risks to wildlife on the undeveloped former landfill is relatively minor, based on the site's environmental setting and the absence of sensitive species and habitats. The raptor group represents the only assessment endpoint group for which potential risks are predicted that may be of concern from a regulatory or social standpoint. Although potential risks to individual species within the small mammal and passerine (perching and song birds) assessment endpoint groups were predicted, population level effects on these two groups are not expected because of their abundance in the southeastern United States.

Human Health Risk Assessment (HHRA). Chemicals of Potential Concern (COPCs) were derived in the HHRA based on human health risk criteria which differs from the criteria used to determine principle contaminants. Current and future health risk scenarios were evaluated for residents, workers, trespassers, Moton Elementary School, and Press Park Community Center. Under current scenarios, residential and worker risks exceed the EPA

range of acceptable cumulative cancer risk (greater than 10^{-4}) for incidental soil ingestion and inhalation pathways. In the soil ingestion pathway, risk is largely driven by the COPCs arsenic, PAHs, and dioxin; in the inhalation pathway, risk is driven primarily by chloroform and benzene. Neither benzene nor chloroform was identified as a site-related principle contaminant. Noncancer risks are greater than EPA criteria (hazard indices of one) for the residential home-grown produce ingestion pathway. This risk is mainly driven by diazinon, a common garden pesticide. Results from an extensive residential lead study predicted that an average of 6.1% of the children residing on site would exceed an acceptable blood lead benchmark of 10 micrograms per deciliter (μg/dL), which marginally exceeds EPA's benchmark of 5%. Fourteen of the 38 residences in the study (13 on site and one background) exceeded the 5% benchmark value. Lead in soil, rather than in indoor dust, tap water, produce, or paint, is primarily responsible for the predicted blood lead levels. Future residential scenario risks were higher than current scenario risks based on the assumption that drinking water would be obtained from site groundwater, which is unlikely due to the availability of an existing municipal water supply.

1. INTRODUCTION

The United States Environmental Protection Agency (EPA) tasked Ecology and Environment, Inc., (E & E), to conduct a Remedial Removal Integrated Investigation and Feasibility Study (RRII/FS) at the Agriculture Street Landfill (ASL) site, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Identification No. LAD981056997, in New Orleans, Orleans Parish, Louisiana (see Figure 1-1). The work was conducted by the EPA Region 6 Technical Assistance Team (TAT) under Contract No. 68-WO-0037 and Technical Direction Document (TDD) nos. T06-9402-015 and T06-9410-054.

The approximately 95-acre ASL site is located in the eastern section of the City of New Orleans. For the purposes of this report, the site is defined by the operational boundaries of the former landfill. The study area for the RRII includes the ASL site and selected areas designated by EPA. Records indicate that during its operation, the landfill received municipal waste, ash from incineration of municipal waste, and debris and ash from open burning. Operations began at the ASL in approximately 1909 and continued until the landfill was closed in the late 1960s; however, illegal dumping at the site continued until 1994. Approximately 47 acres of the ASL site were developed from the 1970s through the late 1980s. This included construction of single-family residences, multiple-family private and public housing units, a community center, a recreation center, a school, an electrical substation, and a few small businesses. The remaining 48 acres of the former landfill are undeveloped and are covered with trees, shrubs, and grass. Previous investigations at the ASL site have indicated the presence of hazardous substances, pollutants, or contaminants at concentrations above background and/or regulatory levels.

On August 23, 1994, the ASL site was proposed to the EPA Superfund National Priorities List (NPL) as part of NPL update No. 17. On December 16, 1994, EPA Headquarters placed the ASL site on the NPL. Notification of the placement was published in the Federal Register (59FR, 65206). The NPL is compiled by EPA in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as Superfund, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). This list represents uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response. CERCLA and SARA, in conjunction with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), provide the regulatory framework for the investigation and cleanup of uncontrolled hazardous substance releases.

1.1 PURPOSE AND OBJECTIVES

The Superfund Accelerated Cleanup Model (SACM) is being implemented by EPA to increase the timeliness and efficiency of Superfund activities and cleanup actions. By providing for cross-program coordination of response planning, both prompt risk reduction through early action and appropriate cleanup of long-term environmental problems can be achieved. The purpose of the RRII is to determine the nature and distribution of hazardous substances released at the ASL site and to assess potential risks to human health and the environment. The EPA Removal Program will evaluate the gathered information to determine the appropriateness of an emergency, time-critical, or non-time-critical removal action at the ASL site based on the type of situation, the urgency and threat of the release, and the time frame in which action must be initiated. An FS will also be conducted; the FS will consist of an analysis of RRII data to develop and evaluate options for remedial action. This information will be used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. Based on the results of these findings, only long-term actions, or early actions consistent with any long-term action that might be required, will be selected as appropriate for the ASL site.

Specific RRII objectives associated with the ASL site include the following:

- Perform a detailed historical evaluation of previous site activities to identify the potential sources and types of contaminants that might be present at the site due to such activities;
- Define the operational and disposal boundaries of the former landfill;
- Characterize the chemical nature and distribution of contamination within site media;
- Determine the chemical nature of background (ambient) media for comparison with site data;
- Evaluate potential viable pathways for contaminant migration, including surface runoff and groundwater transport;
- Determine the potential risks to human health posed by site contamination; and
- Determine the potential risks to biota posed by site contamination.

The site investigation was performed in accordance with the RRII Work Plan (WP), Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPjP), Health and Safety Plan (HASP), and Community Relations Plan (CRP) that were approved by EPA in April 1994 (E & E 1994a, 1994b, 1994c, 1994d, and 1994e) as modified to accommodate actual site conditions. The RRII field work was conducted from April 4 through June 20, 1994. Samples of surface and subsurface soil, sediment, surface water, groundwater, air, dust, tap water, garden produce, and paint chips collected during the field investigation were submitted to EPA approved laboratories (i.e., Contract Laboratory Program [CLP] facilities) for analyses. To supplement analytical data, additional activities such as interpretation of aerial photographs, geophysical investigations, and computer modeling were used to assist in defining site boundaries and evaluating migration pathways. These data were used concurrently to prepare the baseline Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) which evaluate the potential adverse effects of site-related or specific contaminants on both human and environmental receptors.

additional site history. Appendix C presents a detailed discussion of the geology, hydrogeology, and surface water hydrology in the general vicinity of the ASL site, including maps and diagrams of area geology. Appendix D presents the location of water supply wells in Orleans Parish. A summary of the EPA Region 6 Expanded Site Inspection (ESI) analytical results is included in Appendix E. Findings of the geophysical investigation are included in Appendix F, and Appendix G provides sample designation and location information. Appendix H describes the methods used to conduct the metals field screening investigation using x-ray fluorescence (XRF), and Appendix I describes the air model used to evaluate the historical migration of fugitive dust from the site. The Quality Assurance (QA)/Quality Control (QC) procedures used to verify the integrity of sample collection and analysis are discussed in Appendix J. Appendix K describes the process and database used to manage and interpret the large volume of data generated during the investigation of the ASL site. Appendices L, M, N, and O provide lithologic log data/monitoring well construction diagrams, grain-size analyses, water level records, and slug tests. Appendix P summarizes meteorological records for the site. Data generated from the XRF study are included in Appendix Q, and data relevant to the air investigation are provided in Appendix R. The complete baseline HHRA report is included in Appendix S. Useful terms and acronyms associated with EPA investigations are provided in Appendix T. Text and figures for the ERA are included in Appendix U, and ERA tables are included in Appendix V.

1.3 SITE DESCRIPTION

The study area for the EPA Region 6 ESI included the ASL site and the adjoining residential properties collectively known as the Press Park site (190 acres). The study area for the RRII includes the area within the defined boundaries of the ASL site and selected areas designated by EPA. The approximately 95-acre ASL site is located in New Orleans, Orleans Parish, Louisiana (see Figure 1-1). The site is located approximately 3 miles south of Lake Pontchartrain and 2.5 to 3 miles north-northeast of the city's central business district. The approximate geographic coordinates for the center of the former landfill are 29°59'20" north latitude and 90°02'31" west longitude. The site is bound on the north by Higgins Boulevard, and on the south and west by the Southern Railroad rights-of-way. The eastern site boundary

This RRII report was prepared following the guidelines presented in EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA - Interim Final* (EPA 1988a) and *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA 1991a). Although consulted, the guidelines described in the EPA document entitled *Presumptive Remedy for CERCLA Municipal Landfill Sites* (EPA 1993a) could not be fully applied to the ASL site due to the extensive on-site residential development. The baseline HHRA and ERA were also prepared in accordance with information presented in EPA documents and guidelines (see Appendices S and U for specific document references).

1.2 ORGANIZATION OF THE REPORT

The RRII is organized into nine sections with 22 supporting appendices. Tables and figures referenced in each section or appendix are presented at the end of each respective section. The remainder of Section 1 contains a description of the site and the regional physical setting, a synopsis of the site's operational history, and a summary of previous investigations. Section 2 describes the procedures used to perform the site investigation, including historical research and various field activities such as topographic and geophysical surveys, monitoring well installation, and environmental sampling. Information from the field work described in Section 2 is used to develop a more detailed description of the site's physical characteristics, which is presented in Section 3. Based on analytical results of the field sampling, the nature and distribution of contamination are discussed in Section 4. Section 5 presents an interpretation of the anticipated migration potential of the observed contamination. Potential current and future cumulative cancer and noncancer risks to on-site residents are summarized in Section 6 (the complete HHRA report is presented in Appendix S), and Section 7 summarizes the potential risk to various ecosystems (the complete ERA is presented in Appendices U and V). A summary of investigation findings and conclusions are provided in Section 8. References used to develop the RRII report are provided in Section 9.

Appendices A through V provide information to support the findings of this report. Appendix A includes historical aerial photographs, and Appendix B provides

was determined to extend from the cul-de-sac at the southern end of Clouet Street, near the railroad tracks, to Higgins Boulevard between Press and Montegut streets (see Figure 1-2). Identification of the northern, southern, and western operational boundaries of the former landfill was based on analysis of historical aerial photographs of the site (see Appendix A). The eastern boundary of the former landfill was determined from these aerial photographs in conjunction with a geophysical investigation and the completion of shallow exploratory borings during the RRII field work.

1.3.1 Site-Specific Land Use

The approximately 95-acre ASL site includes approximately 47 acres that were developed from the 1970s through the late 1980s and currently support single-family homes, multiple-family dwellings, an elementary school, a community center, a recreation center, and an electrical substation. The approximately 48 remaining acres of the former landfill are undeveloped and heavily vegetated.

The single-family homes located on the developed portion of the former landfill comprise the Gordon Plaza Subdivision. As shown in Figure 1-2, the subdivision is located near the geographic center of the ASL site and occupies, with the exception of the electrical substation, the westernmost part of the developed area. The Gordon Plaza Subdivision is bound by Benefit Street on the north, Industry Street on the south, and Press Street on the east. The western boundary of this subdivision is St. Ferdinand Street between Benefit and Abundance streets, and the undeveloped portion of the former landfill between Abundance and Industry streets. The Gordon Plaza Subdivision consists of single-family homes on rectangular and polygonal lots. The individual properties usually contain small, open front yards with fenced backyards to separate the adjacent properties. The backyards typically contain recreational areas for families and some have vegetable and flower gardens.

Multiple-family housing on the developed portion of the former landfill consists of Housing Authority of New Orleans (HANO) structures and the Gordon Plaza Apartments. The HANO housing area is situated in the northeast and east-central portions of the site. The HANO housing area is bound on the north by Higgins Boulevard and on the south by Abundance Street between Press and Feleciana streets. The western boundary of the HANO

housing area is Gordon Plaza Apartments between Higgins Boulevard and Benefit Street, and Press Street between Benefit and Abundance streets. The eastern boundary of the HANO housing area appears to follow roughly the eastern site boundary between Abundance Street and Higgins Boulevard. The HANO housing units are two-story brick structures. Each building contains a row of several housing units that are connected by common walls, and each building has a grass-covered common area. Paved parking areas and access roads also are present.

The Gordon Plaza Apartments are multiple-family structures located in the north-central portion of the ASL site between Higgins Boulevard, Benefit Street, and St. Ferdinand Street. The eastern boundary of the Gordon Plaza Apartments is the HANO housing area. The Gordon Plaza Apartments are a series of two-story buildings arranged in the shape of a square with a common yard in the middle. A few small stores that comprise the Gordon Plaza shopping center also are located along Higgins Boulevard, directly north and adjacent to the Gordon Plaza Apartments. A fence surrounds the entire apartment complex, excluding the block of small stores.

Moton Elementary School (Moton School) is located on Abundance Street between Press and Feliciana streets in the eastern portion of the ASL site. The school is a two-story brick structure that contains classrooms, a cafeteria, a library, administrative offices, and other operational areas. The entire school property, with the exceptions of the main entrance on the north side and a parking lot on the east side, is enclosed by a chain-link fence. The western and southern portions of the school property located within the fence are open play-ground areas used by children during recess and lunchtime. Playground equipment is located in the western portion of the open playground area. The eastern portion of the school property contains parking areas and provides access to the school cafeteria. In response to the August 23, 1994 proposal of the ASL site to the NPL, Superintendent Morris Holmes, Jr. closed the Moton School, effective August 26, 1994 (*Sunday Advocate* 1994).

Mugrauer Playground is a large, grass-covered field. It is located immediately south of the school fence line in an area north of Industry Street between Press and Feliciana streets. Several light poles are located at the perimeter of this field to illuminate the area for recreational activities. The EPA command post used during the RRII included a mobile

laboratory, several mobile office trailers, storage trailers, a parking area, and the community relations office that were located in the southwest corner of this field within an area secured by a chain-link fence (i.e., at the northeast corner of Press and Industry streets). Upon completion of the field effort on May 26, 1994, the command post and associated trailers were removed, and the community relations office (ASL Community Outreach Office) was relocated to 3221 Press Street.

The Press Park Community Center is located on the southeast corner of the intersection of Benefit and Press streets. The community center property contains a one-story brick building, a parking lot south of the building, and open areas east of the building and south of the parking lot. Playground equipment is located in the open area on the western portion of the property. The building is used by residents for community events, and the open areas are used by children as a playground. Public repositories for the ASL administrative record file are maintained at the ASL Community Outreach Office.

A recreation center is located in the southeastern portion of the ASL site, northwest of the intersection of Feliciana and Industry streets. This recreation center is an indoor gymnasium used mainly for basketball. A playground structure is located in an open area north of the recreational center and south of the chain-link fence that forms the southern boundary of the Moton School property.

The residences, school, businesses, and public buildings in the developed portion of the site are served by underground public utilities including water, sewer, electricity, and natural gas. Aboveground infrastructure includes concrete and asphalt streets, concrete sidewalks, and overhead high-tension power lines.

An electrical substation is located within the northwestern portion of the ASL site, on the southwest corner of the intersection of Almonaster Avenue and Higgins Boulevard. The substation is enclosed by a chain-link security fence.

The undeveloped area comprises the majority of the western portion and all of the southern portion of the ASL site and is heavily vegetated with a variety of trees, shrubs, and grasses. Wildlife, including insects, birds, rodents, and other animals, use the undeveloped portion as a habitat. One abandoned structure, the former recycling facility, is located southwest of the intersection of St. Ferdinand and Abundance streets on the undeveloped

portion of the former landfill (Schneider 1951). An elevated railroad right-of-way exists between the undeveloped portion of the former landfill and the Florida Avenue and Peoples Avenue canals located west and south of the ASL site.

Prior to the field investigation, access to the undeveloped portion of the former landfill was unrestricted, allowing unauthorized trash disposal. Under removal authority and concurrent with the RRII, EPA installed an 8-foot-high, chain-link fence topped with barbed wire around the undeveloped portion of the site to restrict access and prevent unauthorized disposal. Fence construction was conducted from March through May 1994. Several vehicle gates were installed to allow utility companies access to the high-tension power lines that cross the site and to allow access by investigators during EPA-approved sampling events.

1.3.2 Surrounding Area Land Use

The City of New Orleans is a major seaport and trade center with established tourist, oil, and gas industries; however, its manufacturing base is relatively small (Trahan 1990). Historically, developed areas within the ASL site have been and remain predominantly residential, but some commercial, manufacturing, and retail/service businesses are located in the surrounding area. The Moton School yard, Mugrauer Playground, the recreational center, and the Press Park Community Center are used year round for recreational purposes. A railroad network is located west and south of the site (see Figures 1-1 and 1-2), and Interstate Highways 10 and 610 merge approximately 0.5 mile west of the site. Interstate 10 continues northeast and crosses the Inner Harbor Navigation Canal, which is part of the Intracoastal Waterway system and is located approximately 1 mile east of the site. Additional drainage canals parallel Peoples Avenue to the west and Florida Avenue to the south.

The ASL site is located within U.S. Postal Service zip code 70126. According to the EPA Resource Conservation and Recovery Act (RCRA) Notifier's database, approximately 123 notifiers are located within this zip code. Most notifiers are listed as either small- to very-small-quantity hazardous waste generators that are conditionally exempt or non-generators (i.e., have never generated hazardous waste).

1.3.3 Demography

The ASL site lies within 1990 United States Census Bureau tract number 17.03 as designated by the United States Department of Commerce (USDC) census tract mapping publications, 1990 CPH-1-20 and 1990 CPH-3-244. The tract boundaries follow the physical boundaries of Peoples Avenue to the west, Highway 90 (Chef Menteur Highway) to the north, Louisa Street to the east, and Florida Avenue to the south. The tract occupies 0.8 square mile, approximately 0.148 square mile (18.5%) of which is occupied by the ASL site. Approximately 0.073 square mile (47 acres) of the ASL site is developed, and the remaining 0.075 square mile (48 acres) is undeveloped.

A total population of 4,506 persons occupies the 0.8-square-mile census tract. Based on 374 households present and an average household occupancy of 3.04 persons, the estimated population living on the ASL site is 1,137. In addition, 351 children under five years of age are reportedly present in the entire census tract; however, this number does not include children who attend Moton School but reside in other areas. The median age of all persons living within the tract is 28.5 years (USDC 1990).

Of the 1,846 housing units within the 1990 census tract, 1,567 are considered occupied. Of the occupied units, 742 (47.4%) are owner-occupied and 825 (52.6%) are rented. Of the 279 vacant housing units, 16 are for sale, 106 are for rent, 139 are abandoned, and 18 are seasonal use structures. A total of 1,838 housing units, both occupied and unoccupied, were selected in this tract for structural characterization as part of the census analysis. All of the housing unit structures were built before 1989 (660 since 1970, 758 between 1950 to 1969, and 420 before or during 1949 [USDC 1990]).

Of the 374 housing units on the ASL site, 179 units are owned and operated by HANO, 128 units are part of the Gordon Plaza Apartment complex, and 67 units are single-family dwellings. The median value of the owner-occupied housing units in the 1990 census tract, as derived from 636 of the 742 units, is $39,100 with a mean value of $41,700. Out of 2,511 persons aged 25 years and older, 48.6% have received at least a high school diploma, and 6.7% have received at least a bachelor's degree.

Annual income status surveys conducted in 1989 for the same tract indicate that out of 1,543 households, 478 earned less than $5,000; 249 earned from $5,000 to $9,999; and the

remaining 816 earned above $10,000. The 1989 median annual income for the tract was $11,279, with a mean income of $15,287 (USDC 1990).

1.4 PHYSICAL SETTING

Section 1.4 summarizes attributes of the physical setting in the general vicinity of the ASL site as derived from technical literature and previous investigations, including site-specific geotechnical information referenced in Section 1.6. A more detailed discussion of the geology, hydrogeology, and surface water hydrology of this area, including maps and diagrams illustrating the geologic features and cross sections presented in the text, is included as Appendix C. Appendix D presents water supply well information for the New Orleans area. Data on site-specific topography, boundary definition, geology, hydrogeology, surface hydrology, and meteorology collected during the RRII are presented in Section 3.

1.4.1 Geology

The City of New Orleans lies within the Pontchartrain Basin in the Mississippi River Deltaic Plain. Forty-five percent of this approximately 1,600-square mile basin is occupied by Lakes Pontchartrain and Maurepas.

During the last one million years of the Quaternary Period, a thick, complex sequence of marine, near shore, fluvial, and lacustrine sediments was deposited and subjected to periodic erosion in the New Orleans area. This complex depositional history is a reflection of the series of sea level fluctuations (as much as 450 feet) that occurred during the Quaternary Period in combination with the simultaneous migration of the Mississippi River back and forth across the area (Rollo 1966).

The last episode of marine sediment deposition in the Pontchartrain Basin occurred about 5,000 years ago during the post-glacial rise in sea level. This depositional episode is reflected in a series of northeast-southwest trending sand deposits located between Lakes Pontchartrain and Borgne which represent the historic location of a large barrier island spit that extended from the Mississippi coast into metropolitan New Orleans. This series of marine sand deposits is referred to as the Pine Island Beach Trend (Saucier 1963).

The Pontchartrain Basin made the transition from a shallow marine environment to a deltaic plain and lacustrine environment about 4,000 years ago, at which time the Mississippi River changed course upstream of, and began extending a delta into, the basin area. During this period, a seaward-thickening wedge of fine-grained sediments (silts, clays, and fine sands) were deposited on top of the older marine sediments. A major distributary system was subsequently established, but then became abandoned when the Mississippi River again changed course about 1,800 to 2,600 years ago and began formation of the St. Bernard Delta. Borings completed within the Pontchartrain Basin area commonly encounter the natural levees and inter-levee basin deposits (e.g., organic peats and clays) associated with the older, abandoned distributary system. In contrast, the levees and inter-levee basins associated with the more recent St. Bernard Delta distributary system are still visible as prominent, often forested ridges surrounded by marsh and swamp areas (Saucier 1963).

1.4.1.1 Shallow Subsurface Geology (Site Specific)

The shallow subsurface surface geology ($\leq$100 feet below ground surface [BGS]) in the ASL study area is a mixture of fine-grained materials, including peat, which is typical of a marsh/swamp environment. Borings completed during previous investigations of the ASL study area demonstrated a laterally consistent vertical sequence of sediments composed of a silty topsoil or fill; clay, organic clay, and peat; interbedded silty clays, silts, and sand; and sand.

Surficial soils usually are clayey silts or sandy silts. Below the surficial units, a gray clay or organic clay that contains roots and other plant materials is encountered. A peat layer might be encountered within this clay, but it may not be continuous; the thickness of the peat layer has been reported to be 5 to 10 feet across the site vicinity. A sequence of silty clays and sandy clays with interspersed silt and sand lenses is encountered beneath the clay/peat unit. A fine-grained sand has been encountered in all borings below 50 feet. Based on the deepest known borings in the area, this sand unit is more than 50 feet thick and it is assumed to be part of the Pine Island Beach Trend.

1.4.1.2 Deep Subsurface Geology

Near shore gulf deposits and late Pleistocene-age Prairie Formation sediments underlie the Pine Island Beach Trend and overlie the sedimentary sequence that comprises the New Orleans Aquifer System. This aquifer system reportedly extends to a depth of approximately 850 feet BGS in the site vicinity (Dial and Sumner 1989). The late Pleistocene-age Prairie Formation is composed of firm-to-stiff sandy and silty clays. All Prairie Formation sediments exhibit distinctively lower water and organic contents compared to most of the Recent-age sediments (Saucier 1963).

In the site vicinity, the top of the Prairie Formation should be encountered at a depth of approximately 50 to 70 feet BGS. However, presumed Pine Beach Island Trend sands were present on site to a depth of at least 100 feet BGS. There are at least two possible explanations for this anomaly: additional faulting/downwarping, which is known to have occurred regionally and produced a step-like configuration of the Prairie Formation rather than a uniform seaward slope, might have occurred in the immediate site vicinity; and the site is located above a tributary of the entrenched valley system that was cut into the Prairie Formation during the early part of the Late Wisconsinian glacial stage (Saucier 1963). No evidence was found in the literature to confirm or reject the possibility of faulting/ downwarping, but there is evidence to support the potential presence of a tributary valley beneath the site.

Based on data from several hundred borings, the entrenched valley system consists of several relatively narrow tributary valleys that converge in a single north-south-trending major valley, located approximately 6 miles west of the site, where it is approximately 1.3 miles wide and has incised 75 feet into the Prairie Formation surface (bottom depth of approximately 120 feet BGS). The trench proceeds to the south with a gradient of approximately 3 feet per mile and eventually joins the major Mississippi River trench near the coast of Louisiana, south of New Orleans (Saucier 1963).

Appendix C includes a map that shows portions of this entrenched valley system. This map and a much more detailed map presented by Saucier (1963) clearly indicate that a small tributary valley located just southwest of the site could readily be extended northeast-

ward to encompass the site area. This hypothesis is supported by the lithologies found in the deep borings previously completed as part of structural engineering studies performed at the site.

The subsurface geology and past/present physiography of the Pontchartrain Basin have been impacted by regional subsidence of the entire coastal Louisiana area (approximately 20 feet during the last 5,000 years). However, this should not be confused with the differential local subsidence that also has occurred in the area as a result of groundwater pumping and construction activities.

1.4.2 Hydrogeology

Section 1.4.2 discusses shallow and deep hydrogeologic units present in the study area. The shallow hydrogeologic units include all water-bearing zones above the Prairie Formation. Deep hydrogeologic units include the four aquifers that comprise the New Orleans Aquifer System.

1.4.2.1 Shallow Hydrogeology

Potential water-producing deposits above a depth of approximately 150 feet BGS in the site vicinity fall into two general categories (Rollo 1966): the small, isolated, near-surface sands that represent buried beaches and other locally deposited sands; and the point-bar and distributary channel sands deposited by the Mississippi River and its distributaries. These deposits yield the only fresh groundwater in parts of southeastern Orleans and western St. Bernard parishes.

The Pine Island Beach Trend is an example of a small, isolated, near-surface aquifer. However, these sand units typically are considered to be of little or no importance as aquifers because they are not known to contain potable water, nor are they extensive enough to supply large quantities of even poor quality water (Rollo 1966).

Point bars are deposits of poorly graded fine sand that occur inside of the growing meander loops of the Mississippi River (Kolb 1962). These deposits occur at depths of 10 to 30 feet BGS and can extend to depths of 150 feet BGS or more. Although point bars are the only source of fresh groundwater along the Mississippi River below New Orleans, they have

little potential as aquifers in the area because of their small areal extent and low permeability. Most wells in point bars are of small diameter and yield only a few gallons per minute (gpm). Water from the point bar deposits is of poor quality because of its high iron content and excessive hardness (Rollo 1966).

Only small water supplies can be developed from distributary channel deposits because salt water underlies the fresh water or is nearby laterally. When wells are pumped at rates of more than a few gpm, the salt water intrudes to contaminate the fresh water in the well (Rollo 1966).

1.4.2.2 Deep Hydrogeology

Much of the following discussion is taken directly from Dial and Sumner (1989). The material was summarized to provide a concise description of the aquifers in the site vicinity and their properties.

New Orleans Aquifer System

The deeper hydrogeology of the New Orleans area is characterized by a complex series of alternating beds of sand and clay which comprise the New Orleans Aquifer System. Alternating beds of sand comprise the aquifers, and the clay units act as confining units between the aquifers. The beds dip gently southward at approximately 25 feet per mile and the dip increases progressively toward the south.

The New Orleans Aquifer System is normally defined as a series of four sand units from land surface to the base of the "1,200-Foot" Aquifer. The four major aquifers in this succession, in descending order, are the Gramercy, Norco, Gonzales-New Orleans, and "1,200-Foot" aquifers. The Mississippi River Alluvial Aquifer is not present in New Orleans, but it is hydraulically connected with the Mississippi River and the Gramercy Aquifer ("200-foot" sand), Norco Aquifer ("400-foot" sand), Gonzales-New Orleans Aquifer ("700-foot" sand), and the "1,200-Foot" Aquifer. Along the alluvial valley, these four aquifers merge and become a single unit.

All four aquifers become shallower toward the outcrop areas located to the north and west, and they either pinch out or merge with shallow sand beds near the surface. The

confining units between each aquifer consist mostly of clay with some interbedded silty or sandy lenses. These confining units range in thickness from a few feet to over 200 feet (Dial and Sumner 1989).

The Gramercy Aquifer might not be present in the site vicinity, but where present in New Orleans Parish, it contains salt water and is not often pumped. The Gramercy Aquifer is separated from the underlying Norco Aquifer by a thin bed of clay of variable thickness (10 to 50 feet). In some areas, the clay is missing and the two aquifers merge into a single unit; this occurs in St. Charles, St. John the Baptist, and St. James parishes (Hosman 1972; Dial and Kilburn 1980).

The Norco Aquifer is generally widespread in western Orleans Parish and in the Mississippi River parishes west of Orleans Parish, but it pinches out in eastern Orleans Parish (Rollo 1966). Like the Gramercy Aquifer, it contains salt water and is almost unused in the area. The Norco Aquifer occurs at a depth of approximately 300 feet BGS west of the site and is separated from the underlying Gonzales-New Orleans Aquifer by a thick clay bed (up to 200 feet). The Norco Aquifer might be absent in the site vicinity (Dial and Sumner 1989).

The Gonzales-New Orleans Aquifer is the only aquifer containing significant quantities of fresh water beneath New Orleans. Because of its areal distribution, thickness, and the availability of freshwater content, it is the only practical choice for consideration as a public supply source. The top of the aquifer is expected to occur at a depth of approximately 450 feet BGS in the site vicinity, and it is separated from the "1,200-Foot" Aquifer by a clay bed of variable thickness. The thickness of the clay bed is not well defined in Orleans Parish because very few wells have penetrated below the Gonzales-New Orleans Aquifer. The clay probably thins out in some areas, and a direct hydraulic connection with the "1,200-Foot" Aquifer exists (Rollo 1966). Water level measurements made by the United States Geological Survey (USGS) since the 1960s support Rollo's conclusion (Dial and Sumner 1989).

Like the Gonzales-New Orleans Aquifer, the "1,200-Foot" Aquifer is present throughout Orleans Parish. Information on the "1,200-Foot" Aquifer is sparse in the area because of its limited use as a groundwater source. The top of this unit occurs at a depth of approximately 700-850 feet BGS in the site vicinity. The aquifer contains salt water in most of Orleans Parish, except near Irish Bayou in the northeastern portion of the parish. Water

levels in the "1,200-Foot" Aquifer are affected by pumping from the Gonzales-New Orleans Aquifer, as indicated by water level and pumping records for both aquifers (Dial and Sumner 1989).

The Mississippi River Alluvial Aquifer is usually the western boundary for, and is hydraulically connected with, the New Orleans Aquifer System. However, the Mississippi River Alluvial Aquifer is absent in the New Orleans area and the hydraulic connection between the river and the New Orleans Aquifer System is absent (Dial and Sumner 1989). The southern boundary of the New Orleans Aquifer System is beneath the Gulf of Mexico, where the sands diminish in thickness and appear to pinch out altogether. The eastern boundary of the aquifers is also beneath the Gulf of Mexico, off the coast of southern Mississippi. The Gramercy and Norco aquifers pinch out in eastern Orleans Parish, and the Gonzales-New Orleans and "1,200-Foot" aquifers are assumed to pinch out farther east beneath the coastal waters (Dial and Sumner 1989).

Groundwater Flow

The aquifers of the New Orleans Aquifer System are recharged directly by precipitation, by percolation downward through the overlying surficial sediments, and by recharge from the Mississippi River. Recharge from precipitation is sufficient to maintain relatively constant long-term water levels in the aquifers at the outcrop areas. Observations of water levels in shallow wells near outcrop areas indicate that the long-term water levels are not affected by groundwater pumping (Dial and Sumner 1989).

Groundwater movement in all four aquifers that comprise the New Orleans Aquifer System is part of a regional flow system. Pre-pumping directions of groundwater flow were from the northern outcrop areas, south and southwest of the Mississippi River Alluvial Aquifer discharge area, and were largely controlled by geologic features. In other areas where the aquifers were not in contact with the Mississippi River Alluvial Aquifer, groundwater discharge moved upward through confining units to the surface (Dial and Sumner 1989). Groundwater movement from recharge to discharge areas flushed out the original salty water in the aquifers (Morgan 1963). The current irregularity of the freshwater-saltwater contacts in the aquifers indicates that the rate of flushing varied spatially.

Development of the Gonzales-New Orleans Aquifer in the New Orleans area altered the pre-pumping flow direction as water moved radially toward the area of lowered head. Pumping induced leakage into the pumped aquifer through confining units above and below, and it affected the position of the freshwater-saltwater interface in the Gonzales-New Orleans Aquifer. The pre-pumping interface in the aquifer extended northeastward from downtown New Orleans (Rollo 1966). Early development was close to the interface and pumping in the downtown area intercepted most of the salt water that was moving toward the pumping center. However, groundwater withdrawal in the downtown area declined in the 1970s, and salt water began moving toward other pumping centers in the areas of the Industrial Canal, the lakefront at Lake Pontchartrain, and Lake Michoud (Dial and Sumner 1989).

Water level elevations for the aquifers that comprise the New Orleans Aquifer System indicate the presence of a downward hydraulic gradient from the surface to the Gonzales-New Orleans Aquifer and an upward hydraulic gradient between the "1,200-Foot" Aquifer and the Gonzales-New Orleans Aquifer. These gradients are most pronounced in areas of aquifer pumpage (Dial and Sumner 1989; Dial 1994).

Potential downward migration of groundwater and contaminants might be enhanced by the presence of downward vertical groundwater density gradients and "vertical permeable conduits" within the confining units (e.g., interconnected silt-lenses or layers).

Aquifer Properties

Based on aquifer tests, the estimated hydraulic conductivity for the Gramercy Aquifer is 100 feet per day (feet/day) and the estimated conductivity for the Norco Aquifer is 130 feet/day. Transmissivities for the Gramercy and Norco aquifers range from 9,000 to 30,000 square feet per day (feet^2/day). The hydraulic conductivity determined from aquifer tests of the Gonzales-New Orleans Aquifer averages 110 feet/day. The transmissivity of the Gonzales-New Orleans Aquifer in the greater New Orleans area ranges from 12,000 to 24,000 feet^2/day and has been reported as high as 32,000 feet^2/day in the Gonzales area (Long 1965). Aquifer properties for the "1,200-Foot" Aquifer are unavailable in the greater New Orleans area, but a hydraulic conductivity of 100 feet/day can be estimated based on the similar lithology to the Gonzales-New Orleans Aquifer. Storage coefficients range from

0.0001 to 0.001 and average approximately 0.0005 for the Gramercy, Norco, and Gonzales-New Orleans aquifers. Storage coefficient information is unavailable for the "1,200-Foot" Aquifer, but an average of 0.0005 is assumed (Dial and Sumner 1989).

1.4.3 Surface Water Hydrology

1.4.3.1 Regional Hydrology

The surface water hydrologic regime of Orleans Parish involves the movement of freshwater and saltwater masses through the region as a result of the interaction between Mississippi River discharge, precipitation, winds, and tides. The existing regime is influenced by natural and man-made factors. The basic, natural hydrologic system was governed by the pattern of former distributary channels of the Mississippi River Delta complex and interdistributary basin channels that drained swamps and marshes into the estuarine lakes, bays, and sounds (Trahan 1990). This situation contributed to a stable environment where water levels and salinity values varied with changing tidal conditions (Trahan 1990).

Man-made factors have greatly altered the natural hydrologic regime. These factors include levees, the channelized drainage network, and more recent modifications such as deep water canals and spoil banks developed in conjunction with logging, drainage, and navigation improvements; oil and gas well drilling; and pipeline construction. Major intrusions of salt water along the Mississippi River generally do not extend as far north as Orleans Parish; however, intrusions through canals and other channels reach other large surface water bodies in most parts of the parish (Trahan 1990).

Due to man-made conditions, the hydrologic circulation system has shifted to reflect the competition between local runoff in the wetlands coupled with discharge from diked areas and daily tides. The overall effect of these modifications has been the rapid alteration of a stable hydrologic situation into one with greater fluctuation of water levels, salinity values, and sediment transfers and deposition (Trahan 1990).

1.4.3.2 Site Vicinity Hydrology

The principle components of the hydrologic system in the general site vicinity are Lake Pontchartrain, the Mississippi River, and surface water canals (see Figure 1-3). The

Mississippi River and Lake Pontchartrain are briefly summarized based directly on discussions presented in *Water Resources of the Lake Pontchartrain Area* (Cardwell *et al.* 1967).

Florida Avenue and Peoples Avenue Canals

The main surface water features in the immediate site vicinity are the Peoples Avenue Canal to the west and the Florida Avenue Canal to the south (see Figure 1-2), both of which receive stormwater runoff from the site vicinity through a network of storm drains. Pumpage from the canal system in New Orleans also maintains groundwater levels BGS. The bottoms of the canals are at least 8 feet BGS.

The Peoples Avenue Canal flows to the south and discharges into the Florida Avenue Canal. The Peoples Avenue Canal also receives site-related drainage from a buried subterranean drainage culvert located beneath Higgins Boulevard. (This culvert is also known as the Higgins Boulevard Canal.) During periods of low flow, water from the Florida Avenue Canal is pumped into the Mississippi River from Pumping Station D, located near the intersection of the Peoples Avenue and Florida Avenue canals. During periods of high flow, water is pumped by Pumping Station 19, located approximately 1.3 miles to the east, into the Industrial Canal (also known as Inner Harbor Navigation Canal), which is located next to the pumping station (see Figures 1-1 and 1-2). The Industrial Canal flows north and eventually discharges into Lake Pontchartrain.

Lake Pontchartrain

Lake Pontchartrain, the largest of the brackish-water lakes in Louisiana, is a relatively shallow lake that covers an area of approximately 640 square miles. The average depth of the lake is approximately 12 feet, and the maximum undredged depth is approximately 18 feet. Water in the lake is a mixture of fresh river water from the upland area to the north and salty water intrusion from the Gulf of Mexico. Pass Manchac, on the west, connects Lake Pontchartrain to Lake Maurepas, which receives the discharge of the Amite, Tickfaw, and Blind rivers. The Tangipahoa and Tchefuncte rivers and Lacombe Bayou and Bayou Bonfouca discharge directly into Lake Pontchartrain (Cardwell *et al.* 1967).

Lake Pontchartrain is connected to Lake Borgne (to the southeast) by the Rigolets and Chef Menteur Pass (see Figure 1-3); Lake Borgne connects to the Gulf of Mexico through the Mississippi Sound. The Pearl River merges with salty water in the Rigolets-Lake Borgne vicinity. Through the Inner Harbor Navigation Canal in New Orleans, Lake Pontchartrain is connected to the Mississippi River-Gulf Outlet Canal, and through a lock, to the Mississippi River (Cardwell *et al.* 1967).

The chloride concentration of water in the lake varies greatly, both spatially and with time. In the western and northern portions, freshwater inflow tends to reduce salinity; in the eastern and southern portions, the influx of salty water from the Gulf tends to increase the chloride concentration. Winds distribute and mix fresh and salty water. The Mississippi River-Gulf Outlet Canal brings water of high chloride content to the Inner Harbor Navigation Canal and to the southeastern part of the lake (see Figure 1-3). Water users on the canal report that saline water is present year round. Although large quantities of fresh to moderately saline water are available in the western part of Lake Pontchartrain, extensive treatment including periodic desalinization would be required for municipal supply use (Cardwell *et al.* 1967).

Mississippi River

The Mississippi River bounds the Lake Pontchartrain Basin to the south and, although related, it is a separate hydrologic system. The river has been the sole municipal supply and the primary source of other water requirements for the Greater New Orleans area since approximately 1907. In 1939, the river's minimum flow was 75,000 cubic feet per second, which far exceeds the average rate of withdrawal and any foreseeable demands. With treatment, the quality of the river water is suitable for domestic use, except under the most severe conditions of industrial contamination or saltwater intrusion. The oldest and greatest problem to the New Orleans water supply is the danger of saltwater intrusion from the Gulf of Mexico. During extended periods of low flow, salty water has migrated to points upstream of the city water intakes. Furthermore, despite the tremendous capacity of the river to assimilate and dilute wastes, industrial contamination upriver is a threat to the supply. The increased

use of fertilizers, pesticides, and herbicides by agriculture adds to potential water quality problems (Cardwell *et al.* 1967).

1.4.4 Water Use

1.4.4.1 Surface Water Use

Lake Pontchartrain is used for recreational activities and fishing on a limited basis. In addition, several municipalities in the area reportedly use Lake Pontchartrain for treated sewage disposal. The lake is not used as a drinking water source (Jaynes 1991).

The Mississippi River, which flows past New Orleans at an average rate of 300 billion gallons per day (gpd), has been the sole source for municipal drinking water and the primary source for other water requirements in the greater New Orleans area since approximately 1907. Water intakes for the city's two water purification plants are located in Algiers and the East Bank. These stations have a total water treatment capacity of 250 million gpd.

The Mississippi River and the Inner Harbor Navigation Canal are used extensively for commerce. There are no documented recreational or other uses for the Peoples Avenue and Florida Avenue canals which border the site.

1.4.4.2 Groundwater Use

Groundwater for commercial use is drawn primarily from the Gonzales-New Orleans Aquifer. In 1986, the major pumping stations were located in proximity to the University of New Orleans, the Industrial Canal area north of U.S. Highway 90, the Michoud area, and downtown New Orleans (see Figure 1-4). Appendix D identifies the supply wells located in the site vicinity. Although used for commercial purposes, 28 of the Gonzales-New Orleans Aquifer wells are designated as emergency drinking water supply wells. Of these 28 wells, one well appears to be located within 1 mile of the site; five appear to be located within 2 miles of the site; four appear to be located within 3 miles of the site; and three appear to be located within 4 miles of the site. (Construction and other information pertaining to these wells is provided in Appendix D.) Pumpage from the Gonzales-New Orleans Aquifer in Orleans Parish reached a maximum of approximately 43 million gpd in 1969, but declined to approximately 35 million gpd in 1980. As of 1986, pumpage had declined to approximately

30 million gpd. Outside of Orleans Parish, pumping from the aquifer is confined mostly to Jefferson, St. Charles, and Ascension parishes.

Pumping from the Gramercy, Norco, and "1,200-Foot" aquifers is minimal in New Orleans. No pumping has been reported from the "1,200-Foot" Aquifer in New Orleans since 1969 (Dial 1983). No usage of shallow groundwater in the site area has been reported.

1.4.5 Meteorology

The climate of New Orleans is influenced largely by its subtropical latitude (30° north) and its proximity to the Gulf of Mexico. The climate can best be described as humid with the surrounding water modifying the temperature and decreasing the range between extremes. Almost daily sporadic afternoon thunderstorms occur from mid-June through September and keep the temperature from rising much above 90 degrees Fahrenheit (°F) (National Oceanic and Atmospheric Administration [NOAA] 1992). For Orleans Parish, the average winter temperature is 54°F and the average daily minimum temperature is 44°F. The average summer temperature is 81°F, and the average daily maximum temperature is 90°F (Trahan 1990).

Frequent and sometimes very heavy rains are typical for this area. There is an average of 120 days of measurable rain per year, and the annual total precipitation is 59 inches. Of this, 33 inches (56%) usually falls from April through September. The heaviest recorded one-day rainfall was 9.8 inches in May 1959 (Trahan 1990).

From mid-November to mid-March, the area is subjected alternately to the northerly flow of warm tropical air and the southerly flow of cold continental air in periods of varying length, but the prevailing wind is from the southeast (NOAA 1992). Average wind speed is highest (10 miles per hour) in the spring months (Trahan 1990). Air pollution is not a serious problem because the area is not highly industrialized and long periods of air stagnation are rare (NOAA 1992).

1.5 SITE HISTORY

Section 1.5 describes the history of the ASL site from the inception of waste operations through closure and the subsequent construction of the developed portion of the

site. Research conducted for the RRII clarified information concerning ASL site operations that was reported in the WP (E & E 1994a). The most significant change from the history reported in the WP is that, based on additional documentation included in this section, it is now clear that a municipal incinerator was never located within the boundaries of the ASL site.

1.5.1 Operational History

Two descriptive titles were associated with the ASL site during its operational history. The whole area was referred to as the Agriculture Street Dump (ASD) from the formal commencement of activities at the site in approximately 1909 until the late 1950s, when actual landfill activities began on a part of what became known as the ASL facility. The site will be referred to as ASD only in this site history section of the report; otherwise, it will be referred to by its more recent name, ASL, for consistency and clarity.

Records indicate that ASD was first authorized for use as a dump in 1909, when the City of New Orleans was engaged in an effort to phase out dumping municipal wastes and trash into various canals and the Mississippi River. As of 1913, disinfectant was applied to the garbage at the dump, and starting in 1914, oil was used to burn all garbage received at the dump (New Orleans Division of Public Works 1913-1914). Garbage was reportedly composed primarily of household waste collected through city collection systems, and commercial waste brought to this and other dumps by producers and private transporters (Schneider 1926).

By 1917, the city council began to examine garbage disposal alternatives, including a system of incineration and waste reduction (Miller 1951). Five municipal incinerators, designated as A through E in Figure 1-5, were built from 1916 to 1930 to help improve refuse disposal management in the city, and the informal, local neighborhood landfills and dumps were closed (Klorer 1925). A review of the City of New Orleans archives indicated that Incinerator E was the incinerator constructed nearest to ASD (see Figure 1-5). Sanborn fire insurance maps (Sanborn 1978), aerial photographs, and several newspaper articles depict Incinerator E as located at the intersection of Industry and Eads streets, on the west side of the Peoples Avenue Canal (*Times Picayune* 1940). Only Lewis (1978) indicated that the

incinerator was located at Agriculture and Deers Streets. Eads Street is located one block west of Deers Street, which suggests that this was the same incinerator unit.

A 1921 plan was approved by the City of New Orleans, under Commissioner Black, that established ASD as the receiving point for the city's garbage. Later, incinerator ash not used as fill in such areas as the City Park Batture or the Behrman Playground in Algiers was to be brought to ASD. In 1922, the 400 tons of garbage produced each day by the residents of New Orleans were primarily disposed of at ASD (*Times Picayune* 1922). According to the *Report on Garbage Collection and Disposal*, approximately 50 to 75 tons of commercial waste were brought by responsible manufacturers to various dumps throughout the city (Schneider 1926). Schneider noted that at ASD, "the leveling of ashes has not kept pace with its accumulation. It is estimated that between 40,000 and 50,000 cubic yards of ash will need to be leveled to the proper grade...." Schneider also noted that despite use of the incinerators, some refuse was still being routed to the dump.

In the report on *Refuse Disposal Study for New Orleans*, C. Schneider (1951) stated that through 1934, most household garbage was incinerated. ASD had remained in constant use prior to 1934 as the principle disposal area for the greater portion of New Orleans's commercial refuse which was delivered by producers and private transporters. After 1934, much of the city's garbage was deposited in ASD because of financial constraints. The absence of available labor at the incinerators during World War II caused municipal and commercial waste to be taken to ASD. In 1946 the city depended on its two city dumps and the five incinerators that had been used since the 1920s to dispose of garbage. ASD continued to be used as the primary waste disposal area for New Orleans, but by 1946, the City of New Orleans had grown to surround the dump area so that it was no longer located on the outskirts of the city.

In 1948, residents in the area began to complain about the smell and smoke from occasional dump fires (*Times Picayune* 1948a; Schneider 1951). They were assured by the Commissioner of Public Property that all garbage was incinerated or retained at collection points until it could be transported for incineration, in accordance with a 1948 legislative bill that prohibited piling garbage on open dumps within the city limits. In response to uncontrolled fires and trespassers at the dump (*Times Picayune* 1948a), the city transformed a

portion of the dump into a sanitary landfill in an effort to relieve the pressure on the incinerators, which were no longer capable of handling garbage disposal requirements for the city. It was also reported that during the 1940s and 1950s, the ASD/ASL area was routinely sprayed with DDT, a pesticide (*Times Picayune* 1994).

The city awarded a salvage company, Delta By-Products, a 10-year contract to receive garbage delivered by the city to ASD, recover any useful items, and deliver the remainder of the garbage to the landfill section of ASD within an eight hour turn-around (*Times Picayune* 1948b). On October 6, 1948, the city began excavation on the northern part of ASD to create ASL. Trenches were excavated, cleared with drag lines, and prepared to receive daily post-salvage remains, which were to be covered with earth (Miller 1951). An 8-foot-high levee was constructed near St. Ferdinand Street, and three cells (two measuring 100-feet by 100-feet by 10-feet deep, and one measuring 100-feet by 200-feet by 12-feet deep) were excavated to receive garbage (*Times Picayune* 1948c). The location of these cells could not be verified from the aerial photographs. Two of the incinerators (Incinerators D and E) had been closed during World War II, but they were re-opened after the war and the remaining incinerators were kept in constant use despite their disrepair. In 1949, Incinerators D and E were finally closed, and garbage was delivered to the sanitary landfill at Agriculture Street (*Times Picayune* 1949). The landfill continued to receive increasing quantities of waste until the Florida Avenue and Seventh Street incinerators were constructed in 1957 (see Appendix B).

Apparently, some open burning continued at the landfill, and the public effort to close the facility was intensified. According to the Mayor's Annual Report for 1950 (*New Orleans States* 1950):

> The efficient sanitary fill process of garbage disposal went into operation on a large scale....The city began delivering its garbage to a building erected by a salvage company. The company pays the city about $16,000 a year for the garbage....During 1949, such dumping and filling covered 13 acres to a height of 7 to 9 feet. Garbage arrives at the Agriculture Street Dump in city trucks, is dumped on a platform, bulldozed onto a conveyor belt, lifted into a two-story

> building for inspection and salvage....Unsalvageable material is taken to the pit in trucks, dumped, and pushed in by a bulldozer, and covered with dirt.

The remaining on-site structure is probably the salvage building used during that time (Schneider 1951).

In the report on *Refuse Disposal Study for New Orleans*, Schneider (1951) stated that:

> ...the constant increase in commercial refuse delivered there led to numerous and extensive fires, from which smoke and odors were a constant and grave nuisance to a large surrounding area. Even after the controlled landfill was established, there were occasional outbreaks of fire, to the discomfort of neighbors.

Based on the continued problems, legislation was enacted to close ASL. The report continued, "the main potential of the Agriculture Street Landfill rests in the possibility of burning the tailings discharged at the salvage plant." The salvage company found that hauling the tailings across ASD to the landfill was not cost effective and it consequently ceased operations.

Operations at ASL were scheduled to end by 1952 despite a valid lease that continued through 1953. According to the Mayor's Annual Report for 1958:

> ...the modern facility (new incinerator)...has permitted the closing of the Agriculture Street Landfill operation.... This nuisance and eyesore, the Agriculture Street Landfill operation - once on the city's outskirts - has been closed (New Orleans 1957-1958).

In 1962, newspapers reported that subsurface fires at ASL continued to contribute to smog and a high incidence of asthma in the area, and excess fill was removed to resolve the problem (New Orleans States Item 1962). Approximately 300,000 cubic yards of excess fill from ASL were disposed of in the Haynes Boulevard borrow pit and elsewhere (*Times Picayune* 1962).

In 1965 and 1966, ASL was used on an emergency basis to accept debris and spoiled foodstuffs resulting from Hurricane Betsy of September 1965 (Moghissi 1986). Although

specific quantities are unavailable, records indicate that approximately 300 truckloads per day were disposed of in ASL for a six-month period (McFarland 1994). Open fires were set to burn much of the debris; the area was covered with ash and compacted (Stant 1983). The landfill was officially closed in 1966; however, it should be noted that an aerial photograph from 1967 shows some type of extensive operation continuing at ASL. Determining the closure date was further complicated by evidence of unofficial or illegal dumping that occurred through 1994. Another unofficial use of ASD/ASL that contributed to contamination included the practice of bringing cars to the ASL area to perform oil changes and repairs (Moghissi 1986).

1.5.2 Development on the Former Landfill

In the 1970s, after closure of the ASL, development of portions of the former landfill was initiated by city agencies. Fill was brought into the area for the subsequent construction of multiple-family HANO public housing (Pavia Byrne 1984). Later, in the mid- 1970s and early 1980s, geotechnical studies were performed to develop single-family homes in the planned Gordon Plaza Subdivision (Gillen 1976; Haensel 1980). On July 28, 1975, the Orleans Parish School Board (OPSB) purchased a vacant lot on the ASL site for the purpose of constructing a school. After numerous engineering studies, the school board commissioned the construction of Moton School in 1985 (Pavia 1985). The school was opened in 1987. Section 1.6 provides a detailed discussion of the various development-related and environmental studies conducted at the ASL site.

1.6 SUMMARY OF PREVIOUS INVESTIGATIONS

1.6.1 White Report

On August 15, 1985, Dr. LuAnn E. White of the Department of Environmental Health Sciences, School of Public Health and Tropical Medicine, Tulane University Medical Center, published a comprehensive review of the available reports and file information on the Gordon Plaza Subdivision and the proposed Moton School, which are part of the ASL site. Dr. White's report summarizes the findings of previous investigations conducted at the ASL site prior to 1985. These investigations included studies conducted and reported by: Gillen

Engineering Company, Inc. (Gillen) in 1976; J. J. Krebs and Sons, Inc. (Krebs) in 1980 and 1984; Pavia-Byrne Engineering Corporation (Pavia-Byrne) in 1984; Gore Engineering, Inc. (Gore) in 1984; the Louisiana Cooperative Extension Service (LCES) in 1984; the Louisiana Department of Health and Human Resources (LDHHR) in 1984; the Louisiana Department of Environmental Quality (LDEQ) in 1984; Ochsner Clinic (Ochsner) in 1985; and the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR) in 1985. A discussion of each report summarized by Dr. White is included in the following paragraphs.

On April 15, 1976, Gillen submitted a report addressing the soil profile and foundation analysis for the area comprising the proposed Gordon Plaza Housing Development Project. Soil borings collected during this study were evaluated and found to contain fill material at depths ranging from 2.5 to 33 feet below surface. Because of the amount and variation in the depth of the fill, the report indicated that a large amount of subsidence could occur. It was the opinion of the writer that prior to developing the subdivision, "most of the fill material, if not all, should be removed" (Gillen 1976; White 1985). This report addressed the site strictly from an engineering viewpoint.

An April 1, 1980 report from Krebs to the New Orleans Community Improvement Agency presented a brief site history, existing subsoil information, results of foundation pile load tests, and recommendations for residential construction on the developed sites. The report focused on the property included in the Gordon Plaza Housing Development Project. Based on the information described in the study, they concluded that the property under consideration was suitable for residential development. They emphasized that building foundations would have to be designed properly and special construction features for driveways and sidewalks should be employed. Recommendations were offered for: construction of residential foundations, driveways, sidewalks, and walkways; installation of a marsh gas venting system for potential (not investigated) methane gas build-up; and suspension of utilities below building slabs (Haensel 1980; White 1985).

On January 9, 1984, Pavia-Byrne submitted a report to OPSB which investigated the presence and concentration of potentially hazardous materials at the proposed site of Moton School and their effect on the site's proposed use. Because OPSB had previously entered into

a contract with Gore to conduct a soils foundation study that included 12 shallow borings, and because the design of the school was being delayed pending results of the Pavia-Byrne study, it was decided to use the borings for both the foundation investigation and the investigation of hazardous materials. A total of 64 samples were collected from the 12 borings. Based on air monitoring results and visual observation, two composite samples were prepared utilizing 22 of the 64 samples. The samples represented a composite of surface soil and a composite of mid-level samples to show deposited materials. In addition, six samples were randomly selected from separate borings. The selected samples were analyzed for 128 priority pollutants, extraction procedure (EP) toxicity on metals of concern (chromium, lead, and mercury) and dioxin. Based on the presence of high concentrations of metals and organics, Pavia-Byrne concluded that the site contained potentially hazardous material that could interfere with its proposed use. They indicated the probable source for the organic constituents was from incineration of wood. Of the three metals evaluated for EP toxicity, only lead was detected (concentrations were below regulatory limits). Dioxin was not detected in any sample. The analytical data from this study was submitted to the Louisiana Department of Natural Resources (LDNR) and EPA for consideration (Pavia-Byrne 1984; White 1985).

The January 23, 1984 subsoil investigation report for the proposed Moton School provided to the OPSB by Gore, and conducted cooperatively with 1983 Pavia-Byrne hazardous material evaluation, focused on a foundation investigation and determination of fill requirements. Considered from a stability standpoint, surface improvement recommendations included the provision of a minimum of 2 feet of good quality material as a cover (Gore 1984; White 1985). Because flammable gas was encountered during the study, the report also recommended the consideration of a gas collection or treatment system.

In January 1984, LCES collected surface soil samples from gardens of seven residents who were participating in a home gardening program (Moghissi 1986; White 1985). The samples were analyzed for lead, mercury, calcium, magnesium, and pH by the Feed and Fertilizer Laboratory (FFL) of Louisiana State University. Mercury concentrations in the garden soils ranged from 0.1 to 1.7 parts per million (ppm) and lead concentrations ranged from 52 to 3,002 ppm (Morris 1984a). In May 1984, vegetables collected from the residence containing the highest lead soil concentration were analyzed and lead was detected in squash

(0.23 ppm), cucumbers (0.40 ppm), and tomatoes (0.72 ppm) (Morris 1984b). Further review of the data was conducted by Dr. A. Alan Moghissi (1986). As noted by the FFL analyst and by Dr. Moghissi, analytical results associated with the produce samples indicated that concentrations of accumulated lead were below the Food and Drug Administration (FDA) standard of 7 ppm (Morris 1984b; Moghissi 1986; White 1985).

In a second report submitted by Krebs on May 7, 1984, existing studies conducted for the OPSB by Gore and Pavia-Byrne were evaluated and ten recommendations regarding the use of the site for an elementary school were made. Recommendations included:

- Providing a uniform surface and a soil seal;
- Providing ventilation for gases below buildings or the soil seal;
- Providing for soil seal breaches;
- Analyzing a suspect material found in one boring;
- Seeding the school yard with a hardy species of grass;
- Regular monitoring for the presence of organics or inorganics;
- Monitoring runoff from the site;
- Monitoring groundwater;
- Limiting human exposure if indicated by monitoring results; and
- Restoring the soil seal if penetrated during construction (Haensel 1984; White 1985).

A July 5, 1984 interdivisional correspondence from the LDHHR (incorrectly noted in the White report as June 5, 1984) evaluated the results of a blood lead screening program for the area surrounding Press Park, which included the ASL site. The target area was bound by Higgins Boulevard, Desire Parkway, Florida Avenue, and Almonaster Avenue, and the screening included those children who used the health center for medical care and were monitored for lead. The ages of the children included in the study were not provided in the referenced report. Only one positive case appeared during three years of testing. No positive

cases of blood lead were identified out of 82 children screened in 1982; no positive cases were identified out of 275 children screened in 1983; and as of June 1984, only one positive case was identified out of 138 children screened that year (Clarkson 1984; White 1985). White concluded that this survey indicated that the presence of lead detected in the soil has not been a source of environmental exposure to those tested (White 1985). In the positive case, the recorded concentration of erythrocyte protoporphyrin (the analyzed parameter in blood samples) was 30 to 40 micrograms per deciliter (μg/dL). It is not possible to translate this value to a blood lead concentration; however, the method is an indirect procedure for blood lead screening. According to the United States Centers for Disease Control's (CDC's) *Preventing Lead Poisoning in Young Children* (October 1991), an erythrocyte protoporphyrin level greater than 35 μg/dL should be followed by a venous blood test to determine whether this value can be attributed to iron deficiency, lead intoxication, or a combination of both.

A June 7, 1984 internal memorandum presented by LDEQ reported analytical results from ten soil samples collected from residential and public use areas located in the Press Park area of New Orleans (Evans 1984). Samples were analyzed for lead by Toxicon Laboratories, Inc., and results ranged from 13.4 to 1,830 ppm (Toxicon 1984; White 1985).

As requested, a report dated April 15, 1985 was submitted to the OPSB by Ochsner that included a review of the Pavia-Byrne (1984) and Krebs (Haensel 1984) studies and a discussion of the health impacts of toxic substances present at the Moton School site. The school was commissioned for construction in 1985 and opened in 1987. Limitations of the previous studies were examined and use of the data for more than a general idea of the possible health risks present or not present at the proposed school site was deemed inappropriate. Ochsner concurred that the proposed school site was contaminated with a number of toxic substances and the site should not be used in an unmodified condition. Recommendations were provided to prevent exposures and minimize adverse health effects. In addition, the options of an encapsulation program with monitoring, shallow excavation and/or encapsulation with monitoring, or excavation and material replacement were offered as possible remedies if a school were to be located on the site (Campbell 1985; White 1985).

The CDC was requested to review information relating to the "Press Street Park" by EPA Region 6 and it was provided a copy of the Ochsner report. In a memorandum dated

June 26, 1985, ATSDR reiterated concerns addressed in the Ochsner report regarding a lack of sampling data, improper location of samples, improper interpretation of data, and inadequate or inappropriate recommendations. In addition, conclusions and recommendations associated with the proposed school location were provided (ATSDR 1985; White 1985).

1.6.2 The Louisiana Department of Natural Resources

In response to a late 1983 request, the LDNR reviewed soil boring and chemical analytical data compiled by Pavia-Byrne, contractor for the OPSB, concerning the proposed location of Moton School (Norton 1985; Porter 1984). During this review, LDNR contacted both EPA and the Division of Disease Control at LDHHR. EPA, in turn, consulted with CDC for guidance on the potential health concerns for the intended use of the site (Norton 1985; ATSDR 1985).

A January 17, 1984 memorandum from LDNR to OPSB stated that the Pavia-Byrne analytical data showed elevated concentrations of heavy metals (up to 900 ppm lead) and polynuclear aromatic hydrocarbons (PAHs) (approximately 25 ppm) in surface soil samples, but the results indicated that neither dioxin nor polychlorinated biphenyls (PCBs) were detected, and no RCRA hazardous wastes were found. The memorandum also stated that LDNR and EPA, in consultation with CDC, concluded that any potential health risks to school children would likely result from direct exposure to soil, such as ingestion, although long-term skin exposure or inhalation of dust should also be avoided. Several measures for preventing exposures were also discussed (Porter 1984).

In a letter dated March 18, 1985, LDEQ supported the findings from LDNR (Porter 1984) and provided additional comment on environmental safeguards for the Moton School site. These recommendations included special care to ensure cover material was not lost through erosion. Spot losses were advised to be immediately corrected by the addition of fill material (Norton 1985).

1.6.3 Additional Orleans Parish School Board Studies

In a memorandum dated April 10, 1985, Pavia-Byrne submitted to LDEQ a copy of their report to OPSB which evaluated the findings from hazardous waste testing, and included potential remedial alternatives. The memorandum also stated that OPSB had voted to proceed with the Moton School project and that the committee recommended that the entire area encompassing Moton School be cleared to a depth of 3 feet below grade, including the area under the proposed school building's paved parking lot (Pavia 1985).

On September 11, 1985, LDEQ reported to EPA that OPSB had made a final decision on the remedial measures to be taken to prepare the site for the school. The memorandum stated that the remedial measures were consistent with the evaluations and recommendations made by EPA, CDC, and LDEQ. LDEQ indicated that the question had been raised as to whether any potential health impacts from prior land use extended to the residential developments in the same general location of Moton School (DeVille 1985).

In a September 4, 1985 memorandum, LDHHR recommended that additional sampling and biological monitoring (blood lead levels) be conducted to provide health officials with information necessary to better evaluate the newly developed residential areas of the former landfill (Deville 1985; Bardsley 1985). An August 14, 1985 memorandum from the School of Medicine in Shreveport (Redetzki 1985), and an August 27, 1985 summary report from LDHHR (LDHHR 1985), contained similar recommendations.

In a May 18, 1992 memorandum from the Director of Facility Planning to the OPSB, results from two sampling events were discussed and conclusions from reviewers were stated (Ducote 1992). In the May 11, 1992 analytical report from Environmental Analytical Solutions, Inc. (EAS), analytical results of drinking water samples collected from the kitchen and from three water fountains in Moton School indicated that no lead was present above the detection limit (Ducote 1992). The May 11, 1992 analytical report from EFEH and Associates (EFEH) indicated that soil samples collected on April 30, 1992 from under the school building contained 3,140 ppm oil and grease and had a rancid odor. Tests conducted to identify the presence of hazardous waste based on RCRA characteristics were all negative (Ducote 1992). Reviewers concluded that the site remained safe, except for the need to clean the leaking materials from the sewer lines and grease trap (Ducote 1992).

The W.D. Scott Group, Inc. (Scott) performed a soil boring investigation and submitted a report to OPSB in September 1992 for Moton School. The purpose of the investigation was to assess the subsurface conditions for the health and safety of plumbing contractors that would be tasked by OPSB to replace sewer lines beneath the foundation of Moton School that had broken in several places due to subsidence. The assessment involved drilling a total of three soil borings and collecting three soil samples that would be analyzed for: total petroleum hydrocarbons (TPH), diesel, gasoline, and methane; fecal coliform; and toxicity characteristic leaching procedure (TCLP) metals. Three additional soil samples were obtained from the perimeter of the property and were analyzed for fecal coliform as background samples for interpretation of the fecal coliform results. Analytical results indicated low levels of diesel contamination (48 ppm) in the soil collected from one of the boreholes. Scott reported that there were no threshold levels or standards for TPH in soils; however, the State of Louisiana does not typically address TPH contamination in concentrations less than 100 ppm in near-surface or unconfined aquifers or soils. Soil from the other two boreholes were considered "non-detect" for the analyses performed. Results of the fecal coliform tests were considered limited in use due to inordinately high concentrations in the background samples. The concentrations of metals detected in the soils were reported to be within the regulatory levels established for the TCLP rule. Scott further stated that the levels appeared to be in the range of naturally occurring minerals found within the soil (W. D. Scott 1992).

At the request of the plumbing contractor working beneath Moton School, OPSB contracted Waldemar S. Nelson and Company, Inc. (Waldemar), to collect seven soil samples from the stockpiled soil and from underneath the school building and analyze them for possible pesticide contamination (Ducote 1994). On February 7, 1994, they reported that "the sampled material was below TCLP regulatory limits" (Ducote 1994).

1.6.4 Moghissi Report

On January 7, 1986, a report prepared by Dr. Moghissi of the Institute of Regulatory Science provided an assessment of potential health risks associated with pollutants present at the ASL site. The objective of his report was to provide a review of existing studies and to provide an independent evaluation of potential health risks associated with planned or current

human activity in the vicinity of the ASL site. Dr. Moghissi combined clarification of previous report details with an on-site tour of Moton School and adjacent areas. Based on available data, he concluded that lead was the only pollutant found in significant concentrations and was considered the pollutant of concern. Dr. Moghissi concurred that the implemented 3-foot sand cover was an effective measure to eliminate the exposure to the soil containing lead (Moghissi 1986).

1.6.5 Additional Health-Related Studies

On December 5 and 7, 1986, a blood lead level study for children over six years of age who reside in the immediate area of the Press Park Community Center was conducted by LDHHR, the New Orleans City Health Department, and CDC (Public Notice 1986; Davis 1987). The results of the study indicated that blood level values were within "normal limits" for all 188 children evaluated (Davis 1987; Deville 1987). A definition of normal limits was not provided in the references cited. Based on a review of the data by ATSDR and EPA in 1987, it was determined that access to the undeveloped area of the ASL site should be restricted. Therefore, thirty warning signs were supplied to the New Orleans City Health Department for use at the site (Davis 1987). In 1993, at the request of EPA Region 6, ATSDR re-evaluated recommendations previously made to EPA concerning the site. In a June 24, 1993 letter to EPA, they concurred that access restrictions to the undeveloped areas should continue to be actively pursued (ATSDR 1993a; Davis 1987). In response, EPA installed an 8-foot-high, chain-link fence topped with barbed wire around the undeveloped portion of the site to restrict access and prevent unauthorized disposal (see Section 1.3.1 for additional details).

1.6.6 EPA Investigations

During the course of EPA investigations, the ASL site has been identified as the Gordon Plaza Subdivision, Press Park, Desire Street, and/or Moton Elementary. All of these site names are synonymous to what is referred to in this report as the ASL site. EPA investigations of the ASL site prior to the RRII/FS included a Preliminary Assessment (PA), Site Inspection (SI), and an ESI.

1.6.6.1 EPA Region 6 Preliminary Assessment and Site Inspection

In March 1986, the EPA Region 6 Superfund Site Assessment Section tasked the Field Investigation Team (FIT) to prepare a sampling plan and complete a PA and SI investigation of the ASL site (McKee 1986a). On April 30, 1986, EPA conducted a public meeting to notify local residents of the proposed sampling activities scheduled for May 1986 (McKee 1986a; Nash 1986; Greeney 1986a, 1986b).

An SI was conducted by FIT on May 20 and 21, 1986 (Michel 1986a, 1986b, 1986c, 1986d; Anderson 1986). During this inspection, 40 surface soil samples were collected from the 0- to 6-inch depth interval, five core samples were collected from the 0- to 24-inch depth interval, and five rinsate blanks were prepared for QA/QC purposes. Four of the surface soil samples were collected from off-site locations considered representative of background. All samples were analyzed under the EPA CLP for Target Analyte List (TAL) and Target Compound List (TCL) constituents (Michel 1986d).

Analytical results from the SI sampling program indicated the presence of arsenic, cadmium, lead, mercury, and zinc at concentrations above background. Of the 41 on-site soil samples collected, 16 exhibited lead at concentrations less than 100 ppm, six exhibited concentrations from 100 to 500 ppm, seven exhibited concentrations from 500 to 1,000 ppm, and 12 samples exhibited lead concentrations exceeding 1,000 ppm (Brown 1986). The highest lead concentrations were found in undeveloped areas along the western and southern site boundaries. PAHs were detected in most samples at concentrations ranging from 0.170 to 60 ppm. Dieldrin, chlordane, 4,4'-DDT, 4,4'-DDD, heptachlor, heptachlor epoxide, and PCBs (Aroclor 1254) were also detected at concentrations ranging from 0.008 to 66 ppm (Michel 1986b; Anderson 1986). Soil samples selected and submitted for asbestos analysis contained chrysotile asbestos at trace concentrations of less than 1% (Michel 1986c).

On September 25, 1986, EPA completed an evaluation of the SI data (Brown 1986). This evaluation presented the following observations:

- A total of 11 TAL metals showed a high degree of cross correlation within the contaminated samples: aluminum, antimony, arsenic, barium, cadmium, calcium, iron, lead, manganese, nickel, and zinc.

- Organic constituents did not appear to correlate with each other or with the metals.

- Metals exhibited weak spatial correlation; isolated high concentration locations were predominant over well defined high-concentration areas. Additional data would be required before valid contour maps of the concentration data could be generated.

On December 18, 1986, FIT submitted to EPA the Potential Hazardous Waste Site Identification and Preliminary Assessment (EPA Form T2070-2) and the Potential Hazardous Waste Site, Site Inspection Report (EPA Form T2070-3) for the ASL site (EPA 1986a; 1986b).

Based on analytical results from the SI, a Hazard Ranking System (HRS) documentation record package was prepared in August 1986 utilizing the 1982 HRS model. The resultant site score was not sufficient for the site to be considered for proposal and inclusion on the NPL. Because of the insufficient HRS site score, EPA requested that the ATSDR evaluate the site to determine whether a health advisory was warranted (McKee 1986b; Davis 1987). ATSDR reviewed site files and existing sample data and concluded that residents of the area were not at immediate risk and that a health advisory was not warranted (Davis 1987; Deville 1987). For these reasons, EPA referred the site to the LDEQ for further action (Davis 1987).

1.6.6.2 EPA Region 6 Expanded Site Inspection

On May 4, 1993, community leaders from the Moton School area filed a complaint with the Gulf Coast Tenants Organization requesting that EPA re-evaluate the site and surrounding community (Bryant 1993). The EPA Region 6 Superfund Site Assessment Section tasked TAT, through the EPA Region 6 Emergency Response Branch (ERB), to complete an ESI of the ASL study area and collect additional samples for preparation of an updated HRS documentation record package utilizing the HRS Final Rule of December 14, 1990 (Williamson 1993).

EPA conducted an open house meeting on August 31, 1993, prior to the commencement of sampling activities, to discuss issues concerning the site and to inform the public of

the proposed sampling plan (Public Notice 1993a). A second meeting was held on September 16, 1993 to further address citizens' questions and comments raised at the first meeting (Public Notice 1993b).

On September 7, 1993, an ESI work plan, outlining proposed sampling methodology and locations, was submitted to EPA (Jaynes 1993a). Sampling activities were initiated on September 12, 1993, and continued through September 30, 1993. The objectives of the ESI were to identify and delineate areas of potentially contaminated soils by collecting surface soil samples from the ASL site and other residential and school yards surrounding the site (see Figure 1-6). Sample areas were field tested using a Spectrace 9000 portable XRF instrument to screen potential sample locations and identify areas with the highest concentrations of metals. XRF screening was conducted on soil samples at depth intervals of 0 to 6 inches, 6 to 18 inches, and 18 to 24 inches. Based on field screening results, selected samples from these three depth intervals were submitted and analyzed for TAL and TCL constituents by the EPA CLP (Jaynes 1993b).

Of the 138 samples submitted, which included ASL study area, background, and required QA/QC samples, 31 residential yards and the Gordon Plaza Apartment grounds were determined to contain lead concentrations greater than 500 ppm and samples from 28 residential yards contained arsenic concentrations greater than 20 ppm. The maximum mercury concentration (5.6 ppm) and the maximum lead concentration (23,400 ppm) were detected in the 6- to 18-inch depth interval. The maximum arsenic concentration (98.3 ppm) and the maximum cadmium concentration (28.5 ppm) were detected in the 18- to 24-inch depth interval. Maximum concentrations of the PAHs, including chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene, were also detected in the 18- to 24-inch depth interval (Jaynes 1993b). Appendix E provides a summary of the ESI analytical results.

In addition, 38 surface soil samples were collected from the ASL study area at the 0- to 3-inch depth interval to assist the EPA Removal Program in evaluating whether the site posed an imminent and substantial threat to human health or the environment. Samples were analyzed only for TAL constituents (metals). Analytical results from six of the residential yards and the Gordon Plaza Apartments within the ASL site, and one of the residential yards

within the ASL study area, indicated the presence of lead concentrations exceeding 500 ppm in the 0- to 3-inch depth interval (Jaynes 1993b).

Analytical data generated during the ESI were utilized in preparation of a final HRS documentation record package for the ASL site. The resultant site score was sufficient, and on August 23, 1994, the site was proposed to the EPA NPL as part of the NPL update No. 17. On December 16, 1994, EPA Headquarters placed the ASL site on the NPL. Notification of the placement was published in the Federal Register (59FR, 65206).

Data evaluation conducted during the ESI primarily focused on the requirements associated with developing an HRS score for the ASL site. To facilitate integration of the ESI and RRII soil sample analytical databases, a statistical evaluation of the ESI data was performed during the RRII. Figure 1-6 presents ESI sampling locations, and Table 1-1 presents the sampling depths associated with each location. Figures 1-7 through 1-12 present box plots to compare analyte concentrations and sample depths for six of the most frequently detected contaminants. The box plots were based on the analytical results for ESI soil samples collected according to the site boundaries defined in Section 1.3 of this report.

Tables 1-2 through 1-17 provide statistical analyses of the ESI data for each sampling depth. Each table reports the number of samples exhibiting an analyte concentration above the corresponding background or to be considered (TBC) guidance concentration (see Section 2.1.2 for more information on TBC criteria). In order to facilitate comparison of the ESI and RRII analytical databases, background concentrations used for the ESI statistical evaluation are based on those values obtained from results of the RRII soil sampling program (see Sections 4.1.3 and 4.2.3). Summary analytical results tables for ESI surface and subsurface soil samples are presented in Appendix E.

A variety of TAL metals and TCL organics were detected in the on-site ESI surface and subsurface samples, but only six metals (arsenic, calcium, cobalt, iron, lead, and magnesium) and three PAHs [benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene] were consistently detected at concentrations exceeding both background and TBC levels. Furthermore, nonparametric statistical analysis of these data showed a high degree of correlation between most of the metals, a high degree of correlation between PAHs, and a moderate degree of correlation between metals and PAHs. (Nonparametric correlations

provide a measure of co-occurrence of analytes to indicate whether the higher concentrations of various analytes tend to occur in the same samples.) Several pesticides were commonly detected at concentrations exceeding background values (e.g., 4,4'-DDT and its degradation products 4,4'-DDD and 4,4'-DDE, alpha-chlordane, and gamma-chlordane), but the detected concentrations never exceeded TBC criteria.

A comparison of the statistical data presented for the on-site sample sets within Tables 1-7 through 1-12 and the corresponding summary results tables presented in Appendix E indicates that metal concentrations were generally higher in the subsurface samples (6 to 18 inches, 18 to 24 inches, and 5 to 6 feet), whereas PAH and pesticide concentrations were generally similar in the surface and subsurface samples. Concentration versus sample depth data are presented as box plots on Figures 1-7 through 1-12 for the following analytes: lead, arsenic, benzo(a)pyrene, 4,4'-DDT, alpha-chlordane, and gamma-chlordane. (Data are not included for the 5- to 6-foot depth interval because only five samples were collected.) For example, Figure 1-7 shows that mean lead concentrations increase from 272 mg/kg in the 0- to 3-inch samples to 521 mg/kg in the 0- to 6-inch samples, and then increase to greater than 1,000 mg/kg in all three subsurface sampling intervals below a depth of 6 inches. A subsurface soil sample collected from the 6- to 18-inch depth interval exhibited a lead concentration of 23,400 mg/kg, the highest lead concentration detected on site.

Off-site ESI samples exhibited the same contaminants detected in the on-site samples across all depth intervals. However, the off-site samples exhibited lower metal concentrations overall except at isolated "hot spots." For example, the off-site samples exhibited a much lower frequency of exceedance (FOE) of the background concentration for arsenic, and a much lower FOE of the TBC value for lead. This off-site versus on-site difference in contaminant concentration was not defined as clearly for PAHs and pesticides. Results of the ESI soil sampling program were integrated with the results of the RRII soil sampling program and are presented in Section 4 of this report to provide a more complete picture of the distribution of soil contamination on and near the ASL site.

Table 1-1

SOIL SAMPLE DEPTHS
EXPANDED SITE INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Sampling Depth	Location Designation (ESI00)[a]																		
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
0-3 Inches						X	X	X		X		X[b]		X[b]			X	X	X
0-6 Inches	X	X	X		X[b]				X		X[b]								
6-18 Inches	X	X				X		X							X		X		
18-24 Inches	X	X		X			X			X		X		X		X		X	X
5-6 Feet													X						

Key at end of table.

Table 1-1

SOIL SAMPLE DEPTHS
EXPANDED SITE INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Sampling Depth	Location Designation (ESI00)[a]																		
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
0-3 Inches	X	X[b]	X	X			X		X	X	X		X	X			X		
0-6 Inches					X	X						X						X	
6-18 Inches		X[b]	X	X								X					X		X
18-24 Inches	X						X	X	X	X	X[b]	X	X[b]	X	X	X			
5-6 Feet					X	X								X					

Key at end of table.

Table 1-1

SOIL SAMPLE DEPTHS
EXPANDED SITE INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Sampling Depth	Location Designation (ESI00)[a]																		
	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
0-3 Inches	X			X	X	X				X		X	X				X		
0-6 Inches															X[b]	X	X		
6-18 Inches	X	X	X			X			X	X	X		X			X		X	X
18-24 Inches				X	X		X	X				X		X		X			
5-6 Feet		X																	

Key at end of table.

Table 1-1

SOIL SAMPLE DEPTHS
EXPANDED SITE INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Sampling Depth	Location Designation (ESI00)[a]																	
	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
0-3 Inches							X		X	X	X	X	X[b]					
0-6 Inches	X	X																
6-18 Inches	X[b]		X		X	X		X	X	X	X	X		X				X
18-24 Inches	X			X			X[b]					X	X[b]		X[b]	X	X	
5-6 Feet																		

[a] Sampling locations shown on Figure 1-6. All sample numbers include the following prefix: ESI-00-
[b] Duplicate sample collected.

Source: Ecology and Environment, Inc., 1994

Table 1-2

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ON-SITE SURFACE SOIL - 0 TO 3 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	27/27	100	--	--	1740	9940	4750	1780	4750	1780	5352.5	8/27	79000 (c)	0/27
Antimony	3/27	11.1	7.29	9.46	7.86	9.57	8.65	0.865	4.57	1.52	3.6	3/27	110 (c)	0/27
Arsenic	27/27	100	--	--	2.2	15.6	7.77	3.97	7.77	3.97	3.15	24/27	0.37 (c)	27/27
Barium	27/27	100	--	--	36.6	478	200	113	200	113	145	18/27	14000 (c)	0/27
Beryllium	6/27	22.2	0.405	0.526	0.632	0.734	0.672	0.0416	0.326	0.19	0.3075	6/27	0.15 (c)	6/27
Cadmium	11/27	40.7	0.62	0.763	0.724	2.52	1.69	0.616	0.889	0.78	0.55	11/27	140 (c)	0/27
Calcium	27/27	100	--	--	2960	16300	5790	2850	5790	2850	4958.5	14/27	NA	NA
Chromium	27/27	100	--	--	5.33	44.3	19	9.53	19	9.53	11.15	20/27	1400 (c)	0/27
Cobalt	27/27	100	--	--	3.83	8.5	6.33	1.44	6.33	1.44	6.25	15/27	2.7 (c)	27/27
Copper	27/27	100	--	--	8.08	796	126	156	126	156	10.05	25/27	10000 (c)	0/27
Iron	27/27	100	--	--	2110	66700	21500	15400	21500	15400	9581.5	22/27	NA	NA
Lead	27/27	100	--	--	26.5	837	272	260	272	260	36.9495	24/27	400 (c)	7/27
Magnesium	27/27	100	--	--	686	3250	2290	651	2290	651	2821	8/27	NA	NA
Manganese	27/27	100	--	--	97.5	570	257	116	257	116	216	17/27	27000 (c)	0/27
Mercury	10/27	37	0.101	0.127	0.123	1.02	0.496	0.301	0.219	0.28	0.06	10/27	82 (c)	0/27
Nickel	27/27	100	--	--	7.98	43.2	18.7	8.14	18.7	8.14	10.75	24/27	5500 (c)	0/27
Potassium	27/27	100	--	--	264	1710	1060	420	1060	420	1300.5	6/27	NA	NA
Sodium	27/27	100	--	--	77.2	237	140	39.2	140	39.2	97.4	23/27	NA	NA
Thallium	3/27	11.1	0.405	4.19	0.463	1.37	0.776	0.518	0.356	0.415	0.295	3/27	19 (c)	0/27
Vanadium	27/27	100	--	--	5.1	25.1	14.3	5.12	14.3	5.12	15.3	12/27	1800 (c)	0/27
Zinc	27/27	100	--	--	31.1	1050	394	310	394	310	111	21/27	55000 (c)	0/27

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 1-3

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	7/7	100	--	--	1900	15900	6250	4630	6250	4630	5352.5	4/7	79000 (c)	0/7
Arsenic	7/7	100	--	--	1.3	17.6	4.79	5.73	4.79	5.73	3.15	4/7	0.37 (c)	7/7
Barium	7/7	100	--	--	128	707	252	203	252	203	145	6/7	14000 (c)	0/7
Beryllium	4/7	57.1	0.445	0.51	0.434	0.954	0.659	0.219	0.477	0.275	0.3075	4/7	0.15 (c)	4/7
Cadmium	4/7	57.1	0.64	0.765	0.848	3.13	1.77	0.993	1.16	1.04	0.55	4/7	140 (c)	0/7
Calcium	7/7	100	--	--	3130	25700	12500	9270	12500	9270	4958.5	5/7	NA	NA
Chromium	7/7	100	--	--	6.46	65.7	18.9	20.8	18.9	20.8	11.15	4/7	1400 (c)	0/7
Cobalt	7/7	100	--	--	3.7	8.62	5.65	1.64	5.65	1.64	6.25	1/7	2.7 (c)	7/7
Copper	7/7	100	--	--	32.4	3660	567	1360	567	1360	10.05	7/7	10000 (c)	0/7
Iron	7/7	100	--	--	5350	61500	17300	19600	17300	19600	9581.5	6/7	NA	NA
Lead	7/7	100	--	--	46.2	584	211	190	211	190	36.9495	7/7	400 (c)	1/7
Magnesium	7/7	100	--	--	1370	4000	2380	937	2380	937	2821	2/7	NA	NA
Manganese	7/7	100	--	--	96.5	442	240	116	240	116	216	4/7	27000 (c)	0/7
Mercury	1/7	14.2	0.107	0.128	0.211	0.211	0.211	--	0.0786	0.0585	0.06	1/7	82 (c)	0/7
Nickel	7/7	100	--	--	12.5	41.4	17.6	10.5	17.6	10.5	10.75	7/7	5500 (c)	0/7
Potassium	7/7	100	--	--	402	2830	1250	844	1250	844	1300.5	3/7	NA	NA
Silver	1/7	14.2	1.28	1.53	1.58	1.58	1.58	--	0.822	0.337	0.7	1/7	820 (c)	0/7
Sodium	7/7	100	--	--	117	501	203	136	203	136	97.4	7/7	NA	NA
Thallium	1/7	14.2	0.426	0.51	0.781	0.781	0.781	--	0.305	0.21	0.295	1/7	19 (c)	0/7
Vanadium	7/7	100	--	--	6.78	41.7	17.5	11.4	17.5	11.4	15.3	3/7	1800 (c)	0/7
Zinc	7/7	100	--	--	116	1460	401	477	401	477	111	7/7	55000 (c)	0/7

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

001157.105

Table 1-4

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ON-SITE SURFACE SOIL - 0 TO 6 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	7/7	100	--	--	3180	14300	7020	3780	7020	3780	5352.5	4/7	79000 (c)	0/7
Arsenic	7/7	100	--	--	3.2	29	11.7	8.55	11.7	8.55	3.15	7/7	0.37 (c)	7/7
Barium	7/7	100	--	--	48.6	1040	374	327	374	327	145	5/7	14000 (c)	0/7
Beryllium	6/7	85.7	0.16	0.16	0.34	1.7	0.76	0.531	0.663	0.548	0.3075	6/7	0.15 (c)	6/7
Cadmium	1/6	16.6	0.64	1.1	2.7	2.7	2.7	--	0.798	0.936	0.55	1/6	140 (c)	0/6
Calcium	7/7	100	--	--	2790	27600	13000	8870	13000	8870	4958.5	5/7	NA	NA
Chromium	7/7	100	--	--	7.1	90.7	35.3	31.6	35.3	31.6	11.15	5/7	1400 (c)	0/7
Cobalt	7/7	100	--	--	3.66	17.2	7.99	4.67	7.99	4.67	6.25	3/7	2.7 (c)	7/7
Copper	7/7	100	--	--	3.9	663	195	224	195	224	10.05	6/7	10000 (c)	0/7
Iron	7/7	100	--	--	6550	131000	37700	43700	37700	43700	9581.5	6/7	NA	NA
Lead	7/7	100	--	--	10.1	2220	521	771	521	771	36.9495	6/7	400 (c)	2/7
Magnesium	7/7	100	--	--	1950	3820	2650	797	2650	797	2821	2/7	NA	NA
Manganese	7/7	100	--	--	113	944	346	283	346	283	216	4/7	27000 (c)	0/7
Mercury	5/7	71.4	0.08	0.119	0.123	3.4	0.825	1.44	0.604	1.24	0.06	5/7	82 (c)	0/7
Nickel	7/7	100	--	--	10.3	86.5	31	27.6	31	27.6	10.75	6/7	5500 (c)	0/7
Potassium	7/7	100	--	--	566	2650	1110	705	1110	705	1300.5	1/7	NA	NA
Selenium	1/4	25	0.477	0.546	0.47	0.47	0.47	--	0.307	0.11	0.415	1/4	820 (c)	0/4
Silver	2/4	50	0.64	0.98	1.2	4.3	2.75	2.19	1.58	1.85	0.7	2/4	820 (c)	0/4
Sodium	7/7	100	--	--	60.1	352	194	98.7	194	98.7	97.4	5/7	NA	NA
Thallium	3/7	42.8	0.26	0.57	0.44	1.69	0.871	0.712	0.507	0.536	0.295	3/7	19 (c)	0/7
Vanadium	7/7	100	--	--	10.2	32.3	17.1	7.67	17.1	7.67	15.3	4/7	1800 (c)	0/7
Zinc	7/7	100	--	--	27.3	3310	901	1100	901	1100	111	6/7	55000 (c)	0/7

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.107

Table 1-5

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR OFF-SITE SURFACE SOIL - 0 TO 6 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	8/8	100	--	--	2500	29200	10200	8920	10200	8920	5352.5	6/8	79000 (c)	0/8
Arsenic	8/8	100	--	--	2	13.4	5.75	4.14	5.75	4.14	3.15	6/8	0.37 (c)	8/8
Barium	8/8	100	--	--	72	716	228	220	228	220	145	3/8	14000 (c)	0/8
Beryllium	7/8	87.5	0.458	0.458	0.23	1.28	0.678	0.387	0.622	0.392	0.3075	6/8	0.15 (c)	7/8
Cadmium	2/8	25	0.687	0.82	1.42	5.11	3.27	2.61	1.1	1.66	0.55	2/8	140 (c)	0/8
Calcium	8/8	100	--	--	3850	111000	21900	36700	21900	36700	4958.5	5/8	NA	NA
Chromium	8/8	100	--	--	6.2	70.6	19.6	21.3	19.6	21.3	11.15	4/8	1400 (c)	0/8
Cobalt	8/8	100	--	--	2.78	9.24	5.4	1.98	5.4	1.98	6.25	2/8	2.7 (c)	8/8
Copper	8/8	100	--	--	9.5	352	85.6	114	85.6	114	10.05	7/8	10000 (c)	0/8
Iron	8/8	100	--	--	5440	40600	14300	11500	14300	11500	9581.5	4/8	NA	NA
Lead	8/8	100	--	--	15.5	567	133	196	133	196	36.9495	4/8	400 (c)	1/8
Magnesium	8/8	100	--	--	1830	5420	3180	1400	3180	1400	2821	4/8	NA	NA
Manganese	8/8	100	--	--	103	534	290	144	290	144	216	5/8	27000 (c)	0/8
Mercury	2/8	25	0.11	0.137	0.22	0.43	0.325	0.148	0.127	0.135	0.06	2/8	82 (c)	0/8
Nickel	8/8	100	--	--	9.34	32.2	17.1	7.9	17.1	7.9	10.75	6/8	5500 (c)	0/8
Potassium	8/8	100	--	--	401	4610	1790	1420	1790	1420	1300.5	4/8	NA	NA
Selenium	2/8	25	0.458	4.9	0.24	1.68	0.96	1.02	0.735	0.852	0.415	1/8	820 (c)	0/8
Sodium	8/8	100	--	--	57.9	813	300	247	300	247	97.4	7/8	NA	NA
Thallium	3/8	37.5	0.486	1.04	0.59	0.938	0.754	0.175	0.514	0.243	0.295	3/8	19 (c)	0/8
Vanadium	8/8	100	--	--	8.5	67	24.5	19.7	24.5	19.7	15.3	4/8	1800 (c)	0/8
Zinc	8/8	100	--	--	54.9	1600	329	520	329	520	111	5/8	55000 (c)	0/8

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.109

Table 1-6

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SURFACE SOIL - 0 TO 6 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	2/6	33.3	0.011	0.013	0.021	0.045	0.033	0.017	0.0151	0.0158	0.006	2/6	79000 (c)	0/6
Chloroform	2/6	33.3	0.011	0.013	0.003	0.004	0.0035	0.000707	0.00533	0.00151	0.006	0/6	110 (c)	0/6
Methylene Chloride	1/2	50	0.013	0.013	0.045	0.045	0.045	--	0.0257	0.0272	0.00925	1/2	85 (c)	0/2
Tetrachloroethene	6/7	85.7	0.013	0.013	0.002	0.2	0.0437	0.0772	0.0384	0.0718	0.006	4/7	13 (c)	0/7
Toluene	1/6	16.6	0.011	0.013	0.002	0.002	0.002	--	0.0055	0.00176	0.006	0/6	55000 (c)	0/6
Xylene	1/6	16.6	0.011	0.013	0.002	0.002	0.002	--	0.0055	0.00176	0.006	0/6	550000 (c)	0/6
Semivolatile Organic Compounds														
Acenaphthene	2/7	28.5	0.36	0.43	0.037	0.14	0.0885	0.0728	0.168	0.0631	0.1975	0/7	16000 (c)	0/7
Acenaphthylene	3/7	42.8	0.36	0.43	0.036	0.66	0.248	0.357	0.219	0.208	0.1975	1/7	27000 (c)	0/7
Anthracene	4/7	57.1	0.36	0.41	0.053	0.93	0.455	0.466	0.342	0.358	0.1975	2/7	82000 (c)	0/7
Benzo(a)anthracene	6/7	85.7	0.36	0.36	0.11	7.8	1.81	3.05	1.58	2.85	0.19	3/7	0.9 (c)	2/7
Benzo(a)pyrene	6/7	85.7	0.36	0.36	0.11	7	1.71	2.73	1.5	2.56	0.19	4/7	0.09 (c)	6/7
Benzo(b)fluoranthene	6/7	85.7	0.36	0.36	0.12	9.7	2.16	3.78	1.88	3.53	0.1875	4/7	0.9 (c)	2/7
Benzo(g,h,i)perylene	6/7	85.7	0.36	0.36	0.071	3.2	0.835	1.24	0.741	1.16	0.1925	3/7	1100 (c)	0/7
Benzo(k)fluoranthene	6/7	85.7	0.36	0.36	0.1	9.8	2.12	3.84	1.84	3.58	0.1875	3/7	0.9 (c)	2/7
Bis(2-ethylhexyl)phthalate	1/1	100	--	--	0.22	0.22	0.22	--	0.22	--	0.1875	1/1	46 (c)	0/1
Butylbenzylphthalate	1/7	14.2	0.36	0.43	0.17	0.17	0.17	--	0.196	0.0168	0.195	0/7	55000 (c)	0/7
Carbazole	3/7	42.8	0.36	0.43	0.023	0.15	0.082	0.064	0.148	0.0728	0.1975	0/7	32 (d)	0/7
Chrysene	6/7	85.7	0.36	0.36	0.12	7.1	1.72	2.77	1.5	2.59	0.19	3/7	9 (c)	0/7
Dibenz(a,h)anthracene	2/7	28.5	0.36	0.43	0.27	1	0.635	0.516	0.324	0.299	0.1975	2/7	0.09 (c)	2/7
Dibenzofuran	2/7	28.5	0.36	0.43	0.028	0.1	0.064	0.0509	0.161	0.0706	0.1975	0/7	--	NA
Diethylphthalate	1/7	14.2	0.36	0.43	0.039	0.039	0.039	--	0.178	0.0623	0.1975	0/7	220000 (c)	0/7
di-n-Butyl Phthalate	3/6	50	0.36	0.41	0.07	0.18	0.13	0.0557	0.163	0.0515	0.1975	0/6	7800 (d)	0/6
Fluoranthene	6/7	85.7	0.36	0.36	0.14	10	3.07	4.38	2.66	4.14	0.1825	4/7	11000 (c)	0/7
Fluorene	2/7	28.5	0.36	0.43	0.04	0.25	0.145	0.148	0.184	0.0674	0.1975	1/7	11000 (c)	0/7
Indeno(1,2,3-cd)pyrene	6/7	85.7	0.36	0.36	0.073	3.1	0.803	1.21	0.714	1.13	0.195	3/7	0.9 (c)	2/7
2-Methylnaphthalene	1/7	14.2	0.36	0.43	0.039	0.039	0.039	--	0.178	0.0623	0.1975	0/7	--	NA
4-Methylphenol	1/7	14.2	0.36	0.43	0.1	0.1	0.1	--	0.187	0.0404	0.1975	0/7	14000 (c)	0/7
Naphthalene	3/7	42.8	0.36	0.43	0.022	0.1	0.049	0.0442	0.134	0.0841	0.1975	0/7	1100 (c)	0/7
Phenanthrene	6/7	85.7	0.36	0.36	0.058	2.8	0.712	1.06	0.636	0.989	0.195	4/7	7900 (c)	0/7
Pyrene	6/7	85.7	0.36	0.36	0.12	15	4.42	6.46	3.82	6.11	0.185	5/7	8200 (c)	0/7
Pesticides/PCBs														
alpha-BHC	1/7	14.2	0.0019	0.0022	0.00248	0.00248	0.00248	--	0.00125	0.000546	0.001175	1/7	0.1 (d)	0/7

Key at end of table.

Table 1-6

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SURFACE SOIL - 0 TO 6 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
beta-BHC	1/7	14.2	0.0019	0.0022	0.00202	0.00202	0.00202	--	0.00118	0.000374	0.001225	1/7	0.35 (d)	0/7
delta-BHC	2/7	28.5	0.0019	0.0022	0.00328	0.00413	0.0037	0.000601	0.00181	0.00132	0.001225	2/7	--	NA
gamma-BHC	1/7	14.2	0.0019	0.0022	0.00292	0.00292	0.00292	--	0.00131	0.000712	0.0011	1/7	0.49 (d)	0/7
alpha-Chlordane	3/7	42.8	0.0019	0.0022	0.0104	0.116	0.0471	0.0597	0.0208	0.0424	0.0195	1/7	0.49 (d)	0/7
gamma-Chlordane	4/7	57.1	0.0019	0.0021	0.0023	0.112	0.0352	0.0515	0.0206	0.0407	0.01058	3/7	0.49 (d)	0/7
4,4'-DDD	3/7	42.8	0.0036	0.0042	0.00665	0.211	0.0829	0.112	0.0367	0.0776	0.0064	3/7	2.7 (d)	0/7
4,4'-DDE	4/7	57.1	0.0036	0.0041	0.00465	0.347	0.0982	0.166	0.057	0.128	0.115	1/7	1.9 (d)	0/7
4,4'-DDT	6/7	85.7	0.0036	0.0036	0.00537	2.7	0.462	1.1	0.396	1.02	0.119	1/7	1.9 (d)	1/7
Dieldrin	2/7	28.5	0.0036	0.0042	0.00498	0.0258	0.0154	0.0147	0.00583	0.00887	0.024	1/7	0.04 (d)	0/7
Endosulfan II	3/7	42.8	0.0036	0.0042	0.00633	0.0171	0.0122	0.00545	0.00635	0.00632	0.002375	3/7	470 (d)	0/7
Endosulfan Sulfate	1/7	14.2	0.0036	0.0043	0.00479	0.00479	0.00479	--	0.00243	0.00105	0.002275	1/7	--	NA
Endrin	4/7	57.1	0.0036	0.0041	0.0042	0.0123	0.00933	0.00367	0.00617	0.00472	0.003975	4/7	23 (d)	0/7
Endrin Aldehyde	3/7	42.8	0.0036	0.0042	0.00617	0.0288	0.0203	0.0123	0.00982	0.0121	0.00621	2/7	--	NA
Endrin Ketone	2/7	28.5	0.0036	0.0042	0.00576	0.00608	0.00592	0.000226	0.0031	0.00193	0.002375	2/7	--	NA
Heptachlor	1/7	14.2	0.0019	0.0022	0.00907	0.00907	0.00907	--	0.0022	0.00303	0.001225	1/7	0.14 (d)	0/7
Methoxychlor	1/7	14.2	0.019	0.022	0.0491	0.0491	0.0491	--	0.0159	0.0146	0.012	1/7	390 (d)	0/7

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 1-7

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OFF-SITE SURFACE SOIL - 0 TO 6 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a) Value	Background (a) FOE	TBC (b) Value	TBC (b) FOE
Volatile Organic Compounds														
Acetone	3/8	37.5	0.011	0.013	0.02	0.081	0.053	0.0308	0.0236	0.0294	0.006	3/8	79000 (c)	0/8
Chloroform	4/8	50	0.011	0.013	0.002	0.003	0.00225	0.0005	0.00419	0.00212	0.006	0/8	110 (c)	0/8
Dibromochloromethane	1/8	12.5	0.011	0.014	0.004	0.004	0.004	--	0.00587	0.000916	0.006	0/8	7.6 (c)	0/8
Ethylbenzene	1/8	12.5	0.011	0.014	0.003	0.003	0.003	--	0.00569	0.00119	0.00575	0/8	27000 (c)	0/8
Methylene Chloride	5/6	83.3	0.012	0.012	0.004	0.12	0.0418	0.046	0.0358	0.0436	0.00925	4/6	85 (c)	0/6
Tetrachloroethene	8/8	100	--	--	0.004	0.024	0.0104	0.00612	0.0104	0.00612	0.006	6/8	13 (c)	0/8
Toluene	2/8	25	0.011	0.014	0.002	0.016	0.009	0.0099	0.00681	0.00401	0.006	1/8	55000 (c)	0/8
Xylene	2/8	25	0.011	0.014	0.003	0.015	0.009	0.00849	0.00675	0.00353	0.006	1/8	550000 (c)	0/8
Semivolatile Organic Compounds														
Anthracene	2/8	25	0.38	2.2	0.023	0.053	0.038	0.0212	0.275	0.342	0.1975	0/8	82000 (c)	0/8
Benzo(a)anthracene	6/8	75	0.38	0.45	0.022	0.34	0.148	0.128	0.163	0.112	0.19	2/8	0.9 (c)	0/8
Benzo(a)pyrene	6/8	75	0.38	0.45	0.03	0.41	0.165	0.141	0.176	0.121	0.19	2/8	0.09 (c)	4/8
Benzo(b)fluoranthene	6/8	75	0.38	0.45	0.024	0.31	0.164	0.114	0.175	0.0986	0.1875	2/8	0.9 (c)	0/8
Benzo(g,h,i)perylene	5/8	62.5	0.38	0.45	0.049	0.3	0.149	0.102	0.17	0.0832	0.1925	1/8	1100 (c)	0/8
Benzo(k)fluoranthene	6/8	75	0.38	0.45	0.031	0.32	0.142	0.116	0.158	0.103	0.1875	2/8	0.9 (c)	0/8
Chrysene	6/8	75	0.38	0.45	0.027	0.53	0.198	0.187	0.201	0.158	0.19	2/8	9 (c)	0/8
Dibenz(a,h)anthracene	3/8	37.5	0.38	0.45	0.028	0.15	0.076	0.065	0.154	0.0742	0.1975	0/8	0.09 (c)	1/8
di-n-Butyl Phthalate	3/8	37.5	0.38	0.45	0.023	0.4	0.201	0.189	0.202	0.102	0.1975	1/8	7800 (d)	0/8
di-n-Octyl Phthalate	1/8	12.5	0.38	0.45	0.33	0.33	0.33	--	0.219	0.0465	0.1975	1/8	1600 (d)	0/8
Fluoranthene	7/8	87.5	0.38	0.38	0.036	0.62	0.249	0.232	0.242	0.216	0.1825	4/8	11000 (c)	0/8
Indeno(1,2,3-cd)pyrene	5/8	62.5	0.38	0.45	0.053	0.16	0.108	0.053	0.144	0.0651	0.195	0/8	0.9 (c)	0/8
Phenanthrene	5/8	62.5	0.38	0.45	0.058	0.37	0.182	0.139	0.191	0.106	0.195	2/8	7900 (c)	0/8
Pyrene	8/8	100	--	--	0.026	0.58	0.205	0.2	0.205	0.2	0.185	4/8	8200 (c)	0/8
Pesticides/PCBs														
alpha-Chlordane	3/8	37.5	0.0019	0.0023	0.00261	0.0839	0.0299	0.0468	0.0118	0.0291	0.0195	1/8	0.49 (d)	0/8
gamma-Chlordane	1/8	12.5	0.0019	0.0023	0.069	0.069	0.069	--	0.00953	0.024	0.01058	1/8	0.49 (d)	0/8
4,4'-DDD	1/8	12.5	0.0037	0.0045	0.026	0.026	0.026	--	0.00502	0.00848	0.0064	1/8	2.7 (d)	0/8
4,4'-DDE	1/8	12.5	0.0037	0.0045	0.171	0.171	0.171	--	0.0232	0.0597	0.115	1/8	1.9 (d)	0/8
4,4'-DDT	3/8	37.5	0.0037	0.0045	0.00842	0.516	0.182	0.289	0.0695	0.181	0.119	1/8	1.9 (d)	0/8
Dieldrin	2/8	25	0.0037	0.0045	0.00448	0.0213	0.0129	0.0119	0.00475	0.00674	0.024	0/8	0.04 (d)	0/8
Endrin	1/8	12.5	0.0037	0.0045	0.00932	0.00932	0.00932	--	0.00294	0.00258	0.003975	1/8	23 (d)	0/8
Endrin Aldehyde	5/8	62.5	0.0037	0.0045	0.00613	0.0152	0.00941	0.0039	0.00664	0.00482	0.00621	4/8	--	NA
Heptachlor	2/8	25	0.0019	0.0023	0.00236	0.00256	0.00246	0.000141	0.0014	0.000659	0.001225	2/8	0.14 (d)	0/8
Methoxychlor	1/8	12.5	0.019	0.023	0.0358	0.0358	0.0358	--	0.0135	0.00903	0.012	1/8	390 (d)	0/8

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

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Table 1-8

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	17/17	100	--	--	1830	11100	6640	3110	6640	3110	17482	0/17	79000 (c)	0/17
Antimony	7/15	46.6	4.4	8.94	15.9	44	31.8	11.1	16.7	16.4	4.325	7/15	110 (c)	0/15
Arsenic	17/17	100	--	--	1.9	129	32.4	29.5	32.4	29.5	7.15	13/17	0.37 (c)	17/17
Barium	17/17	100	--	--	33.4	1590	728	507	728	507	190.5	13/17	14000 (c)	0/17
Beryllium	12/17	70.5	0.19	0.492	0.22	1.1	0.542	0.279	0.422	0.302	0.68	3/17	0.15 (c)	12/17
Cadmium	8/16	50	0.67	0.79	1.4	17	9.32	5.88	4.84	6.12	0.825	8/16	140 (c)	0/16
Calcium	17/17	100	--	--	3170	75800	26600	19100	26600	19100	4198	13/17	NA	NA
Chromium	16/16	100	--	--	4.6	93.4	52.5	31	52.5	31	20.75	12/16	1400 (c)	0/16
Cobalt	17/17	100	--	--	3.9	21.8	11.7	5.15	11.7	5.15	8.35	13/17	2.7 (c)	17/17
Copper	17/17	100	--	--	2.3	2520	674	647	674	647	26.25	13/17	10000 (c)	0/17
Iron	17/17	100	--	--	4910	156000	77900	50500	77900	50500	18507	13/17	NA	NA
Lead	17/17	100	--	--	2.4	23400	3450	5530	3450	5530	21.3	13/17	400 (c)	12/17
Magnesium	17/17	100	--	--	1430	3960	2720	658	2720	658	4370.5	0/17	NA	NA
Manganese	17/17	100	--	--	76.6	888	569	290	569	290	84.85	15/17	27000 (c)	0/17
Mercury	14/17	82.3	0.09	0.09	0.09	5.6	2.1	1.34	1.73	1.45	0.0875	14/17	82 (c)	0/17
Nickel	17/17	100	--	--	9.1	124	52.6	32.5	52.6	32.5	21.2	13/17	5500 (c)	0/17
Potassium	17/17	100	--	--	286	1610	928	435	928	435	2486.5	0/17	NA	NA
Selenium	1/9	11.1	0.491	23.3	0.94	0.94	0.94	--	3.14	4.86	0.67	1/9	820 (c)	0/9
Silver	8/12	66.6	0.67	0.79	3.2	7	5.41	1.23	3.73	2.67	0.995	8/12	820 (c)	0/12
Sodium	17/17	100	--	--	50.8	940	353	264	353	264	144	13/17	NA	NA
Thallium	5/17	29.4	0.24	23.3	1	5.48	2.58	1.76	2.68	3.65	0.415	5/17	19 (c)	0/17
Vanadium	17/17	100	--	--	6.3	37.9	19.8	11	19.8	11	36.3	2/17	1800 (c)	0/17
Zinc	17/17	100	--	--	21.3	4320	1790	1290	1790	1290	77.5	13/17	55000 (c)	0/17

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
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mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

001157.116

Table 1-9

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
Aluminum	16/16	100	--	--	2080	18000	9770	4550	9770	4550	17482	1/16	79000 (c)	0/16
Antimony	2/15	13.3	5.4	10.9	8.01	21.4	14.7	9.47	5.3	4.66	4.325	2/15	110 (c)	0/15
Arsenic	16/16	100	--	--	2.5	24.8	9.42	6.49	9.42	6.49	7.15	7/16	0.37 (c)	16/16
Barium	16/16	100	--	--	37.1	811	299	211	299	211	190.5	9/16	14000 (c)	0/16
Beryllium	15/16	93.7	0.21	0.21	0.32	1.6	0.79	0.368	0.747	0.394	0.68	8/16	0.15 (c)	15/16
Cadmium	5/16	31.2	0.735	1.2	0.65	11.4	4	4.39	1.56	2.83	0.825	4/16	140 (c)	0/16
Calcium	16/16	100	--	--	3150	82200	21900	20400	21900	20400	4198	15/16	NA	NA
Chromium	16/16	100	--	--	4.4	32.2	18.6	6.83	18.6	6.83	20.75	6/16	1400 (c)	0/16
Cobalt	16/16	100	--	--	4.2	9.5	6.36	1.58	6.36	1.58	8.35	2/16	2.7 (c)	16/16
Copper	16/16	100	--	--	2.3	325	86.6	87.3	86.6	87.3	26.25	12/16	10000 (c)	0/16
Iron	16/16	100	--	--	5280	46900	21000	13200	21000	13200	18507	5/16	NA	NA
Lead	16/16	100	--	--	3.1	12400	1090	3060	1090	3060	21.3	14/16	400 (c)	4/16
Magnesium	16/16	100	--	--	1970	4620	3240	802	3240	802	4370.5	3/16	NA	NA
Manganese	16/16	0	--	--	89.8	1140	369	225	369	225	84.85	16/16	27000 (c)	0/16
Mercury	7/16	43.7	0.1	0.24	0.12	1.2	0.456	0.392	0.24	0.317	0.0875	7/16	82 (c)	0/16
Nickel	16/16	100	--	--	10.8	31.9	19.7	4.99	19.7	4.99	21.2	4/16	5500 (c)	0/16
Potassium	16/16	100	--	--	359	2570	1420	566	1420	566	2486.5	1/16	NA	NA
Selenium	3/10	30	0.49	5.13	0.37	3.1	1.6	1.38	0.941	1.05	0.67	2/10	820 (c)	0/10
Silver	2/9	22.2	0.83	1.2	0.71	1.88	1.29	0.827	0.673	0.462	0.995	1/9	820 (c)	0/9
Sodium	16/16	100	--	--	60.1	448	226	107	226	107	144	13/16	NA	NA
Thallium	7/12	58.3	0.501	0.98	0.33	1.89	1.01	0.576	0.744	0.545	0.415	6/12	19 (c)	0/12
Vanadium	16/16	100	--	--	6.7	49.5	25.3	10.3	25.3	10.3	36.3	3/16	1800 (c)	0/16
Zinc	16/16	100	--	--	23.1	1950	463	579	463	579	77.5	14/16	55000 (c)	0/16

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

001157.118

Table 1-10

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	4/16	25	0.01	0.012	0.021	0.065	0.0413	0.0188	0.0146	0.018	0.00825	4/16	79000 (c)	0/16
Chloroform	4/17	23.5	0.01	0.012	0.001	0.002	0.00175	0.0005	0.00482	0.00179	0.008	0/17	110 (c)	0/17
Ethylbenzene	2/17	11.7	0.01	0.012	0.002	0.46	0.231	0.324	0.0323	0.11	0.008	1/17	27000 (c)	0/17
Methylene Chloride	4/9	44.4	0.01	0.012	0.003	0.043	0.0143	0.0192	0.00939	0.0127	0.014	1/9	85 (c)	0/9
Tetrachloroethene	8/14	57.1	0.01	0.012	0.003	0.049	0.0174	0.0163	0.0123	0.0134	0.008	5/14	13 (c)	0/14
Toluene	3/17	17.6	0.01	0.012	0.002	0.009	0.00433	0.00404	0.00553	0.00157	0.008	1/17	55000 (c)	0/17
1,1,1-Trichloroethane	1/17	5.8	0.01	0.012	0.002	0.002	0.002	--	0.00559	0.000972	0.008	0/17	25000 (c)	0/17
Xylene	3/17	17.6	0.01	0.012	0.006	2.9	0.982	1.66	0.178	0.701	0.008	2/17	550000 (c)	0/17
Semivolatile Organic Compounds														
Acenaphthene	8/17	47	0.34	0.4	0.024	0.41	0.132	0.142	0.161	0.0982	0.265	2/17	16000 (c)	0/17
Acenaphthylene	10/17	58.8	0.34	0.4	0.02	0.74	0.161	0.222	0.173	0.167	0.265	2/17	27000 (c)	0/17
Anthracene	12/17	70.5	0.34	0.4	0.021	2.2	0.467	0.634	0.383	0.542	0.265	7/17	82000 (c)	0/17
Benzo(a)anthracene	13/17	76.4	0.34	0.4	0.046	3.2	1.26	1.03	1.01	1.01	0.265	11/17	0.9 (c)	6/17
Benzo(a)pyrene	14/17	82.3	0.34	0.4	0.048	5.1	1.3	1.4	1.1	1.33	0.265	12/17	0.09 (c)	13/17
Benzo(b)fluoranthene	14/17	82.3	0.34	0.4	0.03	5.9	1.46	1.49	1.23	1.43	0.265	11/17	0.9 (c)	8/17
Benzo(g,h,i)perylene	13/17	76.4	0.34	0.4	0.25	3.1	1.17	1.06	0.941	1.01	0.265	12/17	1100 (c)	0/17
Benzo(k)fluoranthene	8/17	47	0.34	0.4	0.026	3.2	1.32	1.07	0.722	0.919	0.265	7/17	0.9 (c)	4/17
Bis(2-ethylhexyl)phthalate	1/3	33.3	0.37	0.8	0.49	0.49	0.49	--	0.358	0.157	0.26	1/3	46 (c)	0/3
Butylbenzylphthalate	1/17	5.8	0.34	0.8	2.1	2.1	2.1	--	0.316	0.462	0.265	1/17	55000 (c)	0/17
Carbazole	9/17	52.9	0.34	0.4	0.028	0.56	0.182	0.209	0.185	0.148	0.265	2/17	32 (d)	0/17
4-Chloro-3-methylphenol	1/17	5.8	0.34	0.8	0.07	0.07	0.07	--	0.197	0.0609	0.265	0/17	--	NA
Chrysene	14/17	82.3	0.34	0.4	0.044	3.3	1.29	1.1	1.09	1.09	0.265	12/17	9 (c)	0/17
Dibenz(a,h)anthracene	8/17	47	0.34	0.4	0.15	0.54	0.299	0.156	0.241	0.118	0.265	3/17	0.09 (c)	8/17
Dibenzofuran	8/17	47	0.34	0.4	0.031	0.34	0.116	0.119	0.154	0.0872	0.265	2/17	--	NA
1,4-Dichlorobenzene	1/17	5.8	0.34	0.8	0.047	0.047	0.047	--	0.196	0.0641	0.265	0/17	27 (c)	0/17
Diethylphthalate	2/17	11.7	0.34	0.8	0.022	0.028	0.025	0.00424	0.183	0.0787	0.265	0/17	220000 (c)	0/17
di-n-Butyl Phthalate	11/17	64.7	0.34	0.8	0.023	0.18	0.0724	0.0454	0.124	0.0949	0.265	0/17	7800 (d)	0/17
di-n-Octyl Phthalate	2/17	11.7	0.34	0.8	0.036	0.073	0.0545	0.0262	0.188	0.072	0.265	0/17	1600 (d)	0/17
Fluoranthene	14/17	82.3	0.34	0.4	0.042	5.9	1.38	1.58	1.17	1.5	0.2775	11/17	11000 (c)	0/17
Fluorene	9/17	52.9	0.34	0.4	0.021	0.98	0.238	0.318	0.214	0.226	0.265	2/17	11000 (c)	0/17
Indeno(1,2,3-cd)pyrene	13/17	76.4	0.34	0.4	0.095	2.6	0.951	0.814	0.771	0.781	0.265	11/17	0.9 (c)	5/17
2-Methylnaphthalene	9/17	52.9	0.34	0.41	0.027	0.1	0.0599	0.0275	0.119	0.0683	0.265	0/17	--	NA
Naphthalene	12/17	70.5	0.34	0.4	0.023	0.22	0.0803	0.0545	0.11	0.0663	0.265	0/17	1100 (c)	0/17

Key at end of table.

Table 1-10

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Phenanthrene	12/17	70.5	0.34	0.4	0.079	4.2	1.31	1.26	0.981	1.17	0.2775	9/17	7900 (c)	0/17
Pyrene	14/17	82.3	0.34	0.4	0.066	7	2.02	2.03	1.69	1.97	0.2725	11/17	8200 (c)	0/17
Pesticides/PCBs														
Aldrin	2/17	11.7	0.0018	0.02	0.00327	0.00627	0.00477	0.00212	0.00196	0.00248	0.00135	2/17	0.038 (d)	0/17
Aroclor 1242	1/17	5.8	0.034	0.4	0.0043	0.0043	0.0043	--	0.029	0.0442	0.0265	0/17	0.083 (d)	0/17
Aroclor 1254	1/17	5.8	0.034	0.4	0.019	0.019	0.019	--	0.0299	0.0439	0.0265	0/17	0.083 (d)	0/17
alpha-Chlordane	13/17	76.4	0.0018	0.002	0.00305	0.0997	0.0259	0.0284	0.02	0.0269	0.001175	13/17	0.49 (d)	0/17
gamma-Chlordane	13/17	76.4	0.0018	0.002	0.00283	0.062	0.0203	0.0178	0.0158	0.0176	0.001325	13/17	0.49 (d)	0/17
4,4'-DDD	10/17	58.8	0.0034	0.004	0.00527	2.79	0.315	0.872	0.186	0.673	0.002775	10/17	2.7 (d)	1/17
4,4'-DDE	11/17	64.7	0.0034	0.004	0.0101	0.755	0.0896	0.221	0.0586	0.18	0.01065	10/17	1.9 (d)	0/17
4,4'-DDT	12/17	70.5	0.0034	0.004	0.00428	1.78	0.19	0.506	0.135	0.429	0.002875	12/17	1.9 (d)	0/17
Dieldrin	7/17	41.1	0.0034	0.04	0.00634	0.0907	0.0238	0.0298	0.012	0.0214	0.002275	7/17	0.04 (d)	1/17
Endosulfan II	4/17	23.5	0.0034	0.0041	0.00867	0.0372	0.0195	0.0131	0.00605	0.00956	0.00265	4/17	470 (d)	0/17
Endrin	6/17	35.2	0.0034	0.04	0.0045	0.0143	0.00817	0.00364	0.00518	0.00529	0.002775	6/17	23 (d)	0/17
Endrin Aldehyde	5/17	29.4	0.0034	0.0041	0.0065	0.0787	0.0241	0.0307	0.00841	0.0185	0.002575	5/17	--	NA
Heptachlor	4/17	23.5	0.0018	0.02	0.00201	0.00703	0.00339	0.00243	0.00209	0.00252	0.001325	4/17	0.14 (d)	0/17
Heptachlor Epoxide	5/17	29.4	0.0018	0.02	0.00228	0.00379	0.00272	0.00062	0.00202	0.00223	0.00125	5/17	0.07 (d)	0/17

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
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FOD = Frequency of detection.
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MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 1-11

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	4/16	25	0.011	0.014	0.071	0.1	0.0838	0.0124	0.0254	0.0353	0.00825	4/16	79000 (c)	0/16
Chloroform	5/16	31.2	0.011	0.014	0.001	0.004	0.002	0.00122	0.00488	0.00216	0.008	0/16	110 (c)	0/16
Methylene Chloride	3/8	37.5	0.011	0.014	0.002	0.097	0.0443	0.0483	0.0206	0.0325	0.014	2/8	85 (c)	0/8
Styrene	1/16	6.2	0.011	0.014	0.002	0.002	0.002	--	0.00578	0.00112	0.008	0/16	21 (c)	0/16
Tetrachloroethene	11/16	68.7	0.011	0.014	0.002	0.085	0.0195	0.0246	0.0154	0.021	0.008	7/16	13 (c)	0/16
Xylene	1/16	6.2	0.011	0.014	0.014	0.014	0.014	--	0.00659	0.00205	0.008	1/16	550000 (c)	0/16
Semivolatile Organic Compounds														
Acenaphthene	4/16	25	0.35	0.48	0.023	0.06	0.0413	0.0185	0.163	0.0745	0.265	0/16	16000 (c)	0/16
Acenaphthylene	6/16	37.5	0.35	0.48	0.026	0.28	0.127	0.116	0.175	0.0789	0.265	2/16	27000 (c)	0/16
Anthracene	12/16	75	0.36	0.46	0.024	0.34	0.114	0.109	0.136	0.102	0.265	2/16	82000 (c)	0/16
Benzo(a)anthracene	14/16	87.5	0.36	0.4	0.023	1.4	0.415	0.394	0.387	0.375	0.265	8/16	0.9 (c)	2/16
Benzo(a)pyrene	13/16	81.2	0.36	0.41	0.036	1.5	0.499	0.444	0.442	0.416	0.265	8/16	0.09 (c)	12/16
Benzo(b)fluoranthene	14/16	87.5	0.36	0.4	0.026	1.6	0.634	0.546	0.578	0.53	0.265	9/16	0.9 (c)	4/16
Benzo(g,h,i)perylene	12/16	75	0.36	0.48	0.029	1	0.394	0.33	0.347	0.295	0.265	7/16	1100 (c)	0/16
Benzo(k)fluoranthene	10/16	62.5	0.35	0.41	0.024	1.4	0.429	0.462	0.339	0.377	0.265	4/16	0.9 (c)	2/16
Butylbenzylphthalate	1/16	6.2	0.35	0.48	0.07	0.07	0.07	--	0.196	0.0387	0.265	0/16	55000 (c)	0/16
Carbazole	6/16	37.5	0.36	0.48	0.021	0.17	0.0688	0.0614	0.154	0.0783	0.265	0/16	32 (d)	0/16
Chrysene	14/16	87.5	0.36	0.4	0.027	1.4	0.435	0.377	0.404	0.361	0.265	9/16	9 (c)	0/16
Dibenz(a,h)anthracene	5/16	31.2	0.35	0.48	0.087	0.65	0.331	0.234	0.244	0.136	0.265	2/16	0.09 (c)	4/16
Dibenzofuran	2/16	12.5	0.35	0.48	0.026	0.066	0.046	0.0283	0.182	0.0562	0.265	0/16	--	NA
1,4-Dichlorobenzene	1/16	6.2	0.35	0.48	0.021	0.021	0.021	--	0.193	0.0497	0.265	0/16	27 (c)	0/16
Diethylphthalate	1/16	6.2	0.35	0.48	0.086	0.086	0.086	--	0.197	0.0353	0.265	0/16	220000 (c)	0/16
di-n-Butyl Phthalate	7/15	46.6	0.36	0.48	0.021	0.16	0.0521	0.0483	0.136	0.0878	0.265	0/16	7800 (d)	0/16
di-n-Octyl Phthalate	1/16	6.2	0.36	0.48	0.024	0.024	0.024	--	0.194	0.0488	0.265	0/16	1600 (d)	0/16
Fluoranthene	16/16	100	--	--	0.038	1.9	0.545	0.557	0.545	0.557	0.2775	11/16	11000 (c)	0/16
Fluorene	4/16	25	0.35	0.48	0.021	0.065	0.0405	0.0229	0.162	0.0751	0.265	0/16	11000 (c)	0/16
Indeno(1,2,3-cd)pyrene	12/16	75	0.36	0.48	0.028	1	0.348	0.309	0.313	0.273	0.265	5/16	0.9 (c)	1/16
2-Methylnaphthalene	3/16	18.7	0.35	0.48	0.027	0.079	0.059	0.028	0.176	0.0611	0.265	0/16	--	NA
Naphthalene	3/16	18.7	0.35	0.48	0.023	0.34	0.184	0.159	0.2	0.0606	0.265	1/16	1100 (c)	0/16
Phenanthrene	13/16	81.2	0.4	0.46	0.032	1.1	0.339	0.288	0.315	0.263	0.2775	6/16	7900 (c)	0/16
Pyrene	16/16	100	--	--	0.029	3.2	0.673	0.8	0.673	0.8	0.2725	11/16	8200 (c)	0/16
Pesticides/PCBs														
Aroclor 1254	1/16	6.2	0.036	0.048	0.0832	0.0832	0.0832	--	0.0244	0.0158	0.0265	1/16	0.083 (d)	1/16

Key at end of table.

Table 1-11

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 6 TO 18 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
alpha-Chlordane	6/16	37.5	0.0018	0.0025	0.00417	0.0169	0.00943	0.00482	0.00421	0.00502	0.001175	6/16	0.49 (d)	0/16
gamma-Chlordane	6/16	37.5	0.0018	0.0025	0.00307	0.0286	0.0105	0.00935	0.00461	0.00717	0.001325	6/16	0.49 (d)	0/16
4,4'-DDD	2/16	12.5	0.0035	0.0048	0.00427	0.00875	0.00651	0.00317	0.0026	0.00174	0.002775	2/16	2.7 (d)	0/16
4,4'-DDE	6/16	37.5	0.0036	0.0048	0.00377	0.0354	0.0139	0.0132	0.00651	0.00965	0.01065	2/16	1.9 (d)	0/16
4,4'-DDT	10/16	62.5	0.0036	0.0048	0.0048	0.169	0.0287	0.0501	0.0188	0.041	0.002875	10/16	1.9 (d)	0/16
Dieldrin	2/16	12.5	0.0035	0.0048	0.00496	0.00736	0.00616	0.0017	0.00256	0.00149	0.002275	2/16	0.04 (d)	0/16
Endosulfan II	3/16	18.7	0.0035	0.0048	0.00391	0.0064	0.0053	0.00127	0.00266	0.0014	0.00265	3/16	470 (d)	0/16
Endrin	7/16	43.7	0.0036	0.0048	0.00495	0.0278	0.0158	0.00868	0.00811	0.00893	0.002775	7/16	23 (d)	0/16
Endrin Aldehyde	11/16	68.7	0.0036	0.0041	0.0036	0.0218	0.00932	0.00502	0.00701	0.00542	0.002575	11/16	--	NA
Endrin Ketone	1/16	6.2	0.0035	0.0048	0.0094	0.0094	0.0094	--	0.00249	0.00185	0.00265	1/16	--	NA
Heptachlor	2/16	12.5	0.0018	0.0025	0.0023	0.00964	0.00597	0.00519	0.00168	0.00215	0.001325	2/16	0.14 (d)	0/16
Heptachlor Epoxide	1/16	6.2	0.0018	0.0025	0.00558	0.00558	0.00558	--	0.00134	0.00114	0.00125	1/16	0.07 (d)	0/16

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 1-12

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	22/22	100	--	--	4610	14600	8130	2920	8130	2920	17482	0/22	79000 (c)	0/22
Antimony	12/17	70.5	6.3	9.01	6.33	70.8	34.6	17.2	25.6	20.3	4.325	12/17	110 (c)	0/17
Arsenic	22/22	100	--	--	5.35	74.2	32	19	32	19	7.15	19/22	0.37 (c)	22/22
Barium	22/22	100	--	--	84.6	1430	755	373	755	373	190.5	18/22	14000 (c)	0/22
Beryllium	17/22	77.2	0.23	0.5	0.24	2.2	0.646	0.582	0.538	0.548	0.68	5/22	0.15 (c)	17/22
Cadmium	16/20	80	0.683	3	0.91	16	7.02	4.45	5.75	4.74	0.825	16/20	140 (c)	0/20
Calcium	22/22	100	--	--	5500	70000	31500	17200	31500	17200	4198	22/22	NA	NA
Chromium	22/22	100	--	--	11.8	122	67	32.6	67	32.6	20.75	18/22	1400 (c)	0/22
Cobalt	22/22	100	--	--	5.45	23.3	13.8	5.06	13.8	5.06	8.35	18/22	2.7 (c)	22/22
Copper	22/22	100	--	--	14.5	3500	955	994	955	994	26.25	21/22	10000 (c)	0/22
Iron	22/22	100	--	--	10600	195000	96300	51400	96300	51400	18507	19/22	NA	NA
Lead	22/22	100	--	--	""	3270	1620	1010	1620	1010	21.3	20/22	400 (c)	17/22
Magnesium	22/22	100	--	--	1730	7560	3250	1430	3250	1430	4370.5	3/22	NA	NA
Manganese	22/22	100	--	--	182	1210	677	265	677	265	84.85	22/22	27000 (c)	0/22
Mercury	21/22	95.4	0.11	0.11	0.22	5	2.01	1.29	1.92	1.33	0.0875	21/22	82 (c)	0/22
Nickel	22/22	100	--	--	14.7	100	58.5	25.8	58.5	25.8	21.2	19/22	5500 (c)	0/22
Potassium	22/22	100	--	--	448	2640	1110	533	1110	533	2486.5	1/22	NA	NA
Selenium	2/15	13.3	0.455	1.05	1.04	1.14	1.09	0.0707	0.512	0.255	0.67	2/15	820 (c)	0/15
Silver	16/18	88.8	0.46	0.97	0.54	12.2	5.91	3.33	5.29	3.6	0.995	15/18	820 (c)	0/18
Sodium	22/22	100	--	--	142	808	390	181	390	181	144	21/22	NA	NA
Thallium	12/19	63.1	0.28	0.92	0.79	4.17	2	1.11	1.39	1.19	0.415	12/19	19 (c)	0/19
Vanadium	22/22	100	--	--	4.6	42.6	24.3	11.1	24.3	11.1	36.3	3/22	1800 (c)	0/22
Zinc	22/22	100	--	--	40.5	3570	1840	996	1840	996	77.5	21/22	55000 (c)	0/22

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.126

Table 1-13

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	14/14	100	--	--	1620	27100	12400	8310	12400	8310	17482	4/14	79000 (c)	0/14
Antimony	1/11	9	4.6	13	18.8	18.8	18.8	--	5.6	4.61	4.325	1/11	110 (c)	0/11
Arsenic	13/13	100	--	--	1.4	27.6	8.4	7.81	8.4	7.81	7.15	5/13	0.37 (c)	13/13
Barium	14/14	100	--	--	30.6	1040	256	259	256	259	190.5	8/14	14000 (c)	0/14
Beryllium	12/14	85.7	0.18	0.19	0.23	1.9	1.07	0.537	0.926	0.607	0.68	9/14	0.15 (c)	12/14
Cadmium	3/14	21.4	0.49	1.3	2.48	21.9	9.19	11	2.3	5.71	0.825	3/14	140 (c)	0/14
Calcium	14/14	100	--	--	2670	56200	15800	16200	15800	16200	4198	11/14	NA	NA
Chromium	14/14	100	--	--	4.7	43.7	21.7	12	21.7	12	20.75	7/14	1400 (c)	0/14
Cobalt	14/14	100	--	--	3.1	14.7	6.94	3.12	6.94	3.12	8.35	2/14	2.7 (c)	14/14
Copper	14/14	100	--	--	3	590	124	196	124	196	26.25	9/14	10000 (c)	0/14
Iron	14/14	100	--	--	4530	82300	24600	22100	24600	22100	18507	6/14	NA	NA
Lead	14/14	100	--	--	2.7	2040	334	581	334	581	21.3	9/14	400 (c)	4/14
Magnesium	14/14	100	--	--	1740	6080	3820	1280	3820	1280	4370.5	6/14	NA	NA
Manganese	14/14	100	--	--	63.1	911	310	234	310	234	84.85	11/14	27000 (c)	0/14
Mercury	5/14	35.7	0.08	0.181	0.11	1.2	0.52	0.429	0.227	0.329	0.0875	5/14	82 (c)	0/14
Nickel	14/14	100	--	--	7.1	45.3	20.6	10.7	20.6	10.7	21.2	4/14	5500 (c)	0/14
Potassium	14/14	100	--	--	300	3670	1770	1090	1770	1090	2486.5	3/14	NA	NA
Selenium	1/9	11.1	0.481	0.99	0.32	0.32	0.32	--	0.338	0.0948	0.67	0/9	820 (c)	0/9
Silver	3/7	42.8	0.7	1.3	1.23	3.4	2.24	1.09	1.21	1.16	0.995	3/7	820 (c)	0/7
Sodium	14/14	100	--	--	54.7	489	218	127	218	127	144	10/14	NA	NA
Thallium	7/13	53.8	0.47	5.16	0.39	2.78	1.33	0.86	1.2	0.958	0.415	6/13	19 (c)	0/13
Vanadium	14/14	100	--	--	5.6	61	29.8	17.6	29.8	17.6	36.3	4/14	1800 (c)	0/14
Zinc	14/14	100	--	--	17	3610	534	990	534	990	77.5	10/14	55000 (c)	0/14

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

001157.128

Table 1-14

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	3/21	14.2	0.011	0.014	0.02	0.069	0.043	0.0246	0.0114	0.0154	0.00825	3/21	79000 (c)	0/21
Chloroform	2/22	9	0.011	0.014	0.002	0.002	0.002	""	0.00575	0.00133	0.008	0/22	110 (c)	0/22
Dibromochloromethane	1/22	4.5	0.011	0.014	0.002	0.002	0.002	--	0.00591	0.00103	0.008	0/22	7.6 (c)	0/22
Methylene Chloride	7/11	63.6	0.011	0.014	0.002	0.13	0.0384	0.0519	0.0268	0.0434	0.014	3/11	85 (c)	0/11
Tetrachloroethene	17/20	85	0.011	0.014	0.003	0.17	0.0385	0.0432	0.0337	0.0413	0.008	12/20	13 (c)	0/20
Toluene	6/22	27.2	0.011	0.014	0.002	0.008	0.00417	0.00204	0.00561	0.00142	0.008	0/22	55000 (c)	0/22
Xylene	1/22	4.5	0.011	0.014	0.001	0.001	0.001	--	0.00586	0.00122	0.008	0/22	550000 (c)	0/22
Semivolatile Organic Compounds														
Acenaphthene	10/22	45.4	0.35	0.44	0.027	0.52	0.134	0.148	0.171	0.103	0.265	1/22	16000 (c)	0/22
Acenaphthylene	10/22	45.4	0.35	1.2	0.022	0.44	0.0894	0.125	0.168	0.139	0.265	1/22	27000 (c)	0/22
Anthracene	18/22	81.8	0.35	0.44	0.025	0.82	0.244	0.254	0.235	0.229	0.265	6/22	82000 (c)	0/22
Benzo(a)anthracene	20/22	90.9	0.35	0.44	0.043	6.6	1.13	1.49	1.04	1.45	0.265	15/22	0.9 (c)	7/22
Benzo(a)pyrene	21/22	95.4	0.44	0.44	0.026	10	1.26	2.13	1.21	2.09	0.265	15/22	0.09 (c)	18/22
Benzo(b)fluoranthene	21/22	95.4	0.44	0.44	0.031	14	1.81	2.96	1.74	2.91	0.265	16/22	0.9 (c)	12/22
Benzo(g,h,i)perylene	20/22	90.9	0.41	0.44	0.043	3.2	0.729	0.751	0.682	0.73	0.265	14/22	1100 (c)	0/22
Benzo(k)fluoranthene	10/21	47.6	0.35	0.47	0.068	11	1.89	3.27	1.01	2.36	0.265	7/22	0.9 (c)	5/22
Bis(2-ethylhexyl)phthalate	1/1	100	--	--	1.9	1.9	1.9	--	1.9	--	0.26	1/1	46 (c)	0/1
Butylbenzylphthalate	2/22	9	0.35	1.2	0.2	0.48	0.34	0.198	0.233	0.102	0.265	1/22	55000 (c)	0/22
Carbazole	13/22	59	0.35	0.44	0.006	1.3	0.215	0.344	0.21	0.26	0.265	2/22	32 (d)	0/22
Chrysene	20/22	90.9	0.35	0.44	0.052	11	1.42	2.41	1.31	2.32	0.265	15/22	9 (c)	1/22
Dibenz(a,h)anthracene	13/22	59	0.35	0.44	0.031	3	0.475	0.774	0.363	0.602	0.265	6/22	0.09 (c)	11/22
Dibenzofuran	9/22	40.9	0.35	1.2	0.021	0.35	0.0863	0.101	0.173	0.128	0.265	1/22	--	NA
1,4-Dichlorobenzene	2/22	9	0.35	1.2	0.022	0.029	0.0255	0.00495	0.205	0.104	0.265	0/22	27 (c)	0/22
Diethylphthalate	4/22	18.1	0.35	1.2	0.024	0.059	0.042	0.0159	0.192	0.112	0.265	0/22	220000 (c)	0/22
di-n-Butyl Phthalate	14/21	66.6	0.35	1.2	0.028	0.39	0.129	0.0945	0.171	0.129	0.265	1/21	7800 (d)	0/21
di-n-Octyl Phthalate	3/22	13.6	0.35	1.2	0.031	0.074	0.0477	0.0231	0.2	0.106	0.265	0/22	1600 (d)	0/22
Fluoranthene	21/22	95.4	0.44	0.44	0.018	6.1	1.41	1.71	1.36	1.68	0.2775	15/22	11000 (c)	0/22
Fluorene	11/22	50	0.35	0.44	0.027	0.64	0.133	0.175	0.167	0.126	0.265	1/22	11000 (c)	0/22
Indeno(1,2,3-cd)pyrene	20/22	90.9	0.41	0.44	0.035	3.7	0.695	0.836	0.651	0.808	0.265	12/22	0.9 (c)	5/22
2-Methylnaphthalene	10/22	45.4	0.35	1.2	0.022	0.18	0.0576	0.0472	0.153	0.127	0.265	0/22	--	NA
2-Methylphenol	1/22	4.5	0.35	1.2	0.026	0.026	0.026	--	0.213	0.0956	0.265	0/22	14000 (c)	0/22
4-Methylphenol	1/22	4.5	0.35	1.2	0.024	0.024	0.024	--	0.213	0.0957	0.265	0/22	14000 (c)	0/22
Naphthalene	14/22	63.6	0.35	1.2	0.022	0.72	0.13	0.178	0.174	0.173	0.265	1/22	1100 (c)	0/22

Key at end of table.

Table 1-14

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
N-Nitrosodiphenylamine	1/22	4.5	0.35	1.2	0.023	0.023	0.023	--	0.213	0.0958	0.265	0/22	130 (c)	0/22
Pentachlorophenol	1/22	4.5	0.85	2.8	0.047	0.047	0.047	--	0.512	0.223	0.65	0/22	5.3 (c)	0/22
Phenanthrene	19/22	86.3	0.35	0.44	0.043	5.3	1.01	1.3	0.901	1.24	0.2775	12/22	7900 (c)	0/22
Pyrene	21/22	95.4	0.44	0.44	0.018	6.6	1.68	1.99	1.61	1.96	0.2725	16/22	8200 (c)	0/22
Pesticides/PCBs														
Aldrin	6/22	27.2	0.0018	0.0024	0.00234	0.00439	0.00325	0.0009	0.00164	0.0011	0.00135	6/22	0.038 (d)	0/22
Aroclor 1016	1/22	4.5	0.035	0.047	0.053	0.053	0.053	--	0.0218	0.00716	0.0265	1/22	5.5 (d)	0/22
Aroclor 1254	1/22	4.5	0.035	0.047	0.073	0.073	0.073	--	0.0227	0.0114	0.0265	1/22	0.083 (d)	0/22
alpha-BHC	1/22	4.5	0.0018	0.0024	0.0081	0.0081	0.0081	--	0.00137	0.00151	0.00135	1/22	0.1 (d)	0/22
beta-BHC	2/22	9	0.0018	0.0024	0.00288	0.0154	0.00914	0.00885	0.00178	0.00307	0.00135	2/22	0.35 (d)	0/22
delta-BHC	3/22	13.6	0.0018	0.0024	0.00305	0.00988	0.00536	0.00391	0.00164	0.00194	0.001175	3/22	--	NA
alpha-Chlordane	18/22	81.8	0.0019	0.0023	0.00277	0.0642	0.019	0.0213	0.0158	0.0204	0.001175	18/22	0.49 (d)	0/22
gamma-Chlordane	17/22	77.2	0.0019	0.0023	0.00244	0.101	0.0237	0.0295	0.0185	0.0275	0.001325	17/22	0.49 (d)	0/22
4,4'-DDD	13/22	59	0.0035	0.0045	0.00452	0.0526	0.016	0.0137	0.0102	0.0126	0.002775	13/22	2.7 (d)	0/22
4,4'-DDE	16/22	72.7	0.0035	0.0045	0.00444	0.109	0.0217	0.0259	0.0163	0.0236	0.01065	8/22	1.9 (d)	0/22
4,4'-DDT	16/22	72.7	0.0037	0.0045	0.00442	0.0395	0.0139	0.00996	0.0107	0.00999	0.002875	16/22	1.9 (d)	0/22
Dieldrin	7/22	31.8	0.0035	0.0045	0.00433	0.01	0.00652	0.00212	0.00343	0.00245	0.002275	7/22	0.04 (d)	0/22
Endosulfan I	1/22	4.5	0.0018	0.0024	0.00253	0.00253	0.00253	--	0.00111	0.000327	0.00135	1/22	470 (d)	0/22
Endosulfan II	2/22	9	0.0035	0.0047	0.00456	0.00498	0.00477	0.000297	0.00228	0.000825	0.00265	2/22	470 (d)	0/22
Endosulfan Sulfate	1/22	4.5	0.0035	0.0047	0.0065	0.0065	0.0065	--	0.00223	0.000967	0.002475	1/22	--	NA
Endrin	14/22	63.6	0.0035	0.0045	0.0044	0.0206	0.00917	0.00534	0.00655	0.00549	0.002775	14/22	23 (d)	0/22
Endrin Aldehyde	7/22	31.8	0.0035	0.0045	0.00393	0.02	0.00874	0.00552	0.00417	0.00435	0.002575	7/22	--	NA
Endrin Ketone	2/22	9	0.0035	0.0047	0.00606	0.00982	0.00794	0.00266	0.00257	0.00184	0.00265	2/22	--	NA
Heptachlor	3/22	13.6	0.0018	0.0024	0.00199	0.00593	0.00336	0.00223	0.00137	0.00107	0.001325	3/22	0.14 (d)	0/22
Heptachlor Epoxide	7/22	31.8	0.0018	0.0023	0.00279	0.0236	0.00676	0.00749	0.00285	0.00485	0.00125	7/22	0.07 (d)	0/22
Methoxychlor	1/22	4.5	0.018	0.024	0.0111	0.0111	0.0111	--	0.0104	0.00081	0.0135	0/22	390 (d)	0/22

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 1-15

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	7/14	50	0.011	0.018	0.034	0.23	0.0713	0.0723	0.0389	0.0595	0.00825	7/14	79000 (c)	0/14
Carbon Disulfide	1/14	7.1	0.011	0.018	0.002	0.002	0.002	--	0.00621	0.00161	0.008	0/14	27000 (c)	0/14
Chloroform	3/14	21.4	0.011	0.018	0.002	0.007	0.00367	0.00289	0.00589	0.00196	0.008	0/14	110 (c)	0/14
Methylene Chloride	8/11	72.7	0.011	0.018	0.001	0.11	0.0359	0.0353	0.028	0.0325	0.014	6/11	85 (c)	0/11
Tetrachloroethene	6/14	42.8	0.011	0.018	0.004	0.066	0.0308	0.0252	0.017	0.02	0.008	4/14	13 (c)	0/14
Toluene	2/14	14.2	0.011	0.018	0.002	0.013	0.0075	0.00778	0.00661	0.00244	0.008	1/14	55000 (c)	0/14
Trichloroethene	1/14	7.1	0.011	0.018	0.002	0.002	0.002	--	0.00614	0.0016	0.008	0/14	58 (c)	0/14
Xylene	1/14	7.1	0.011	0.018	0.002	0.002	0.002	--	0.00621	0.00161	0.008	0/14	550000 (c)	0/14
Semivolatile Organic Compounds														
Acenaphthene	4/14	28.5	0.35	0.61	0.034	2	0.534	0.978	0.31	0.493	0.265	1/14	16000 (c)	0/14
Acenaphthylene	2/14	14.2	0.35	8.7	0.022	0.062	0.042	0.0283	0.488	1.11	0.265	0/14	27000 (c)	0/14
Anthracene	5/14	35.7	0.35	0.61	0.036	15	3.09	6.66	1.25	3.96	0.265	1/14	82000 (c)	0/14
Benzo(a)anthracene	7/14	50	0.35	0.61	0.035	22	3.45	8.18	1.84	5.81	0.265	3/14	0.9 (c)	1/14
Benzo(a)pyrene	8/14	57.1	0.35	0.55	0.028	20	2.84	6.95	1.71	5.27	0.265	3/14	0.09 (c)	6/14
Benzo(b)fluoranthene	10/14	71.4	0.35	0.55	0.033	14	1.68	4.34	1.26	3.68	0.265	4/14	0.9 (c)	1/14
Benzo(g,h,i)perylene	6/14	42.8	0.35	0.61	0.026	12	2.27	4.77	1.1	3.14	0.265	3/14	1100 (c)	0/14
Benzo(k)fluoranthene	6/14	42.8	0.35	0.61	0.038	23	4.22	9.21	1.93	6.07	0.265	3/14	0.9 (c)	2/14
Butylbenzylphthalate	2/14	14.2	0.35	8.7	0.025	0.066	0.0455	0.029	0.49	1.11	0.265	0/14	55000 (c)	0/14
Carbazole	3/14	21.4	0.35	0.61	0.087	2.3	0.836	1.27	0.352	0.563	0.265	1/14	32 (d)	0/14
Chrysene	8/14	57.1	0.35	0.55	0.042	23	3.16	8.02	1.89	6.08	0.265	4/14	9 (c)	1/14
Dibenz(a,h)anthracene	2/14	14.2	0.35	8.7	0.05	0.31	0.18	0.184	0.507	1.11	0.265	1/14	0.09 (c)	1/14
Dibenzofuran	2/14	14.2	0.35	0.61	0.034	1.2	0.617	0.824	0.275	0.273	0.265	1/14	--	NA
Dimethylphthalate	1/14	7.1	0.35	8.7	0.14	0.14	0.14	--	0.508	1.11	0.265	0/14	780000 (d)	0/14
di-n-Butyl Phthalate	5/14	35.7	0.35	8.7	0.032	0.19	0.068	0.0683	0.462	1.12	0.265	0/14	7800 (d)	0/14
Fluoranthene	10/14	71.4	0.35	0.55	0.041	30	3.35	9.37	2.45	7.94	0.2775	5/14	11000 (c)	0/14
Fluorene	3/14	21.4	0.35	0.61	0.038	3.1	1.07	1.76	0.401	0.78	0.265	1/14	11000 (c)	0/14
Indeno(1,2,3-cd)pyrene	8/14	57.1	0.35	0.55	0.028	10	1.45	3.46	0.92	2.62	0.265	3/14	0.9 (c)	1/14
2-Methylnaphthalene	2/14	14.2	0.35	8.7	0.025	0.082	0.0535	0.0403	0.49	1.11	0.265	0/14	--	NA
Naphthalene	2/14	14.2	0.35	8.7	0.12	0.22	0.17	0.0707	0.506	1.11	0.265	0/14	1100 (c)	0/14
Phenanthrene	8/14	57.1	0.35	0.61	0.026	33	4.34	11.6	2.58	8.76	0.2775	4/14	7900 (c)	0/14
Pyrene	10/14	71.4	0.35	0.55	0.042	50	5.32	15.7	3.86	13.3	0.2725	5/14	8200 (c)	0/14

Key at end of table.

Table 1-15

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OFF-SITE SUBSURFACE SOIL - 18 TO 24 INCHES
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Pesticides/PCBs														
alpha-BHC	2/14	14.2	0.0018	0.0031	0.00241	0.0188	0.0106	0.0116	0.00248	0.00471	0.00135	2/14	0.1 (d)	0/14
beta-BHC	1/14	7.1	0.0018	0.0031	0.00785	0.00785	0.00785	--	0.0016	0.00181	0.00135	1/14	0.35 (d)	0/14
delta-BHC	1/14	7.1	0.0018	0.0031	0.00583	0.00583	0.00583	--	0.00145	0.00127	0.001175	1/14	--	NA
gamma-BHC	1/14	7.1	0.0018	0.0031	0.00212	0.00212	0.00212	--	0.00119	0.000323	0.001325	1/14	0.49 (d)	0/14
alpha-Chlordane	6/14	42.8	0.0018	0.0031	0.00372	0.112	0.0352	0.0429	0.0158	0.0319	0.001175	6/14	0.49 (d)	0/14
gamma-Chlordane	6/14	42.8	0.0018	0.0031	0.00244	0.15	0.0386	0.0572	0.0172	0.0404	0.001325	6/14	0.49 (d)	0/14
4,4'-DDD	3/14	21.4	0.0035	0.0061	0.00452	0.134	0.0489	0.0738	0.0122	0.0351	0.002775	3/14	2.7 (d)	0/14
4,4'-DDE	5/14	35.7	0.0035	0.0061	0.00622	0.762	0.173	0.331	0.0632	0.202	0.01065	2/14	1.9 (d)	0/14
4,4'-DDT	6/14	42.8	0.0035	0.0061	0.00753	0.203	0.0657	0.0847	0.0294	0.0618	0.002875	6/14	1.9 (d)	0/14
Dieldrin	5/14	35.7	0.0035	0.0061	0.00531	0.101	0.0407	0.0401	0.016	0.0293	0.002275	5/14	0.04 (d)	2/14
Endrin	5/14	35.7	0.0035	0.0061	0.00501	0.00709	0.00604	0.000893	0.00354	0.00202	0.002775	5/14	23 (d)	0/14
Endrin Aldehyde	5/14	35.7	0.0035	0.0045	0.00451	0.011	0.0084	0.00249	0.00429	0.00347	0.002575	5/14	--	NA
Heptachlor	1/14	7.1	0.0018	0.0031	0.0087	0.0087	0.0087	--	0.00165	0.00204	0.001325	1/14	0.14 (d)	0/14
Heptachlor Epoxide	2/14	14.2	0.0018	0.0031	0.00994	0.0129	0.0114	0.00209	0.0026	0.00379	0.00125	2/14	0.07 (d)	0/14

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
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mg/kg = Milligrams per kilogram.
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MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.134

Table 1-16

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 5 TO 6 FEET
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	5/5	100	--	--	3940	8310	5580	1850	5580	1850	8825	0/5	79000 (c)	0/5
Antimony	2/3	66.6	14.4	14.4	37	44.5	40.8	5.3	29.6	19.7	4.275	2/3	110 (c)	0/3
Arsenic	5/5	100	--	--	14.5	98.3	46	31.9	46	31.9	5.3	5/5	0.37 (c)	5/5
Barium	5/5	100	--	--	517	1680	945	510	945	510	147	5/5	14000 (c)	0/5
Beryllium	1/5	20	0.27	0.798	1.1	1.1	1.1	--	0.386	0.414	0.574995	1/5	0.15 (c)	1/5
Cadmium	4/5	80	1.2	1.2	3.21	28.5	14.4	10.5	11.6	11	0.725	4/5	140 (c)	0/5
Calcium	5/5	100	--	--	37200	49700	42600	5270	42600	5270	4036	5/5	NA	NA
Chromium	5/5	100	--	--	21.7	107	78.8	34.2	78.8	34.2	13.55	5/5	1400 (c)	0/5
Cobalt	5/5	100	--	--	4.72	20.3	12.7	5.83	12.7	5.83	8.45	4/5	2.7 (c)	5/5
Copper	5/5	100	--	--	116	947	511	333	511	333	20.75	5/5	10000 (c)	0/5
Iron	5/5	100	--	--	37400	161000	112000	51100	112000	51100	15484.5	5/5	NA	NA
Lead	5/5	100	--	--	1210	2750	1890	730	1890	730	19.2	5/5	400 (c)	5/5
Magnesium	5/5	100	--	--	2100	6100	3360	1580	3360	1580	4306	1/5	NA	NA
Manganese	5/5	100	--	--	272	895	670	250	670	250	205	5/5	27000 (c)	0/5
Mercury	5/5	100	--	--	0.33	1.6	0.93	0.48	0.93	0.48	0.075	5/5	82 (c)	0/5
Nickel	5/5	100	--	--	28	245	96.2	85.1	96.2	85.1	17.1	5/5	5500 (c)	0/5
Potassium	5/5	100	--	--	519	1390	892	407	892	407	1633	0/5	NA	NA
Selenium	2/4	50	0.798	1.07	1.1	1.98	1.54	0.622	1	0.718	0.4825	2/4	820 (c)	0/4
Silver	3/3	100	--	--	7.27	11.7	10.1	2.45	10.1	2.45	0.91	3/3	820 (c)	0/3
Sodium	5/5	100	--	--	433	778	569	133	569	133	136.5	5/5	NA	NA
Thallium	1/4	25	1.06	1.28	3.21	3.21	3.21	--	1.23	1.32	0.37	1/4	19 (c)	0/4
Vanadium	4/5	80	4.79	4.79	11.2	37	23.8	10.8	19.5	13.4	22.7	2/5	1800 (c)	0/5
Zinc	5/5	100	--	--	986	5330	2650	2000	2650	2000	64.2	5/5	55000 (c)	0/5

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.136

Table 1-17

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 5 TO 6 FEET
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a) Value	Background (a) FOE	TBC (b) Value	TBC (b) FOE
Volatile Organic Compounds														
Acetone	5/5	100	--	--	0.58	3.6	1.52	1.2	1.52	1.2	0.01275	5/5	79000 (c)	0/5
2-Butanone	2/5	40	0.07	0.086	0.12	0.47	0.295	0.247	0.141	0.187	0.0075	2/5	47000 (d)	0/5
Carbon Disulfide	4/5	80	0.078	0.078	0.009	0.013	0.0102	0.00189	0.016	0.013	0.0075	4/5	27000 (c)	0/5
Chlorobenzene	1/5	20	0.029	0.086	0.018	0.018	0.018	--	0.0299	0.0128	0.0075	1/5	5500 (c)	0/5
Chloroform	1/3	33.3	0.029	0.078	0.005	0.005	0.005	--	0.0195	0.0175	0.0075	0/3	110 (c)	0/3
Methylene Chloride	1/1	100	--	--	0.016	0.016	0.016	--	0.016	--	0.0165	0/1	85 (c)	0/1
Tetrachloroethene	5/5	100	--	--	0.004	0.014	0.0106	0.0041	0.0106	0.0041	0.0075	4/5	13 (c)	0/5
Toluene	4/5	80	0.078	0.078	0.004	0.019	0.01	0.00648	0.0158	0.0141	0.0075	2/5	55000 (c)	0/5
Xylene	2/5	40	0.043	0.078	0.006	0.01	0.008	0.00283	0.0223	0.0146	0.0075	1/5	550000 (c)	0/5
Semivolatile Organic Compounds														
Acenaphthene	4/5	80	0.76	0.76	0.09	0.3	0.213	0.0971	0.246	0.113	0.255	2/5	16000 (c)	0/5
Acenaphthylene	1/5	20	0.57	0.93	0.24	0.24	0.24	--	0.331	0.0907	0.255	0/5	27000 (c)	0/5
Anthracene	5/5	100	--	--	0.073	0.4	0.18	0.133	0.18	0.133	0.255	1/5	82000 (c)	0/5
Benzo(a)anthracene	4/5	80	0.76	0.76	0.26	1.2	0.557	0.441	0.522	0.39	0.255	4/5	0.9 (c)	1/5
Benzo(a)pyrene	5/5	100	--	--	0.3	1.1	0.528	0.327	0.528	0.327	0.255	5/5	0.09 (c)	5/5
Benzo(b)fluoranthene	5/5	100	--	--	0.42	2.5	0.872	0.913	0.872	0.913	0.255	5/5	0.9 (c)	1/5
Benzo(g,h,i)perylene	5/5	100	--	--	0.16	0.63	0.328	0.177	0.328	0.177	0.255	4/5	1100 (c)	0/5
Benzo(k)fluoranthene	2/5	40	0.52	0.76	0.42	0.52	0.47	0.0707	0.373	0.105	0.255	2/5	0.9 (c)	0/5
Carbazole	1/5	20	0.52	0.93	0.042	0.042	0.042	--	0.286	0.159	0.255	0/5	32 (d)	0/5
Chrysene	4/5	80	0.76	0.76	0.38	1.3	0.665	0.429	0.608	0.393	0.255	4/5	9 (c)	0/5
Dibenz(a,h)anthracene	4/5	80	0.52	0.52	0.093	0.13	0.116	0.0159	0.145	0.066	0.255	0/5	0.09 (c)	4/5
Dibenzofuran	2/5	40	0.52	0.93	0.032	0.047	0.0395	0.0106	0.237	0.194	0.255	0/5	--	NA
1,4-Dichlorobenzene	3/5	60	0.76	0.93	0.028	0.2	0.09	0.0955	0.223	0.197	0.255	0/5	27 (c)	0/5
Diethylphthalate	2/5	40	0.52	0.76	0.05	0.86	0.455	0.573	0.367	0.301	0.255	1/5	220000 (c)	0/5
di-n-Butyl Phthalate	2/5	40	0.57	0.76	0.081	0.099	0.09	0.0127	0.226	0.13	0.255	0/5	7800 (d)	0/5
Fluoranthene	5/5	100	--	--	0.2	2.3	0.91	0.83	0.91	0.83	0.255	4/5	11000 (c)	0/5
Fluorene	5/5	100	--	--	0.05	0.19	0.117	0.0554	0.117	0.0554	0.255	0/5	11000 (c)	0/5
Indeno(1,2,3-cd)pyrene	5/5	100	--	--	0.14	0.63	0.298	0.191	0.298	0.191	0.255	2/5	0.9 (c)	0/5
2-Methylnaphthalene	5/5	100	--	--	0.04	0.087	0.0556	0.0196	0.0556	0.0196	0.255	0/5	--	NA
4-Methylphenol	2/5	40	0.52	0.57	0.16	0.23	0.195	0.0495	0.244	0.0521	0.255	0/5	14000 (c)	0/5
Naphthalene	5/5	100	--	--	0.11	0.19	0.136	0.0344	0.136	0.0344	0.255	0/5	1100 (c)	0/5
N-Nitrosodiphenylamine	3/5	60	0.76	0.93	0.062	0.39	0.241	0.166	0.313	0.157	0.255	2/5	130 (c)	0/5
Pentachlorophenol	1/5	20	1.2	2.2	0.46	0.46	0.46	--	0.712	0.238	0.625	0/5	5.3 (c)	0/5

Key at end of table.

Table 1-17

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ON-SITE SUBSURFACE SOIL - 5 TO 6 FEET
EXPANDED SITE INSPECTION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
SEPTEMBER 1993
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Phenanthrene	5/5	100	--	--	0.2	0.72	0.458	0.222	0.458	0.222	0.255	4/5	7900 (c)	0/5
Pyrene	4/5	80	0.76	0.76	0.58	2.1	1.2	0.65	1.04	0.672	0.255	4/5	8200 (c)	0/5
Pesticides/PCBs														
Aldrin	1/5	20	0.002	0.0029	0.00393	0.00393	0.00393	--	0.00179	0.00121	0.001175	1/5	0.038 (d)	0/5
gamma-BHC	1/5	20	0.002	0.0029	0.000425	0.000425	0.000425	--	0.00108	0.000406	0.001325	0/5	0.49 (d)	0/5
alpha-Chlordane	3/5	60	0.002	0.0027	0.0033	0.00634	0.00467	0.00154	0.00327	0.00221	0.001475	3/5	0.49 (d)	0/5
gamma-Chlordane	4/5	80	0.0027	0.0027	0.00244	0.00503	0.0039	0.00115	0.00339	0.00151	0.00135	4/5	0.49 (d)	0/5
4,4'-DDD	4/5	80	0.0052	0.0052	0.00486	0.0309	0.0129	0.0121	0.0108	0.0115	0.002925	4/5	2.7 (d)	0/5
4,4'-DDE	4/5	80	0.0052	0.0052	0.0126	0.0572	0.031	0.0196	0.0253	0.0212	0.0116	4/5	1.9 (d)	0/5
4,4'-DDT	3/5	60	0.0052	0.0057	0.00522	0.0118	0.00888	0.00335	0.00642	0.00412	0.01145	1/5	1.9 (d)	0/5
Endrin Aldehyde	1/5	20	0.0038	0.0057	0.00713	0.00713	0.00713	--	0.00336	0.00214	0.0028	1/5	--	NA
Endrin Ketone	1/5	20	0.0038	0.0057	0.0102	0.0102	0.0102	--	0.00408	0.00344	0.0028	1/5	--	NA
Heptachlor Epoxide	1/5	20	0.002	0.0029	0.0048	0.0048	0.0048	--	0.00196	0.0016	0.001275	1/5	0.07 (d)	0/5

Key at end of table.

Note:

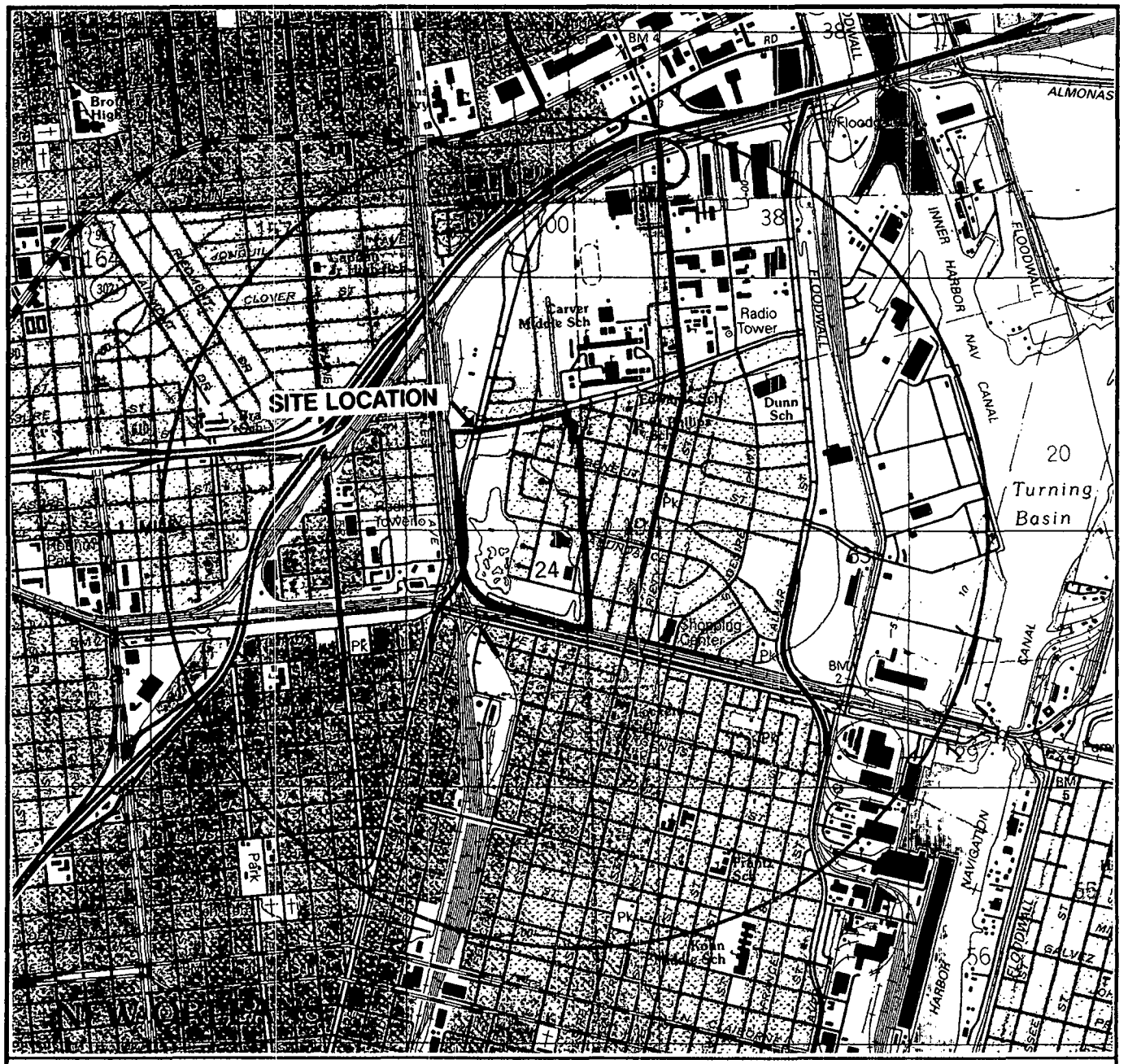
The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1



SOURCE: U.S.G.S. 7.5 Min. Topographic Quadrangles
New Orleans East, Spanish Fort, LA 1992

Figure 1-1 SITE LOCATION MAP
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

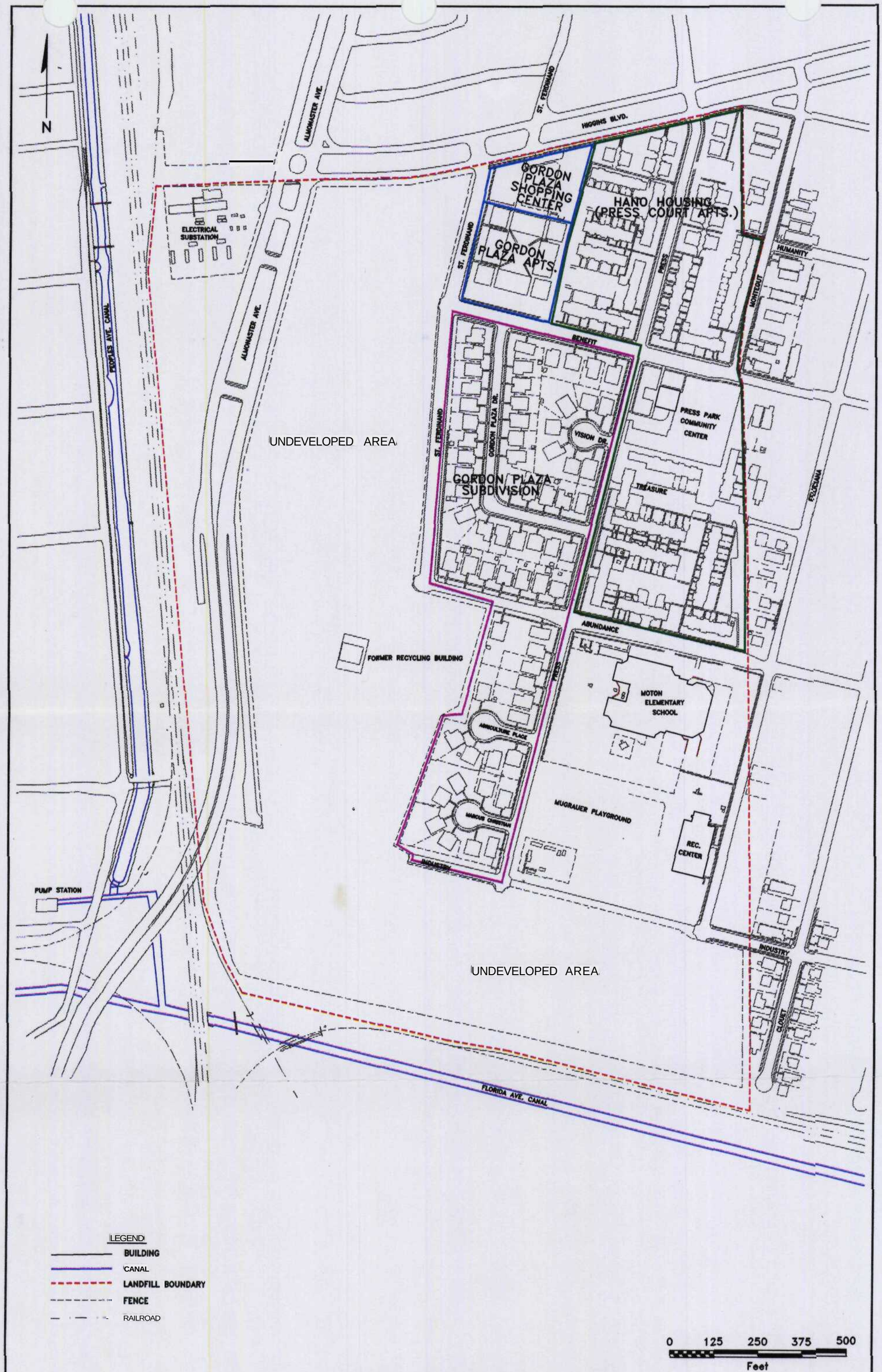
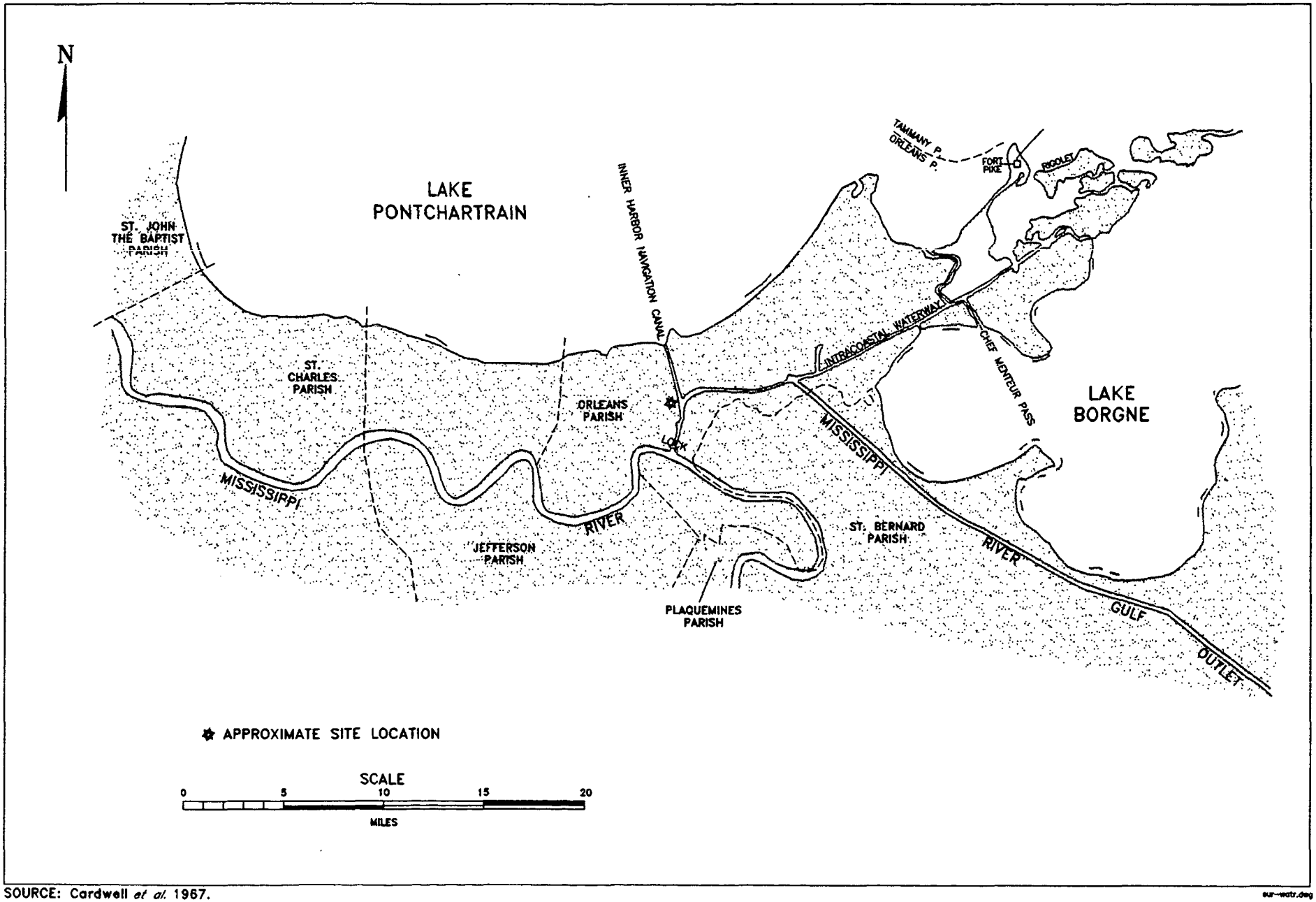


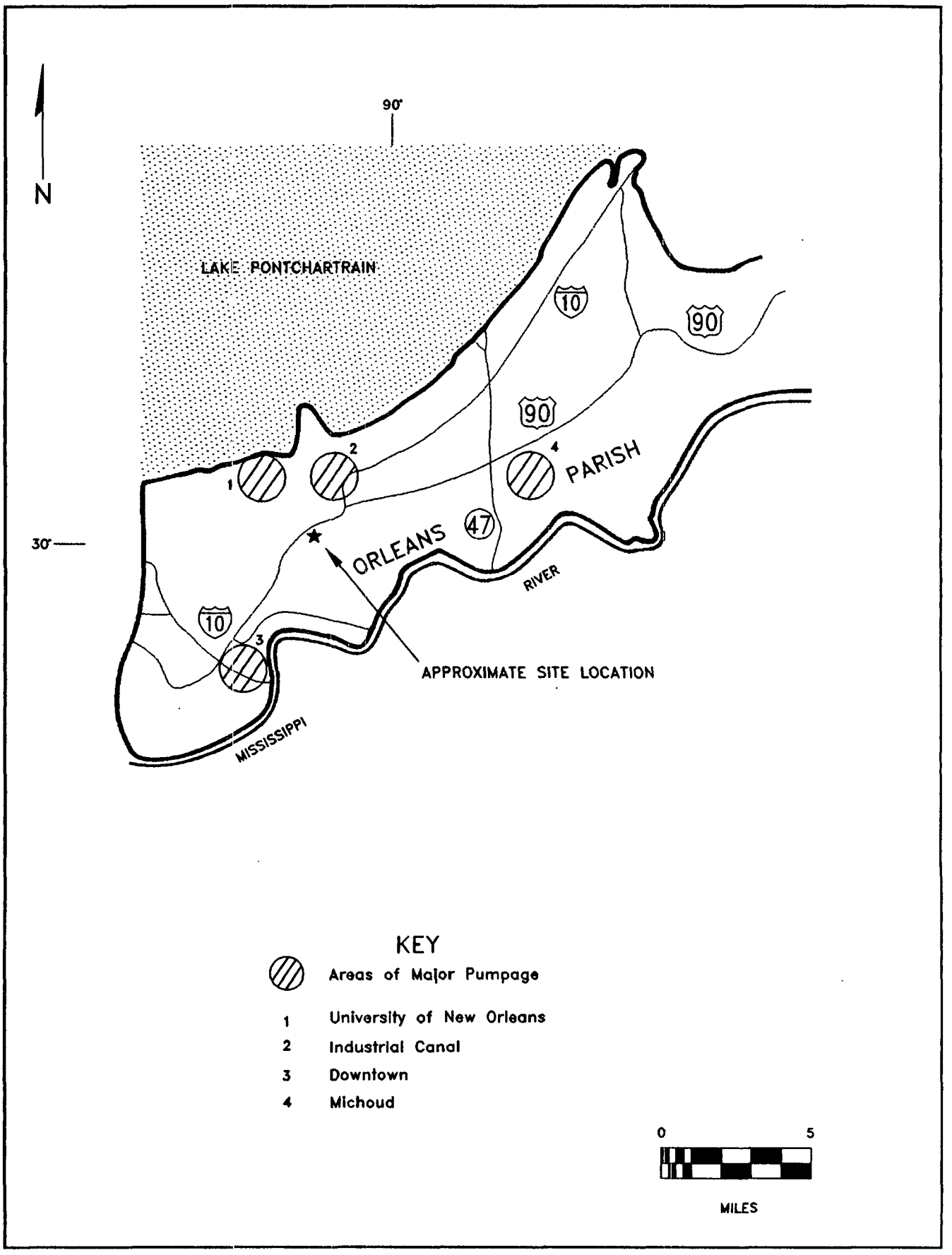
Figure 1–2 SITE PLAN
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

ment, Inc.1994



SOURCE: Cardwell *et al.* 1967.

Figure 1-3 MAJOR SURFACE WATER FEATURES IN THE GENERAL SITE VICINITY
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



SOURCE: Dial and Sumner 1989.

pumpage.dwg

Figure 1-4 AREAS OF MAJOR PUMPAGE IN THE SITE VICINITY
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

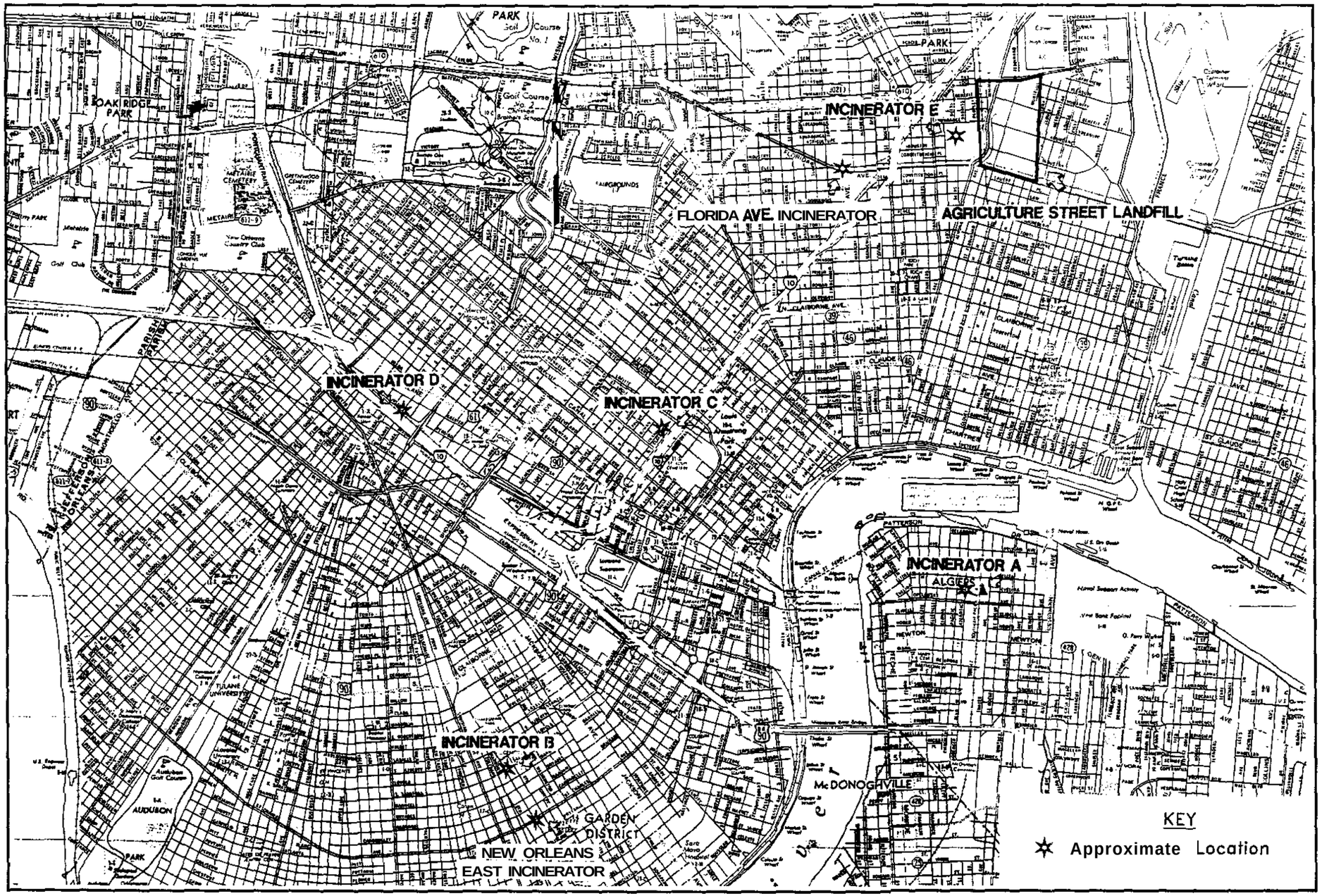


Figure **1-5 LOCATION OF** FORMER MUNICIPAL **INCINERATORS IN NEW ORLEANS, LA.**

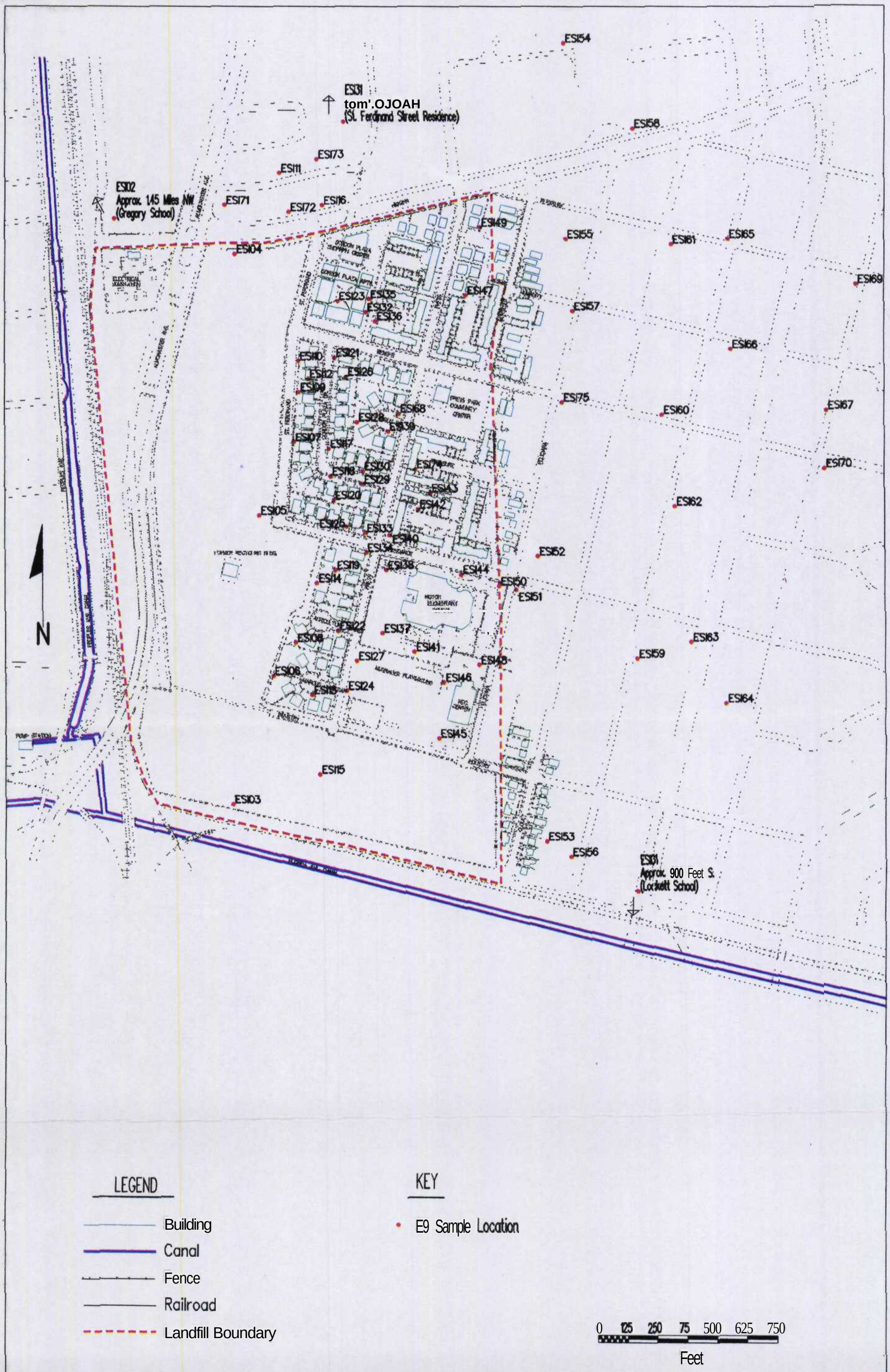
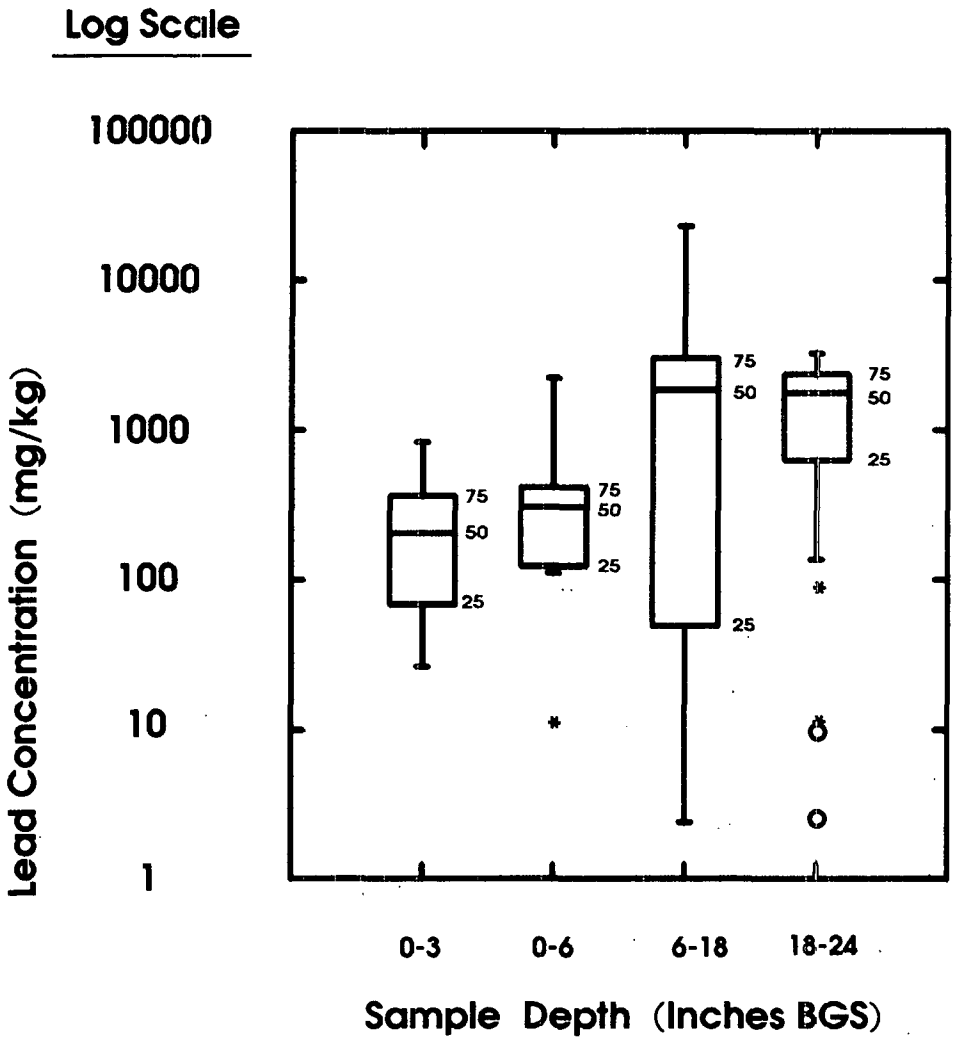


Figure 1-6 ESI SAMPLE LOCATIONS
AGRICULTURE STREET LANDFILL SITE. NEW ORLEAN& LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

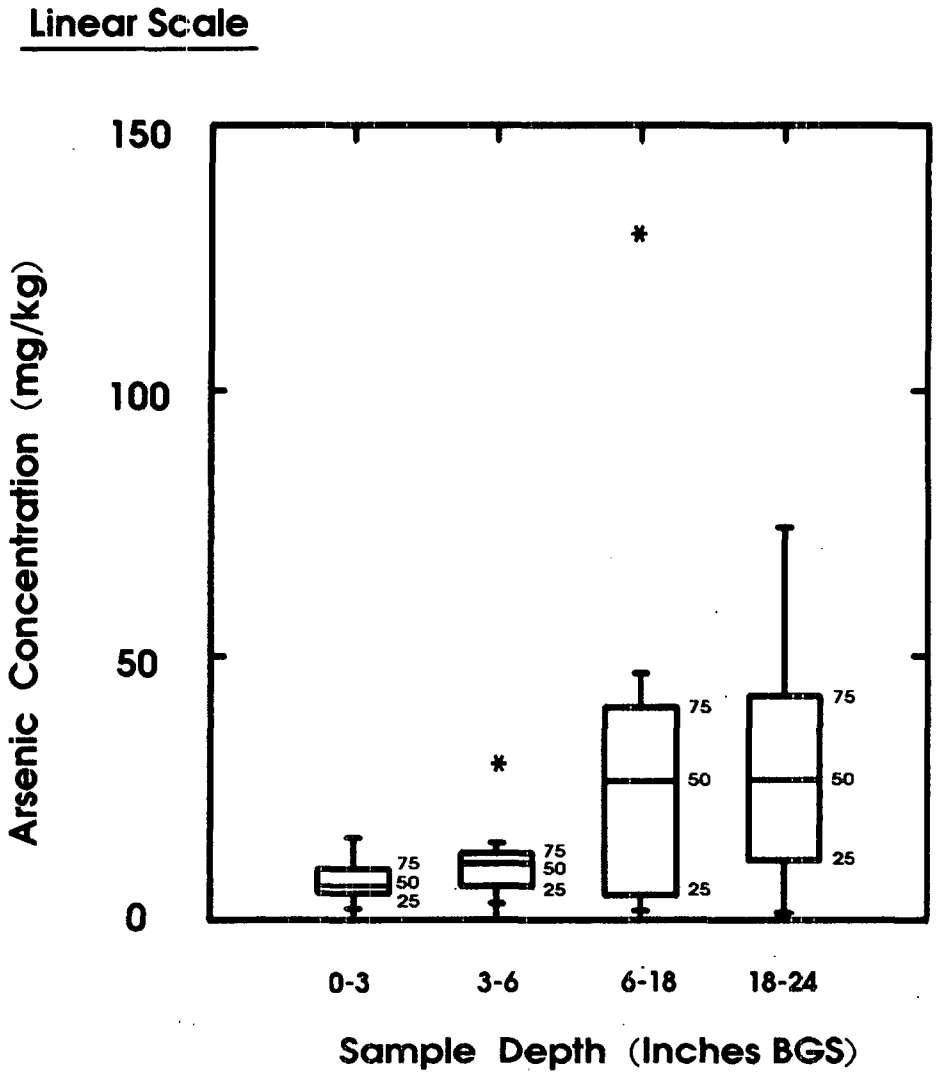
* = Outside value is ±1.5 Hspread to ±3.0 Hspread

o = Outside value is > ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-7 LEAD CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

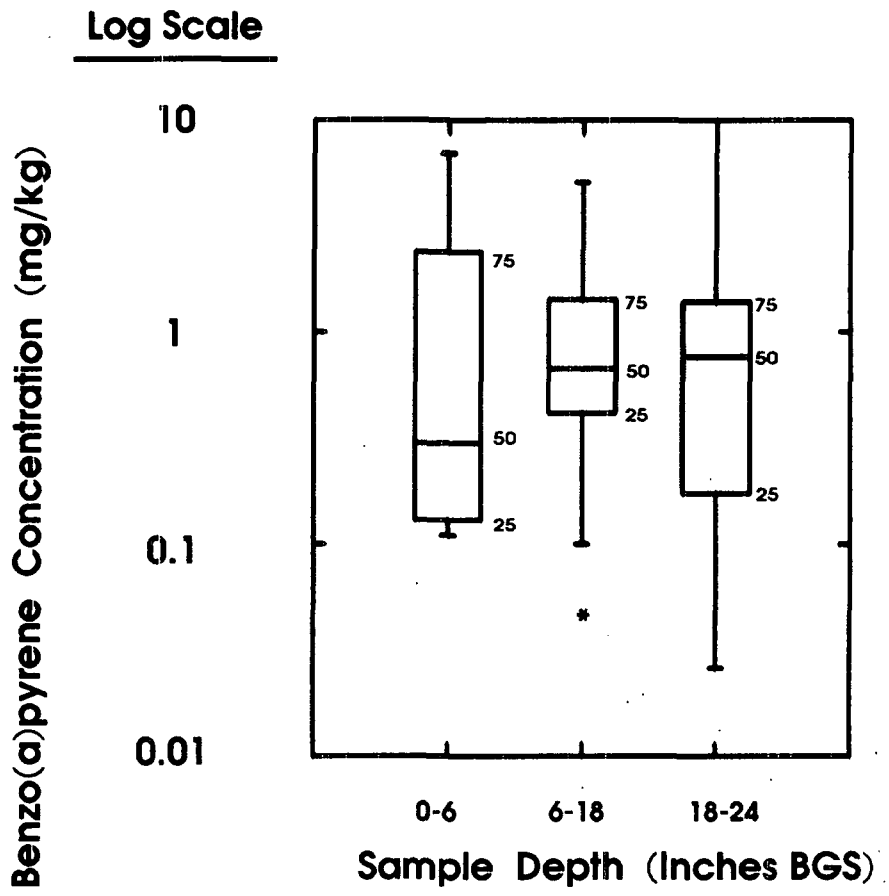
* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-8 ARSENIC CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.147



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

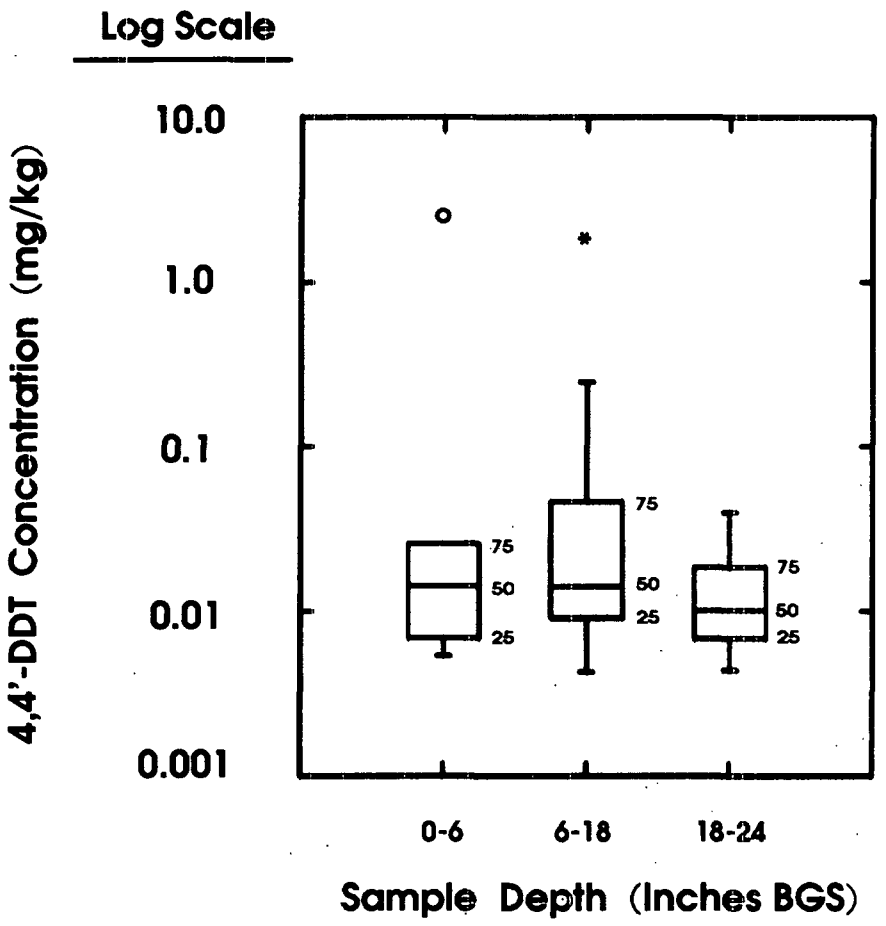
* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-9 BENZO(a)PYRENE CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.148



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

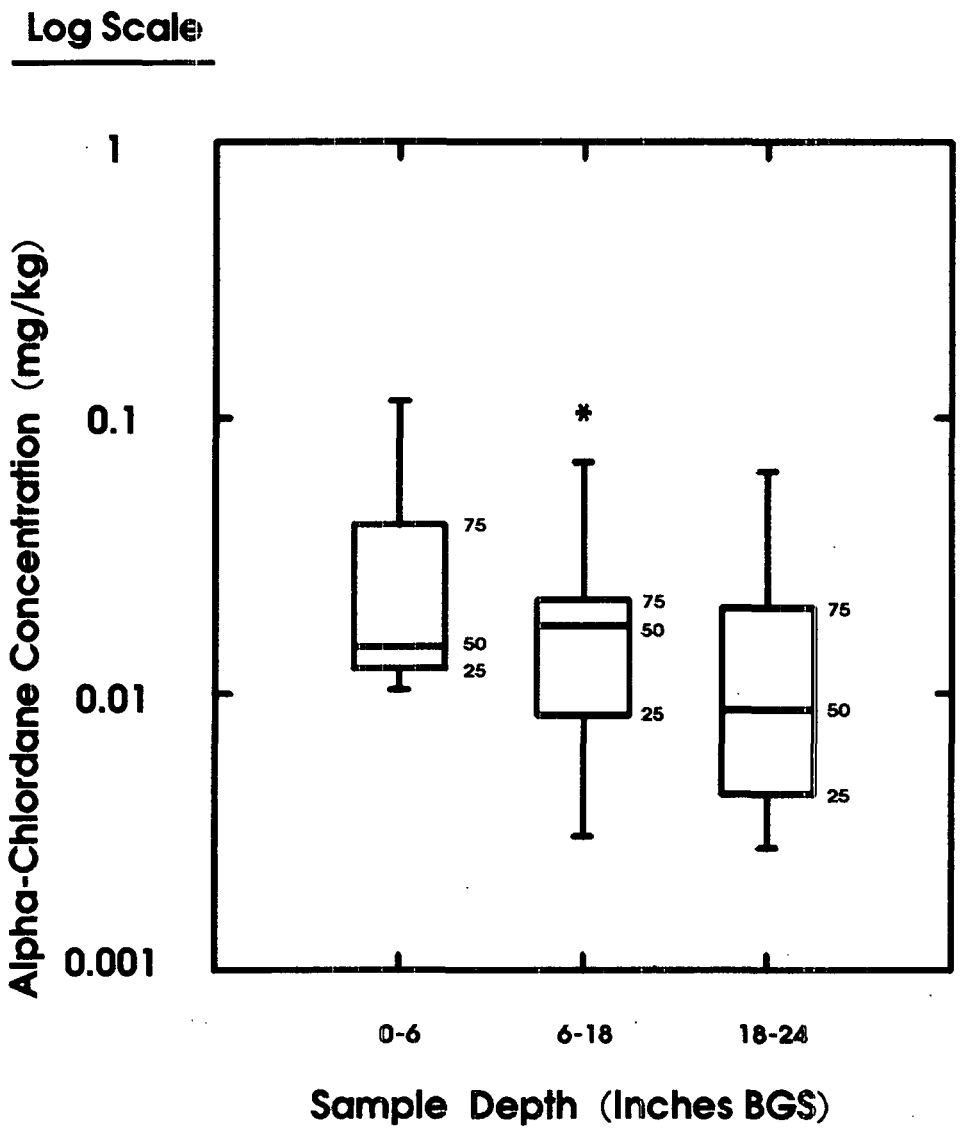
* = Outside value is ±1.5 Hspread to ±3.0 Hspread

o = Outside value is > ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-10 4,4'-DDT CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

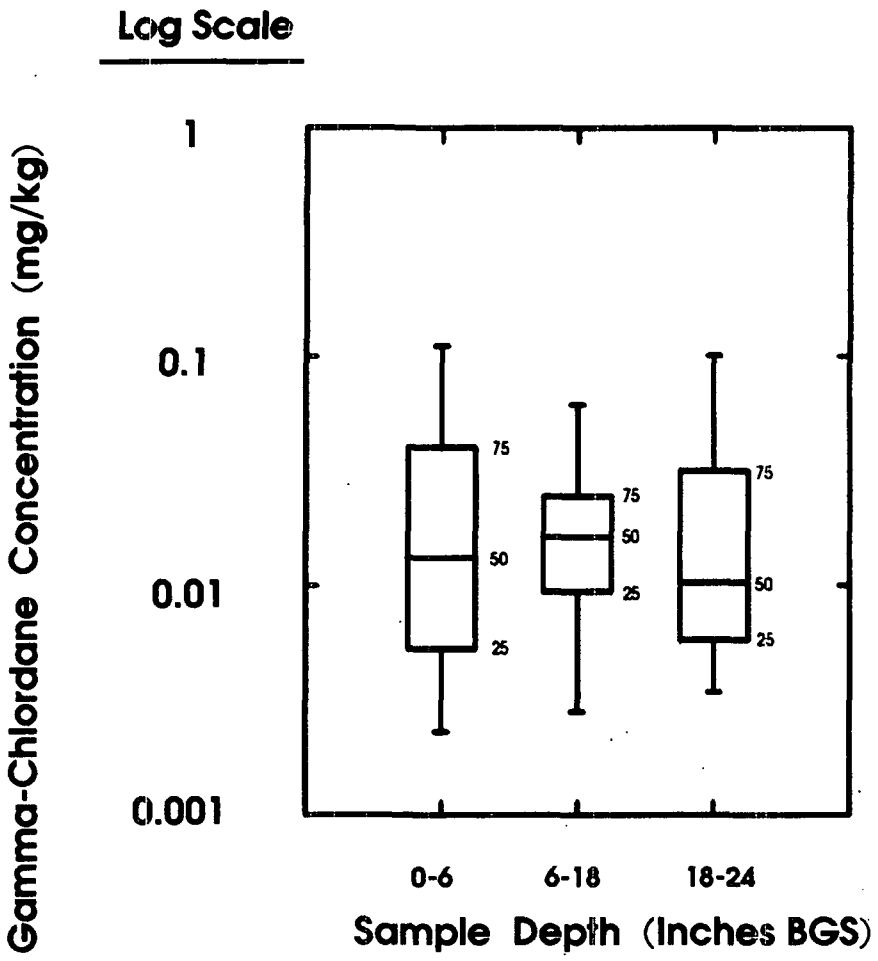
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-11 ALPHA-CHLORDANE CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

(See Appendix K for box plot definitions)

SOURCE: Ecology and Environment, Inc., 1994

Figure 1-12 GAMMA-CHLORDANE CONCENTRATIONS VS. DEPTH -- ON-SITE ESI SOIL SAMPLES AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.151

2. INVESTIGATIVE PROCEDURES

Section 2 presents a summary of background research methods, data collection procedures, field activities, and sampling protocol associated with the ASL RRII. Field activities were conducted to evaluate the composition and magnitude of contamination, determine potential present and future risk, and develop information to evaluate the need for early or long-term actions at the ASL site.

The following site-specific activities were conducted:

- Research of historical data and regulatory guidance;
- Site mapping through ground and aerial surveys;
- Geophysical surveys;
- Surface and subsurface soil field screening and sampling;
- Groundwater monitoring well installation and sampling;
- Test pit excavation, field screening, and sampling;
- Air investigation;
- Surface water and sediment sampling, and an aquatic survey of canals adjacent to the ASL site;
- Garden produce, tap water, indoor dust, and indoor and outdoor paint screening and sampling;
- Collection of on-site meteorological data;

- Data management; and
- Handling/management of investigation-derived waste (IDW).

All field work was conducted in accordance with the EPA-approved RRII WP (E & E 1994a), FSP (E & E 1994b), QAPjP (E & E 1994c), HASP (E & E 1994d), and CRP (E & E 1994e), except where warranted by field conditions indicated within this section. The purpose, locations, and methodology for RRII activities are also presented.

2.1 BACKGROUND RESEARCH

Section 2.1 describes the processes used to collect historical and regulatory information that is independent of the field investigation. Procedures for researching site history are presented in Section 2.1.1. Regulatory criteria used to evaluate analytical results are presented in Section 2.1.2.

2.1.1 General

Numerous resources were identified and contacted during the site history investigation. These sources included: federal, State of Louisiana, Orleans Parish, and City of New Orleans governmental agencies; public libraries, archives, and universities; and individuals familiar with the site. Information provided by these sources included reports, aerial photographs, maps, engineering drawings, newspaper articles, and word-of-mouth recollections concerning ASL operations. Ambiguities in information supplied by various sources were evaluated. Documented information that could be independently verified was selected for use over word-of-mouth, undocumented information.

Aerial photographs, maps, engineering drawings, and other research materials were used as aids to better understand site conditions. This information helped to clarify historical landfill operations, the extent of the former landfill, the structure and operation of the canals and storm water drainage system, and the construction specifications and subsurface soil conditions associated with Moton School.

2.1.2 Applicable or Relevant and Appropriate Requirements and To-Be-Considered Criteria

Section 2.1.2 provides a preliminary identification of legally applicable or relevant and appropriate requirements (ARARs) and other standards, criteria, and guidance "to-be-considered" (TBC) criteria for on-site removal/remedial actions at the ASL site. ARAR/TBC determinations were made in accordance with Section 121(d) of CERCLA, as amended by SARA (EPA 1986c), 40 CFR 300 (EPA 1990a), and EPA's two-part guidance document entitled *CERCLA Compliance with Other Laws Manual* (EPA 1989a).

An ARAR may be either "applicable" or "relevant and appropriate." Applicable requirements are those substantive environmental protection standards, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements are those substantive environmental protection requirements promulgated under federal and state law that, while not legally applicable to the circumstances at the CERCLA site, address situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Administrative requirements such as obtaining permits and agency approvals, recordkeeping, and reporting are not ARARs, and therefore, do not need to be complied with during on-site remedial actions. The determination of whether a requirement is applicable versus relevant and appropriate involves consideration of a number of site-specific factors.

TBC criteria are federal or state advisories, guidance, or proposed rules that are not legally binding. TBC criteria do not have the status of a potential ARAR, but are useful in determining the necessary level of cleanup for protection of human health and the environment for situations in which ARARs are not available.

The ARAR concept does not apply to certain off-site response actions, such as off-site disposal. Off-site response actions must simply comply with all applicable laws (both substantive and administrative) and with EPA's policy for implementing off-site response actions (53 FR, 48128, November 29, 1988).

In accordance with the NCP, on-site management of investigation-derived waste (IDW) generated during investigation activities, which are considered removal actions under CERCLA, must comply with ARARs "to the extent practicable." EPA provides guidance on

IDW management in *Management of Investigation-Derived Wastes during Site Inspections* (EPA 1991b) and *Guide to Management of Investigation-Derived Waste* (EPA 1992a). The ARARs/TBC criteria identified in this subsection are consistent with the Louisiana Environmental Quality Act and with the requirements presented by LDEQ and submitted to EPA on June 24, 1994 (Knight 1994).

Identification of ARARs and TBC criteria is an iterative process conducted throughout the RRII/FS stage of CERCLA activities. Preliminary identification of ARARs/TBC criteria began during the creation of the WP, continued through the RRII, and remains ongoing in the assessment of the feasibility of remedial/removal action alternatives. ARARs and TBC criteria identified in this document will be subject to change until the Record of Decision (ROD) is signed.

ARARs and TBC criteria may be categorized as follows:

- Chemical-specific requirements that may define acceptable exposure levels and be used to establish preliminary remediation goals (PRGs);
- Location-specific requirements that may set restrictions on activities within specific locations, such as floodplains or federally designated wetlands; or
- Action-specific requirements that may set controls or restrictions for particular treatment and disposal activities associated with the management of hazardous wastes.

Chemical-specific ARARs and TBC criteria for soil, groundwater, surface water, sediments, air, produce, dust, tap water, and paint are discussed in the data tables presented in Section 4. No location-specific ARARs or TBC criteria were confirmed during the RRII phase. No federally designated wetlands are affected, there no known historical sites of significant value or importance, and there are no threatened or endangered species within the site boundaries (Knight 1994). Because potential action-specific ARARs and TBC criteria are based on the proposed remedial/removal action alternatives, they will be discussed in the FS Report.

2.1.2.1 Soil

No promulgated federal or State of Louisiana regulatory cleanup standards exist for soil; therefore, the following TBCs were identified from the following sources:

- EPA's *Revised Interim Soil Lead Guidance for* CERCLA Sites and RCRA *Corrective Action Facilities* (EPA 1994a). This guidance document recommends screening levels for lead in soil for residential land use as 400 ppm. Screening levels are not cleanup levels. Screening levels are defined as a level of contamination above which there might be enough concern to warrant site-specific study or risks. Contamination exceeding the screening level would not automatically require a removal or remedial action nor would they designate a site as "contaminated" (EPA 1994a).

- EPA Region 6, *Draft Risk-Based Concentrations Associated with 10^{-6} Cancer Risk and HI = 1 Table - Residential Land Use - Soil and Water*. This risk based concentration (RBC) guidance also provides potential TBCs for evaluating soil contamination at the ASL site (Khoury 1994). EPA Region 3 values are used for chemicals for which EPA Region 6 values have not been established (EPA 1994b).

2.1.2.2 Groundwater

Although groundwater beneath, and in the vicinity of, the site is not classified by the State of Louisiana as a drinking water source, CERCLA requires that the Safe Drinking Water Maximum Contaminant Levels (MCLs) for inorganics and organics (EPA 1993b, 1993c) generally be considered relevant and appropriate for groundwater remediation. EPA Region 6 identifies potential TBC criteria in *Draft Risk-Based Concentrations Associated with 10^{-6} Cancer Risk and HI = 1 Table - Residential Land Use - Soil and Water* (Khoury 1994), and these values are listed where MCLs are not available. EPA Region 3 values are used for chemicals for which Region 6 values have not been established (EPA 1994b).

2.1.2.3 Surface Water

Louisiana Water Quality Standards LAC 33:1113.C states that "numerical criteria identified in the Numeral Criteria Tables (LAC 33:IX.1113.C.6) apply to specified water bodies, and to their tributaries, distributaries, and interconnected streams and water bodies if they are not specifically named therein." Although the canals included in the ASL study

area are not listed in the regulations, their waters are ultimately pumped to the Inner Harbor Navigation Canal or the Mississippi River. Therefore, the *Louisiana Water Quality Standards* were initially identified as TBC criteria for the Inner Harbor Navigation Canal. These standards are based on the following uses: Class A - Primary Contact Recreation, Class B - Secondary Contact Recreation, and Class C - Propagation of Fish and Wildlife. According to LDEQ, "surface water... contained in canals [is] used for urban runoff and is not used for fishing or other recreational purposes" (Knight 1994). For this reason, the initial premise to utilize TBC values for the surface water evaluation is not applicable. As a result, no ARAR or TBC criteria will be applied to the evaluation of the contaminants in the canal systems.

2.1.2.4 Sediments

There are no promulgated federal or State of Louisiana regulatory cleanup standards for sediments. The LAC 33:1113.B.5 states that:

> ... no substances shall be present in the waters of the state or the sediments underlying said waters in quantities that alone or in combination will be toxic to human, plant, or animal life, or significantly increase health risks due to exposure of contaminated fish or other aquatic life.

However, the Numerical Criteria Tables (LAC 33:IX.1113. C.6) were established solely for surface water under those statutes and they cannot be considered as ARARs for sediments potentially impacted by the ASL site as described above (see Section 2.1.2.3). Therefore, the TBC criteria identified for sediments at the ASL site is the Ontario Ministry of Environment Sediment Quality Criteria (OME-SQC) *Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario* (Persaud 1993). These values/standards were developed to evaluate the impact of sediment contamination on aquatic life, but they have been established only for a limited number of contaminants.

2.1.2.5 Air

Louisiana Ambient Air Quality Standards for lead (LAC 33:III) and *Air Toxic Air Emission Control Rules* (LAC 33:5109.B) are identified as TBCs for the ASL site. These

standards are not ARARs because they are not currently enforced. Rather, they are potential ARARs because they are emission standards promulgated to attain ambient air quality standards that are enforceable (see *Compliance with the Clean Air Act and Associated Air Quality Requirements* [EPA 1992b]). No emission standards have been identified for the ASL site.

2.1.2.6 Other Media

The FDA has published guidelines for a limited number of metals and organic chemicals associated with the growing of food stuff (FDA 1992). The FDA has also published limited guidance for processed food in 40 CFR 1995.

The ARAR criteria for tap water includes the Safe Drinking Water Act (SDWA) primary MCLs, or action levels as listed in EPA's *Drinking Water Regulations and Health Advisories* (EPA 1993b, 1993c). The TBC criteria for tap water includes the SDWA secondary MCLs, also listed in EPA's *Drinking Water Regulations and Health Advisories* (EPA 1993b, 1993c).

TBC criteria for paint was obtained from the United States Department of Housing and Urban Development (HUD) guidance for lead-based paint (1990). TBC criteria for lead in outdoor soil was used as TBC criteria for indoor dust.

2.2 SITE SURVEY

A physical survey of the ASL site and adjacent areas was conducted to provide an accurate presentation of the ASL site boundary and current topography. A grid was proposed for the ASL site that extended approximately 1,600 feet along the east-west baseline (line N0) and 2,800 feet along the north-south baseline (line E0),with survey nodes established at 200-foot intervals (see Figure 2-1). From this grid, 104 nodes were designated specifically to support field surveys and sampling activities. Each sample location was established and surveyed on the ASL site as close to the originally proposed grid node as possible, but in some cases, the node was shifted to accommodate site obstructions. Sample points on the survey grid (e.g., surface soil collection locations, bore holes, monitoring wells, etc.) were surveyed in the horizontal plane. Monitoring wells were also surveyed in the vertical plane.

2.2.1 Grid and Sample Locations

Three permanent benchmarks were installed prior to commencement of the survey. Two regional reference stations were identified and Global Positioning System (GPS) readings were recorded at the reference stations and at the benchmark locations. Once benchmarks were established, the survey of grid and sample locations was performed using GPS. At locations where canopy cover or buildings precluded GPS use, total station and transit survey methods were employed. Sample locations that were less than 15 feet from a grid node were surveyed using a tape measure and a calibrated Brunton compass.

On-site benchmarks were corrected for vertical control through a comparison with established National Geodetic Survey (NGS) benchmarks. All horizontal sample positions were provided in the Louisiana South State Plane Coordinate System with the 1992 National Geodetic Survey, Louisiana High Accuracy Network Adjustments, and vertical measurements were based on the North American Vertical Datum of 1929.

2.2.2 Topographic Survey

A topographic survey of the ASL site was conducted from May 16 through May 25, 1994 through subcontracted services provided by C. Mistric Surveyors, Inc., of Baton Rouge, Louisiana. The work included both land and aerial topographic surveys. Generally, topography is most efficiently mapped using photogrammetric methods. However, the dense vegetation on the undeveloped portion of the ASL site made elevation estimates from the aerial photograph inaccurate and precluded the use of photogrammetric methods. Less dense vegetation and the presence of houses, roads, and other structures in the developed area made photogrammetry feasible and efficient on this portion of the former landfill. Therefore, a combination of both methods was used to prepare the site topographic map. Photo-identifiable structures, roads, and utilities in both the developed and undeveloped portions of the ASL site were located using aerial photographs. Topography in the developed portion was determined using photogrammetry and plotted at 1-foot contour intervals. Topography in the undeveloped area was determined using land survey techniques and plotted at 2-foot contour intervals. Surveyors provided ground control for the aerial photography.

The North American Datum (NAD) of 1927 (NAD27) was used for the physical survey data and then adjusted to NAD83 (Louisiana accepts only NAD27 for legal surveys). Coordinates for the topographic map were provided in the Louisiana South State Plane Coordinate System.

Additional items provided by the surveyors included the survey of 42 monitoring well locations, seven boring locations, and the location and installation of three permanent, on-site survey monuments. Elevations at the wells included the top of the outer casing, the top of the inner casing and the brass marker in the finished concrete well pad. The end point locations of the frequency-domain electromagnetic (EM) lines were also surveyed. The surveyors obtained underground utility drawings, digitized the utility locations, and included them on the site topographic map. The final topographic map is available as a copy drawing and in a digital format. The topographic map meets or exceeds the National Map Accuracy Standards. The topographic map is presented as Plate 1.

2.3 GEOPHYSICAL INVESTIGATION

Surface geophysical surveys were performed at the site from April 4 through April 11, 1994. The original objectives of the surface geophysical investigations were to assist in: identifying the former landfill boundaries; determining the vertical extent of landfill material; identifying the presence of buried debris; and determining lithologic features in the subsurface geology that could constitute preferential fl· · paths for potential contaminant migration. Figure 2-1 identifies the test survey area, grid nodes, profile lines, and detailed survey areas associated with the geophysical survey.

According to the WP, at a minimum, magnetometer (MAG) and frequency-domain EM terrain conductivity surveys would be performed. Other potentially useful geophysical techniques were evaluated for use by the field team. The WP/FSP designed the following instruments for possible use during the geophysical investigation:

- Geometrics G-856 proton precession magnetometer;
- Geonics EM-31 frequency-domain electromagnetic terrain conductivity instrument;

- Geonics EM34-3 frequency-domain electromagnetic terrain conductivity instrument;
- Time-domain TDM47;
- Ground-penetrating radar (GPR); and
- A Geonics EM39 borehole induction logger.

2.3.1 Test Survey

Initially, the geophysical investigation team performed a site reconnaissance to assess the applicability of various surface geophysical methods. Results of the reconnaissance indicated that the effectiveness of any of the instruments would be limited by the thick vegetation and rough terrain in the undeveloped portion of the ASL site and by the cultural interference in the developed portion.

A test grid was set up on the Mugrauer Playground to identify the signature of instrument response (see Figure 2-1). The origin of the test grid (test grid coordinate 0,0) was located 21 feet east and 75 feet north of the northwest corner of the command post fence. The test grid was 300 feet (east-west) by 125 feet (north-south) and had a station and line spacing of 25 feet. MAG and EM31 readings were collected at each grid station, and EM34-3 (10-meter coil spacing) readings were collected at 50-foot station and line spacings on the western half of the test grid. The data were downloaded and plotted in the field. The results provided a general range of magnetic and electromagnetic readings for the former landfill (see Appendix F). Based on these results and other site considerations (e.g., reinforcing steel in pavement), TDM47, EM39, and the GPR instruments were determined inappropriate for use at the site.

The undeveloped portion was surveyed using the MAG and EM31 by collecting data from node intervals as specified in the WP/FSP. The developed portion was surveyed using the MAG, EM31, and EM34-3 by running profile lines along sections of the streets to determine whether the northern most and eastern most former landfill boundaries visible in the 1952 aerial photograph represent the farthest extent of former landfill boundary (see Figure 2-1).

2.3.2 Magnetometer Survey Theory and Procedures

The MAG surveys were performed using an EG&G Geometrics Model G-856 proton precession magnetometer to record the earth's total magnetic field in gammas, the magnetic unit of measure. Variations in magnetic field readings may result from the natural distribution of iron minerals in soil and rock or the presence of ferrous metals on the surface or in the subsurface. The intensity of the earth's magnetic field fluctuates daily as a result of sunspots and ionospheric conditions, and these daily fluctuations are known as diurnal drift. The drift must be recorded at a base station and plotted throughout the day to calculate correction factors for the survey data. Magnetic readings were recorded periodically at the ASL base station, which was determined to be free from cultural interferences, to evaluate the extent of drift. The base station used for the MAG survey was the southeast corner of the survey test grid (test grid coordinate 300,0) on Mugrauer Playground (see Figure 2-1). Because the MAG surveys were not performed continuously throughout each day, base station readings were recorded immediately before and after each survey, and at approximately 30-minute intervals during each survey.

When determining the presence of a buried object, the signal response of the MAG is influenced by several factors:

- The ferrous mass of the buried target: The response of the magnetometer is directly proportional to the amount of ferrous material present.
- The depth of the target: The response of the magnetometer decreases by a factor of eight whenever the distance between the target and the magnetometer is doubled.
- The permanent and induced magnetism of the target: The effect of permanent magnetism is much greater than the induced magnetism from the earth's field. It can greatly increase or reduce the resulting anomaly (Benson *et al.* 1982).
- The shape and orientation of the target: The shape and orientation of the buried target has a direct effect on the profile of the magnetic anomaly, and the interpretation of the anomaly's shape determines the shape and orientation of the source or target (Telford *et al.* 1976).

- The amount of deterioration of the target: Target mass is lost by deterioration mass resulting in a decreased instrument response (Benson *et al.* 1982).

A direct relationship appears to exist between the distance between signal peaks (h) and the target depth (z), where z is defined as the top of the source as measured from the magnetic surface or instrument height (Benson *et al. 1982*). This relationship can be written in an empirical equation z = Kh, where K varies from 0.5 to 0.7. However, the application of this formula may not be appropriate for all sites because of various interferences.

All magnetic data associated with the ASL site were recorded electronically in the field, stored by the instrument, and downloaded using appropriate software. Corrections were made for diurnal drift prior to processing.

2.3.3 Electromagnetic Theory and Survey Procedures

The EM survey on the undeveloped portion of the former landfill was performed using the Geonics, Ltd. EM31, and both the EM31 and EM34-3 were used on the developed portion. The EM31 and EM34-3 record bulk terrain conductivity in millimhos per meter (mmhos/m), the conductivity unit of measure. Terrain conductivity is influenced naturally by: soil and rock type, thickness, and porosity; soil moisture; specific conductance of groundwater; and the presence of artificial features on the surface or in the subsurface (e.g., fences, pipelines, drums, and tanks). Unlike the MAG, which measures the earth's total magnetic field and is sensitive only to the presence of ferrous metals, EM instruments create or induce a primary magnetic field with a transmitter coil. The transmitter coil creates a secondary magnetic field in subsurface materials, including contaminants, that is detected with the primary field by a receiver coil. The ratio of the secondary magnetic field to the primary magnetic field is linearly proportional to the terrain conductivity.

The depth of penetration of the instrument signal is a function of the orientation of the transmitter and receiver coils and the distance between the coils (intercoil spacing). The orientation of the coils determines the position of the dipole of the magnetic field. The dipole runs through the center of the coils; therefore, by rotating the coils, the dipole is changed from vertical to horizontal (or vice versa). The effective depth of penetration in the vertical

dipole mode is calculated by multiplying the intercoil spacing by 1.5, and the effective depth of penetration in the horizontal dipole mode is determined by multiplying the intercoil spacing by 0.75. However, the maximum contribution to the secondary magnetic field is at a depth of 0.4 times the intercoil spacing in the vertical dipole mode and near-surface in the horizontal dipole mode (McNeill 1980). Actual penetration depths are affected by electrical properties of the subsurface materials. Both the EM31 and EM34-3 operate under the same principles, but the capabilities of each instrument vary slightly.

2.3.3.1 EM31 Survey Procedures

The EM31 has a fixed intercoil spacing of 3.7 meters (12.1 feet), yielding an effective depth of penetration of approximately 5.6 meters (18.4 feet) in the vertical dipole mode and approximately 2.8 meters (9.2 feet) in the horizontal dipole mode. Vertical dipole readings are recorded with the instrument in the normal operating position, and horizontal dipole readings are recorded by rotating the instrument on its side. Two sets of readings can be recorded in each dipole mode at each survey station: one with the instrument oriented north-south (orientation 1); and the other with the instrument oriented east-west (orientation 2). The purpose of laterally rotating the instrument 90 degrees is to determine whether the subsurface material beneath the survey station is homogeneous. If no significant meter fluctuations are detected during the rotation, then the subsurface is homogeneous. If fluctuations are detected, then the change is caused by a buried object. The fluctuations are caused by the orientation of that object with respect to the plane between the instrument coils. Therefore, up to four readings can be collected at each station: vertical dipole/north-south (V1), vertical dipole/east-west (V2), horizontal dipole/north-south (H1), and horizontal dipole/east-west (H2). Because of significant interference in the vertical dipole mode by the steel-reinforced, concrete-paved streets, only horizontal dipole (H1 or H2) readings taken along profile lines in the streets were recorded in field logbook (see Section 2.3.4).

2.3.3.2 EM34-3 Survey Procedures

The EM34-3 has a variable intercoil spacing of 10, 20, and 40 meters (33, 66, and 131 feet), yielding an effective depth of penetration of approximately 15 to 60 meters (49 to

197 feet) in the vertical dipole mode and approximately 7.5 to 30 meters (25 to 98 feet) in the horizontal dipole mode. Because the depth of waste at the ASL site is generally less than 40 feet BGS, only the 10-meter spacing interval was utilized during the geophysical investigation. As with the EM31, strong interference from the steel-reinforced concrete-paved streets was experienced with the EM34-3 in the vertical dipole mode; therefore, only horizontal dipole (H1 or H2) readings were recorded along profile lines in the streets (see Section 2.3.4). Readings from the EM34-3 were recorded manually in the field logbook.

2.3.4 Geophysical Survey Locations

MAG and EM surveys were conducted on both the undeveloped and developed portions of the former landfill. Locations for grid node survey points, detailed survey areas, and street profiles are presented in Figure 2-1. Detailed assumptions of the geophysical activities are presented in Appendix F.

2.3.4.1 Undeveloped Portion of the Former Landfill

Only the MAG and EM31 were used on the undeveloped portion of the ASL site because of limitations caused by thick vegetation and rough terrain. Data were initially collected at the 49 accessible survey nodes where there were no major surficial cultural interferences (see Figure 2-1). In addition to these readings, continuous visual observations of EM31 readings were performed while traversing between grid nodes, and two anomalous areas were identified. One anomaly was identified between grid nodes GL021 and GL022 and another was identified between grid noes GL004 and GL010. To define the geometry of these anomalies, another survey was performed in the area of each anomaly identified as the SW Detail Grid and S Detail Grid (see Figure 2-1). The survey density was increased to a 25-foot span in the anomalous areas and both MAG and EM31 measurements were taken at each grid node. The data from the grid nodes were then processed and evaluated.

2.3.4.2 Developed Portion of the Former Landfill

To determine whether the landfill boundary visible in the 1952 aerial photograph (see Appendix A) represented the northernmost and easternmost extent of waste material, the

developed portion of the former landfill was initially surveyed using the MAG and EM31 along profile lines using 25-foot station spacings on site and on nearby streets. While performing the first profile line along Industry Street (baseline N0; see Figure 2-1), a major shift in the baseline response of the instruments was noted as the instruments passed from asphalt to concrete pavement. The steel-reinforced concrete created too much interference for the EM31 signal in the vertical dipole mode to penetrate the concrete, but the interference was less when used in the horizontal dipole mode. Based on these initial readings, the profiles were continued using the MAG and the EM31 in the horizontal dipole mode.

The data was processed following the completion of the initial MAG and EM31 surveys performed along the streets that were roughly parallel to and crossed over the former 1952 landfill boundary (eastern edge). Based on these results, an EM34-3 survey was performed along each profile line (same lines as the EM31 and MAG survey) with readings collected at 50-foot station spacings. As with the MAG and EM31 surveys described above, only horizontal dipole readings were collected during the EM34-3 survey because significant interference was experienced in the vertical dipole mode from the steel-reinforced concrete-paved streets. Data were processed and evaluated upon completion of the EM34-3 survey.

To increase resolution along the profile lines, another survey was performed near each identified anomaly and the station spacings were reduced by 50% (i.e., 12.5-foot spacings for the EM31 and 25-foot spacings for the EM34-3). To evaluate the area in proximity to monitoring wells MW010 and MW011 for potential obstructions, a detailed survey using reduced grid spacings of 25 feet was completed in the area designated as the Feliciana Street Grid (see Figure 2.1). All three instruments (MAG, EM31, and EM34-3) were used to evaluate this area.

2.4 SOIL SAMPLING

Soil sampling is presented in two general categories, surface soil and subsurface soil. Activities conducted within each general category are described separately for the various geographical areas of the RRII study area (e.g., 104-node grid, residences, Moton School, Press Park Community Center, open land areas, etc.).

Surface sampling was performed to:

- Identify the nature, magnitude, and distribution of contaminants across the site;
- Determine whether concentrations of on-site contaminants exceed those detected in off-site areas;
- Provide data to support evaluation of early or long-term removal/remedial actions.
- Provide a statistically representative sample population to support the baseline HHRA;
- Provide data to evaluate potential risk to residents from lead;
- Provide data for use in the ERA; and
- Provide adequate data to support a ROD.

Subsurface soil sampling was performed to:

- Characterize the depth and distribution of on-site wastes;
- Characterize the subsurface geology;
- Determine the physical, chemical, and engineering characteristics of subsurface geology;
- Provide data to evaluate potential human health risks; and
- Provide adequate data to support a ROD.

2.4.1 Surface Soil Investigation

Section 2.4.1 summarizes the investigative procedures used to collect surface soil samples during the RRII field work. Surface soil samples were collected from the following areas: the 104-node grid, study group and background residences, Moton School, Press Park Community Center, open land background areas, and adjacent off-site areas.

Surface soil samples were collected from three depth intervals across the site: 0- to 3-inches, 0- to 12-inches (garden samples) and 0- to 24-inches. Surface soil samples were

collected as grab samples from the 0- to 3-inch depth interval on the 104-node grid, at Moton School, at Press Park Community Center, study group and background residences, on open land background areas, and on adjacent off-site areas. Surface soil samples were collected as grab samples from the 0- to 24-inch depth interval at 18 selected grid nodes on the undeveloped portion of the ASL site and from the six adjacent off-site sample locations. Surface soil samples collected from the 0- to 3-inch depth interval represent the location of the greatest dermal and ingestion exposure potential. Surface soil samples collected from the 0- to 24-inch depth interval represent the depth inhabited by small burrowing mammals and plant species, and sample results have been used in the ERA.

2.4.1.1 Grid Surface Soil Samples

As described in Section 2.2, a 104-node grid was established for the physical site survey using 200-foot spacing as specified in the WP/FSP (see Figure 2-2). To better facilitate sample management and tracking, grid node samples were assigned numbers that included the five-digit grid node identifier. Of the 104 sample points, 52 were located on the undeveloped portion of the former landfill, and 52 were located on the developed portion (see Figure 2-2).

Most samples were located at the grid nodes, but some sample locations were adjusted in response to field conditions. Four sample locations were numbered out of sequence due to some of these changes (GL040, GL089, GL090, and GL104). Sample location GL040 (node position E2N3) was shifted to the position of node W6N4 due to the presence of Moton School at E2N3. Sample locations GL089 and GL090 fell within the boundary of the electrical substation located west of Almonaster Avenue near Higgins Boulevard. Since access was denied by the operator, those sample locations were relocated to node positions S2W3 and S2W2. A final sample location, GL104, was placed at node position N1W1, although no point was specified for that location in the WP/FSP. Sample locations GL035 and GL043 were located on the undeveloped portion of the former landfill even though they are situated east of the fence that was constructed to separate the developed and undeveloped areas of the former landfill.

A grab surface soil sample was collected from the 0- to 3-inch depth interval at each node (see Tables G-1 and G-2). Grid surface soil samples were collected using dedicated, stainless-steel spoons. Any vegetation covering the sample location was removed to provide access to the soil. Sample aliquots for volatile organic compound (VOC) analyses were collected prior to homogenization and placed in EPA-approved, prelabeled sample containers for shipment to the assigned laboratories. An approximately 8-inch by 8-inch by 3-inch deep volume of soil was mixed in place using the spoons. Aliquots of this soil were placed in containers for additional analysis.

Aliquots from surface soil samples collected from each sample point were analyzed at an on-site mobile laboratory using a Spectrace 9000 XRF instrument to evaluate the presence of the following metals: arsenic, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, rubidium, selenium, strontium, zinc, and zirconium. Soil samples from the five grid points exhibiting the highest XRF field screening results for lead were submitted for laboratory analysis of RCRA characteristic parameters (i.e., TCLP, ignitability, corrosivity, and reactivity; see Figure 2.2).

All 104 grid surface soil samples were submitted to the EPA-designated CLP laboratories and analyzed for TCL constituents (volatile organics, base/neutral and acid-extractable organic compounds [BNAs], pesticides/PCBs) and TAL constituents (23 metals and cyanide). Samples collected from 24 randomly selected grid points on the undeveloped portion of the former landfill were also analyzed for dioxin (see Figure 2-2).

Soil samples analyzed for TAL and TCL constituents and dioxin were shipped to assigned CLP laboratories. Samples for RCRA characteristic toxicity analysis using TCLP were shipped to the EPA Region 6 Environmental Services Division (ESD) laboratory in Houston, Texas. Samples analyzed for the remaining RCRA characteristic parameters were shipped to the assigned CLP laboratory. Due to the delay in assigning a CLP laboratory for dioxin analysis, sample analytical holding times could have been exceeded for samples previously collected; therefore, to ensure that Data Quality Objectives (DQOs) would be achieved and to avoid potential remobilization costs for sampling teams, the dioxin samples were collected again and submitted for analysis. The second set of dioxin samples was collected from the original sample locations and shipped to the designated CLP laboratory.

Eighteen surface soil samples that were collected from the 0- to 24-inch depth interval were collocated with the samples collected from the 0- to 3-inch depth interval on the undeveloped portion of the ASL site. Samples were collected from grid sample points along the east-west trending grid line identified as S1 and the north-south trending grid line identified as W4 (see Figure 2-2). Each soil sample obtained from the 0- to 24-inch depth interval was collected using a decontaminated, stainless-steel bucket auger and bowl, and a dedicated, stainless-steel spoon. Immediately, and prior to mixing, sample aliquots for VOC analyses were collected from the bottom of the bucket auger at a depth of approximately 1 foot. The remaining soil from the entire depth interval was placed in a bowl, mixed, and placed into EPA-approved, prelabeled sample containers.

Samples collected from the 0- to 24-inch depth interval were shipped to assigned CLP laboratories and analyzed for TCL and TAL constituents, dioxin, and physicochemical parameters. The physicochemical parameters included: grain size, cation-exchange capacity, alkalinity, pH, percent moisture, total organic carbon (TOC), fluoride, sulfate, nitrate, and phosphate. The redox potential of the soil collected from the 0- to 24-inch depth interval was measured in the field using a portable Eh meter with a probe specifically designed to measure redox potential. Due to the delay in assigning a CLP laboratory for dioxin analysis, sample analytical holding times could have been exceeded for samples previously collected; therefore, to ensure that DQOs would be achieved and to avoid potential remobilization costs for sampling teams, the dioxin samples were collected again and submitted for analysis. The dioxin samples were collected from an area adjacent to the previous 0- to 24-inch sample locations and shipped to the designated CLP laboratory.

2.4.1.2 Residential Surface Soil Samples

Residential surface soil samples were collected from April 8 through May 1994. At a minimum, composite surface soil samples were obtained from back yards, front yards, and drip lines at the 33 study group residences and the five background residences (see Figures 2-3 and 2-4, and Tables G-3 and G-7). In addition, surface soil samples were also collected from identifiable play areas (areas void of vegetation), gardens (flower or vegetable), or other cleared areas, when present. Of the 33 study group residences, three had play areas and 11

had garden areas that were identified and sampled. Only one play area (RES-35) was identified and sampled at the five background residences, and no gardens were observed.

The following procedures were used to collect residential surface soil samples:

- All surface soil samples (except garden samples) were composited by collecting individual aliquots from five different locations from the 0- to 3-inch depth interval (e.g., front yard sample was a composite of five aliquots from five different locations in the front yard);

- Drip line surface soil samples were collected from at least one side of each residence at evenly spaced intervals located approximately 1 foot from the foundation, with one aliquot collected at the rain gutter downspout. The aliquots were collected at the 0- to 3-inch depth interval and combined;

- At apartments, soil samples were collected from common areas located close to the apartment complex;

- For garden surface soil samples, information from residents regarding the addition of fill to the garden area was recorded. A grab sample was collected from the 0- to 12-inch depth interval to provide a representative soil depth for plant uptake;

- All samples were homogenized in decontaminated, stainless-steel bowls prior to transfer to EPA-approved, prelabeled sample containers; and

- After each sample was collected, aliquot locations were photographed and documented by measuring the distance to two landmarks (e.g., corner of a building).

Each sample was submitted for analysis of TAL constituents. In addition, a second sample bottle of collocated soil was submitted to the designated CLP laboratory where it would be sieved. Soil passing through a 250-micron screen was analyzed for lead. The 250-micron soil fraction is the fraction of soil which would stick to a child's hand and potentially be ingested. This lead data was collected for incorporation into the HHRA.

An exception was made to the residential surface soil sampling procedure for RES-30. Since the resident indicated that 1 to 2 feet of fill material had recently been added to his front yard, the surface soil sample from that area was collected at a depth of 1.5 feet instead

of at the 0- to 3-inch depth interval. This sample interval was included with the surface soil results since it was probably more reflective of the overall surface soil exposure to those particular residents (over time) than the recently added fill.

Study Group Residences

To determine potential risks to site residents, 33 on-site residences were selected for extensive sampling as described in the WP/FSP. Based on preliminary evaluation of previous data, 27 residences were randomly selected to provide a statistically valid group to represent all of the homes and apartments located on the ASL site. Lead concentrations exceeding 500 mg/kg had been found in surface soils at six residences on the ASL site during the 1993 ESI investigation, and these residences were also included in the residential study group. Data associated with these residences would assist the EPA Removal Program in evaluating the site for removal potential. Study group residences were divided into three categories: single-level, ranch-style homes (13); townhouses with living rooms and kitchens on the ground floor, and bedrooms on the second floor (15); and apartments located in Gordon Plaza (three), and Press Court (two). The apartments in Gordon Plaza were located on the first or second floor, and the apartments in Press Court (part of the HANO housing development) were located on the second floor. Study group residences are presented in Figure 2-3 and were designated as RES-1 through RES-34, with the exception of RES-26 which was a background residence.

Background Residences

As outlined in the WP/FSP, five residences were selected outside of the ASL site to provide background data for comparison. Locations of the background residences are presented in Figure 2-4 (RES-26, and RES-35 through RES-38). Background residences were single-family, ranch-style homes that were older than the study group residences and used natural gas. At the time of the survey, residents were asked the age of the home. Although only approximate dates of construction were known, they are believed to have been constructed from the early 1950s to late 1960s. Based on the age of the background residences, the presence of lead plumbing and lead-based paint was possible.

2.4.1.3 Moton School Surface Soil Samples

Fourteen surface soil samples were originally proposed to be collected from the 0- to 3-inch depth interval at Moton School. Because a playground was identified at the Press Park Community Center at the intersection of Press and Benefit streets, five of the 14 soil sample locations proposed for the school were collected from the playground at Press Park Community Center (see Figure 2-3 and Tables G-4). Nine surface soil samples were collected at Moton School from an area in which children played during recess or lunchtime (MS003 through MS011). Areas selected for sampling were located close to playground facilities, benches, and doorways leading to the school.

Surface soil samples were collected using dedicated, stainless-steel spoons. Soil was mixed in place as previously described, then placed into EPA-approved, prelabeled sample containers. Surface soil samples collected from Moton School were shipped to assigned CLP laboratories for TAL constituents and dioxin analyses. An additional container of soil was provided to the assigned CLP laboratory where it was sieved. Soil passing through a 250-micron screen was analyzed for lead. Due to the delay in assigning a CLP laboratory for dioxin analysis, sample analytical holding times could have been exceeded for samples previously collected; therefore, to ensure that DQOs would be achieved and to avoid potential remobilization costs for sampling teams, the dioxin samples were collected again from the same locations and submitted for analysis.

2.4.1.4 Press Park Community Center Surface Soil Samples

As mentioned in Section 2.4.1.3, five surface soil samples were collected from the 0- to 3-inch depth interval at the playground at the Press Park Community Center (see Figure 2-3 and Table G-5).. A community center employee was asked to identify the areas on the property where children most frequently play, and soil samples were collected from those locations (PP013 to PP017).

Surface soil samples were collected using dedicated, stainless-steel spoons. Soil was mixed in place as previously described and transferred into EPA-approved, prelabeled sample containers. Surface soil samples collected from the community center were shipped to assigned CLP laboratories for TAL constituents and dioxin analyses. An additional container

of soil was provided to the assigned CLP laboratory where it was sieved, and soil passing through a 250-micron screen was analyzed for lead. Due to the delay in assigning a CLP laboratory for dioxin analysis, sample analytical holding times could have been exceeded for samples previously collected; therefore, to ensure that DQOs would be achieved and to avoid potential remobilization costs for sampling teams, the dioxin samples were collected again from the same locations and submitted for analysis.

2.4.1.5 Open Land Background Surface Soil Samples

To provide background data for the undeveloped portion of the former landfill, surface soil samples were collected from the 0- to 3-inch depth interval at ten off-site open land locations. Because of the extensive urban development surrounding the site, ten appropriate undeveloped background areas were not available; therefore, open land background samples (OF001 to OF010) were collected from open land areas on eight OPSB properties, property owned by the New Orleans Port Authority, and property owned by the New Orleans Sewer and Water Board. Figure 2-4 presents open land background surface soil sampling locations relative to the ASL site (see Table G-6).

Grab surface soil samples were collected from the background open land locations using dedicated, stainless-steel spoons. Any vegetation covering the sample location was removed to gain access to the soil. Sample aliquots for VOC analysis were collected prior to homogenization and placed in EPA-approved, prelabeled sample containers in preparation for shipment to assigned CLP laboratories. An approximately 8-inch by 8-inch by 3-inch deep volume of soil was mixed in place using the spoons described above. Aliquots of this soil were placed in containers as previously noted for additional analysis.

Surface soil samples collected from background open land locations were shipped to assigned CLP laboratories for TAL and TCL constituents and dioxin analyses. An additional container of soil was provided to an assigned CLP laboratory where it would be sieved. Soil passing through a 250-micron screen was analyzed for lead.

2.4.1.6 Adjacent Off-Site Area Surface Soil Samples

Six adjacent off-site surface soil samples were collected at the request of EPA to assist in the evaluation of potential contaminant migration through surface soils. Samples were collected from locations GL201 through GL206 at the 0- to 3-inch and 0- to 24-inch depth intervals from areas near the landfill boundary borings located at the northern and eastern site boundaries (see Figure 2-2 and Table G-7).

Grab surface soil samples were collected from a single point at the 0- to 3-inch depth interval using dedicated, stainless-steel spoons. Any vegetation covering the sample location was removed to gain access to the soil. Sample aliquots for VOC analyses were collected before homogenization and placed in EPA-approved, prelabeled sample containers in preparation for shipment to assigned laboratories. An approximately 8-inch by 8-inch by 3-inch deep volume of soil was mixed in place using spoons described above. Aliquots of this soil were placed in containers as previously noted, and shipped to the assigned CLP laboratories for analysis of TAL and TCL constituents and dioxin.

Grab surface soil samples were collected from the 0- to 24-inch depth interval in close proximity to the 0- to 3-inch surface soil sample locations. The samples were shipped to assigned CLP laboratories for analysis of TAL and TCL constituents, dioxin, and physicochemical parameters. The physicochemical parameters included: grain size, cation-exchange capacity, alkalinity, pH, percent moisture, TOC, fluoride, sulfate, nitrate, and phosphate.

Each 0- to 24-inch soil sample was collected using a decontaminated, stainless-steel bucket auger and bowl, and a dedicated, stainless-steel spoon. Sample aliquots for VOC analyses were immediately collected from the bottom of the bucket auger at a depth of approximately 1 foot. For the remaining analyses, soil from the entire depth interval was mixed in a bowl and placed into EPA-approved, prelabeled sample containers.

2.4.2 Subsurface Soil

Subsurface soil samples were collected to obtain data to support the goals presented in Section 2.4. Selected soil borings were screened for volatile organics using a Foxboro Organic Vapor Analyzer (OVA) Model 108, and/or for metals using a Spectrace 9000 XRF instrument.

2.4.2.1 Residential Subsurface Soil Borings

Residential subsurface soil sampling was conducted from April 8 through April 28, 1994. A Bobcat™ self-propelled drill rig was used to drill boreholes. Locations of sample points in the residential front yards were reviewed by all utility companies to ensure that underground utilities were avoided. Two samples were collected from each borehole.

The procedures for drilling and sample collection were modified from the procedure presented in the WP/FSP because the stiff nature of the soil rendered hand augering impractical. Modifications to the original procedure are described as follows:

- Subsurface soil samples, originally proposed to be collected from the 3- to 24-inch and 2- to 5-foot depth intervals were modified so that samples were collected from the 1.5 - to 2.5-foot and the 4.5- to 5.5-foot depth intervals.

- A decontaminated auger was used with the Bobcat™ to first drill to 1.5 feet BGS, at which point the auger was withdrawn.

- A decontaminated, stainless-steel bucket auger was inserted into the borehole for sample collection, and the first bucket of soil was used to fill sample containers for VOC analysis.

- The bucket auger was then used to collect a soil sample from the 1.5- to 2.5-foot depth interval. The soil was mixed in a decontaminated, stainless-steel bowl. Samples were placed into EPA-approved, prelabeled sample containers and sealed.

- The Bobcat™ auger was reinserted and drilling continued to 4.5 feet BGS.

- A second decontaminated, stainless-steel bucket auger was inserted into the borehole for sample collection and the first bucket of soil was used to fill the sample container for VOC analysis.

- A soil sample was collected from the 4.5- to 5.5-foot depth interval using the hand auger. The soil was mixed in a decontaminated, stainless-steel bowl, and sample containers were filled and sealed.

- Sample locations were recorded by measuring the distance from each sample point in relation to two landmarks and photographed.
- Samples were submitted to assigned CLP laboratories for analysis of TAL and TCL constituents and dioxin.

Study Group Residences

As part of the residential sampling effort, one soil boring was drilled to a maximum depth of 5.5 feet in the front yard of the 31 study group residences, and to a depth of approximately 3 feet at two study group residences due to refusal. Sample locations were designated as SG001 through SG034, with the exception of SG-026 which was located at a background residence (see Figure 2-5 and Table G-12).

Background Residences

Two subsurface soil borings were completed at each of the five background residences. As described in the WP/FSP, one boring at each residence was proposed for the front yard and one was proposed for the backyard. However, in some cases, both borings had to be completed in the front yard, back yard, or elsewhere on the property due to access restrictions. The locations of the background residences are shown on Figure 2-4, and subsurface boring locations are described in Table G-15. At each subsurface boring location, two samples were collected. In almost all cases, the samples were collected from the 1.5- to 2.5-foot and 4.5- to 5.5-foot depth intervals. All samples were analyzed for TAL and TCL constituents and dioxin.

2.4.2.2 Moton School Subsurface Soil Borings

One soil boring was drilled to a depth of 5.5 feet on the north, south, east, and west sides of Moton School (see boring locations MS013 through MS016 on Figure 2-5). Subsurface soil samples were collected at depths of 1.5 to 2.5 feet and 4.5 to 5.5 feet at each location (see Table G-13). The 5.5-foot borings were drilled and sampled using the Bobcat™ and the same procedures described in Section 2.4.2.1.

2.4.2.3 Open Land Background Subsurface Soil Borings

Ten open land background borings were drilled at the open land properties described in Section 2.4.1.5 (see sample locations OF001 through OF010 on Figure 2-4 and Table G-14). Sampling procedures varied slightly from those described in Section 2.4.2.1. Only one soil boring was drilled to a depth of 5.5 feet in an unobstructed area of each selected property. Subsurface soil samples were collected at approximately 2.5- to 5.5-foot and 4.5- to 5.5-foot depth intervals at each location.

2.4.2.4 Almonaster/Higgins Subsurface Soil Borings

Three off-site subsurface soil borings were drilled to depths of 10 to 14 feet in a suspected ash disposal area that was identified in the 1967 aerial photograph (see Appendix A). Borings BL001, BL002, and BL003 were located northeast of the intersection of Almonaster Avenue and Higgins Boulevard (see Figure 2.5 and Table G-17).

The borings were advanced to the depth of the undisturbed clay layer. Two split-spoon samples were collected as the boring was advanced and each sample interval was visually logged and screened using an OVA. Sample aliquots were submitted to the on-site mobile laboratory for XRF field screening for metal parameters. Based on field observations, one sample from each boring was submitted to the designated CLP laboratory for analysis of TAL and TCL constituents and dioxin.

2.4.2.5 Former Landfill Boundary Subsurface Soil Borings

Subsurface soil boring locations were identified at the boundary of the former landfill based on an evaluation of historical aerial photographs (see Appendix A) and geophysical survey results (see Appendix F). Borings were drilled and sampled to determine the aerial extent of the landfill waste (see boring sets BL008 through BL014 on Figure 2-5). Up to three borings were drilled at each location. Based on the visual presence/absence of landfill material from the first boring, another boring would be placed 50 feet farther away from the expected boundary to continue searching for the absence of fill material. If no fill material was found in the initial or second boring, an additional boring would be advanced 25 feet toward the former landfill to better define the boundary.

The borings were advanced with either a 3.5- or 4.25-inch inside diameter (ID), hollow-stem auger and were sampled continuously using 2-foot, split-spoon samplers. The contents of the split spoons were visually logged and screened using an OVA. Neither chemical nor geotechnical samples were collected from the boundary borings. The extent of landfill material was based only on visual inspection of the cores.

Access problems prevented borings from being placed at the proposed locations on the eastern side of the site, but adequate alternate locations were obtained nearby to determine the former landfill boundary. All former landfill boundary boring locations were marked to allow field personnel to determine the appropriate locations for proposed monitoring well clusters (see Section 2.4.2.7).

2.4.2.6 Former Landfill Interior Subsurface Soil Borings

Four soil borings were advanced within the undeveloped portion of the ASL site to characterize the waste layer (see boring locations BL004 through BL007 on Figure 2-5, and Table G-11). A single modification was made to the WP/FSP in response to site conditions: borings were terminated below the fill instead of at the top of the silty clay layer. These borings were continuously sampled, visually logged, and screened using an OVA. The sampling devices used were dependent on the subsurface conditions. Initially, a 5-foot split barrel was used to collect subsurface soil samples; however, the split barrel had a very poor recovery rate because of interferences caused by wood and debris. The split-spoon sampling apparatus was subject to similar problems. Shelby tubes of various lengths were used to collect most samples and recovery was markedly improved compared to the other sampling devices.

Eight subsurface soil samples were collected for analysis from borings at depth intervals above and below the water table. In all cases, the more shallow sample contained landfill material. Sample depths were determined according to visual logging, XRF field screening at 5-foot intervals, and OVA readings. The selected samples were submitted to the designated CLP laboratory for analysis of TAL and TCL constituents and dioxin. Samples of landfill waste were collected from BL006 and BL007 and submitted for analysis of various engineering parameters, including: grain size, Atterberg limits, percent moisture, dry density,

compressibility, cohesion, void space, British thermal unit (BTU) content, percent ash, percent chlorine, percent sulfur, and TOC. Borings were advanced to a point below the waste and abandoned by backfilling with a 5% bentonite-Portland cement grout.

2.4.2.7 Former Landfill Boundary Monitoring Well Cluster Soil Samples

Thirteen two-well clusters were installed near the boundary of the ASL site (see MW001 through MW026 on Figure 2-6 and Table G-9). The location of some of the well clusters on the northern and eastern perimeter were based on boundary boring data (see Section 2.4.2.5). One deep boring was advanced in each cluster to a depth of 63 to 82 feet BGS to characterize former landfill soils and subsurface lithology. At each location, the deep well was installed in the deep boring and is identified as the even-numbered monitoring well of each cluster. Seven of these 13 well clusters (MW001 through MW014) were installed near the seven former landfill boundary borings (see Figure 2-6). The remaining well clusters were distributed across the southern and western ASL site boundaries.

All deep borings were continuously sampled using shelby tubes, 2-foot split spoons, or 5-foot continuous samplers, and all samples were screened using an OVA. A sample from each deep boring was submitted to a designated CLP laboratory for TAL constituent analyses. It was decided that TAL analysis would be adequate to identify potential levels of contamination associated with the ash deposits since metals would be transported preferentially over BNAs associated with incinerator ash. A sample was collected for grain-size analysis from the screened interval of all wells. XRF field screening was performed on samples collected at 5-foot intervals to identify potential metal contamination. Samples of landfill waste, peat, and silty clay were collected from four of the deep borings (MW004, MW010, MW018, and MW024) and analyzed for engineering parameters and tri-axial permeability.

2.4.2.8 Former Landfill Interior Monitoring Well (Single) Soil Samples

Three two-well monitoring well clusters were specified in the WP/FSP for the interior of the former landfill at locations suspected to be former lagoons. These wells were proposed to monitor the water table and the top of the silty clay layer. Based on field conditions at the specified locations, this plan was modified so that one well was installed at each location.

The change was implemented in response to the thickness of landfill material above the silty clay. (No apparent advantage was offered by placing two well screens in close proximity to each other.)

Well borings MW036, MW038, and MW040, were advanced to a depth of 15 feet (see Figure 2-6). A fourth well, MW046, was installed in close proximity to the former recycling building based on an anomaly detected in the geophysical survey and a thick ash layer revealed during the test pit study. Samples were collected from all four monitoring wells and submitted to the designated CLP laboratories for analysis of TAL and TCL constituents and dioxin. Additionally, samples were collected from aliquots that contained the highest visual concentrations of waste and were analyzed for RCRA characteristic parameters. A grain-size sample was also collected from the screened interval at each well.

2.4.2.9 Former Landfill Interior Monitoring Well Cluster Soil Samples

Monitoring well clusters were designated as "interior monitoring well nests" (0 - 70 feet) in the WP/FSP. Four two-well clusters were installed as originally proposed: MW027 and MW028; MW029 and MW030; MW031 and MW032; and MW033 and MW034 (see Figure 2-6). Odd-numbered wells in these clusters were shallow wells advanced to a maximum depth of 15 feet BGS for the purpose of monitoring the water table. Even-numbered wells were deep wells advanced into the lower sand unit to a maximum depth of 67 feet BGS.

Samples were collected at selected 5-foot intervals for XRF field screening. Based on field observations, soil samples were collected above and/or below the water table in the four deep wells and submitted for laboratory analysis. Samples were selected for laboratory analysis based on observations, XRF field screening data, and OVA results. Soil samples submitted to CLP laboratories were analyzed for TAL and TCL constituents and dioxin. A grain-size sample was collected and submitted for analysis from the screened interval of all eight wells. Samples of landfill waste at MW027 and MW031, peat/clay at MW027, and clay at MW027, MW028, MW032, and MW034 were collected and submitted to the designated CLP laboratory for analysis of engineering parameters. Selected samples from MW028, MW030, MW031, and MW034 were analyzed for RCRA characteristic parameters. A shelby

tube sample was collected from the silty clay layer from MW028 and MW032 for tri-axial permeability analysis. Test results were used to determine whether the silty clays would inhibit the vertical component of groundwater flow from the waste layer to the lower sand unit.

2.4.2.10 Background Monitoring Well Cluster Soil Samples

Two well clusters were installed at locations determined to be outside of the former landfill boundaries to provide background groundwater quality data and information on the influence of the canals on site hydrology. One well cluster was sited west of the Peoples Avenue Canal (MW041 and MW042), and the other was sited south of the Florida Avenue Canal (MW043 and MW044; see Figure 2-6). The deep boring at each well cluster location (MW042 and MW044) was advanced to measure the thickness of surficial materials, presence or absence of the peat unit, depth to the silty clay unit, thickness of the silty clay unit, and depth to the lower sand unit.

Each boring was sampled continuously using shelby tubes, 2-foot split spoons, or 5-foot continuous samplers, and all samples were screened using an OVA. Samples were collected at 5-foot intervals for XRF field screening, and one soil sample from each deep well was submitted for TAL metal analysis based on the XRF field screening data. A sample was collected for grain-size analysis from the screened interval of each of the four wells.

2.4.2.11 Test Pit Soil Samples

Test pits were excavated on the undeveloped portion of the ASL site on May 4 and 5, 1994. Excavations were performed using a track-mounted backhoe capable of reaching depths of approximately 15 feet BGS. Test pit locations were identified from the analysis of aerial photographs and the results of geophysical surveys of the undeveloped former landfill. The test pits were excavated to identify the sources of the geophysical anomalies and to investigate locations of waste disposal areas identified from historical photographs in an effort to characterize the nature and vertical extent of landfill material. Test pits were excavated either to the bottom of the waste, the maximum reach of the backhoe, or to the top of the water table, which ever was deepest. Contents of the test pit were logged, photographed, and

staged adjacent to the pit until the target depth was reached. The size of the pits varied according to the size of the geophysical anomaly and the contents of the pits.

Based on visual observations and OVA screening results, two soil/waste samples were collected from each test pit. XRF field screening was performed on an aliquot of each sample collected. Two soil samples were collected from the interior of the backhoe bucket using dedicated, stainless-steel spoons to transfer the material to EPA-approved, prelabeled sample containers which were submitted to CLP laboratories for TAL and TCL constituents and dioxin analyses. Upon completion of logging and sampling activities, the excavated materials were replaced into the pits in the reverse order from which they were removed. The ground surface was leveled as close to the original grade as possible.

2.5 HYDROGEOLOGIC INVESTIGATION

The hydrogeologic investigation was designed to assess the nature and magnitude of groundwater contamination, and the potential for off-site migration in the two water-bearing units underlying the study area: the shallow zone and sand unit. The investigation included the construction of 42 monitoring wells installed as 19 two-well clusters, and four single wells labeled MW001 through MW046, excluding numbers MW035, MW037, MW039, and MW045 (see Figure 2-6 and Section 2.4.2). Each well cluster was composed of one shallow-zone well and one sand-unit well. Thirteen two-well clusters were located at the boundaries of the ASL site (MW001 through MW026). Seven of these two-well clusters were located in close proximity to boundary boring locations on the eastern and northern portions of the ASL site. The remaining well clusters were distributed evenly around the southern and western site boundaries.

Three single monitoring wells were installed within the former landfill boundaries at locations suspected to be former lagoons. These locations, wells MW036, MW038, and MW040, were selected from aerial photographs. An additional well, MW046, was installed to monitor groundwater in proximity to test pit TP004. Four two-well clusters (MW027 through MW034) were installed at the interior boring locations. Two two-well clusters, one pair sited west of the Peoples Avenue Canal (MW041 and MW042) and one pair sited south

of the Florida Avenue Canal (MW043 and MW044), were located to provide background groundwater quality data and information on the influence of the canals on site hydrology.

2.5.1 Monitoring Well Installation

2.5.1.1 Shallow Zone Well Installation

The shallow zone well borings were advanced with 8.25-inch ID hollow stem augers to the final depth. These wells were constructed of schedule 40, 2-inch ID, polyvinyl chloride (PVC) casing and screen (see Figure 2-7). Each screen was 10 feet long with 0.010-inch slots. A 6-inch, cone-shaped sump was attached to the bottom of each screen. Filter packs consisted of a 20- to 40-mesh silica sand and extended from the bottom of the well to a level 1 to 2.5 feet above the top of the screen. A 1- to 2-foot-thick seal consisting of 0.25-inch bentonite pellets was placed above the filter pack. The bentonite seal was hydrated with distilled water in wells screened across the water table. The seal was allowed to hydrate for a minimum of 8 hours before a 5% bentonite-Portland cement grout was placed to the surface at the nine wells followed by a 0.5-foot layer of sand placed on top of the bentonite seal prior to grouting. A surface casing with a flush mount cover was installed to complete the well. Well construction data for the shallow zone monitoring wells are presented in Table 2-1.

2.5.1.2 Sand Unit Well Installation

The sand unit wells were initially advanced using 8.25-inch ID, hollow-stem augers from the surface to an approximate depth of 30 feet BGS. A 6-inch PVC casing was installed into the silty clay, grouted into place, and allowed to set for a minimum of 12 hours to isolate the shallow zone from the deeper sand unit. The borehole was then advanced through the interior of the surface casing to its total depth using a 5.87-inch drag bit and mud rotary drilling techniques.

The sand unit wells were constructed of schedule 40, 2-inch ID, PVC casing and 10-foot slot screens with a slot size of 0.010 inches (see Figure 2-8). An exception was made for monitoring wells MW012, MW014, and MW032 where a 5-foot screen was used. A 6-inch sump with a conical bottom was attached to the bottom of the screen. The filter pack consisted of a 20- to 40-mesh silica sand extending from the bottom of the well to a level 2 to

6 feet above the top of the screen. A 5-foot-thick seal consisting of 0.25-inch bentonite pellets was placed above the filter pack. A 5% bentonite-Portland cement grout was placed in the annulus using a side discharge tremmie pipe. Well construction data for the sand unit wells are presented in Table 2-2. A flush mount surface casing was installed to complete the well.

2.5.2 Monitoring Well Development

Monitoring wells were developed no sooner than 24 hours after grouting had been completed. Shallow zone wells were developed by hand-bailing due to their low recharge rates. Sand unit wells were developed using a submersible pump because they could sustain much higher flow rates. At least five volumes of the standing water column were removed from each well. The amount of water comprising one volume of the standing water in the well was calculated using the following formula:

$$V = 7.48\ (\pi r^2)\ (D\text{-}I)$$

where:

V = volume of standing water column, in gallons;
7.48 = factor for converting cubic feet to gallons;
π = 3.14;
r = radius of monitoring well, in feet;
D = depth of well from top of inner casing, in feet; and
I = depth to top of water column in well from top of inner casing, in feet.

The WP/FSP stated that well development would be considered complete when groundwater temperature, pH, specific conductance, and turbidity had stabilized (turbidity was required to stabilize at less than 50 nephelometric turbidity units [NTUs]). These requirements were satisfied for all but three of the sand unit wells (MW002, MW034, and MW044), which could usually sustain high flow rates and were screened in fine- to medium-grained sands, and a few of the shallow zone wells in the interior of the former landfill, which were screened in fill material and recharged quickly. However, many of the shallow zone wells (i.e., those screened in more silty/clayey soils) could be bailed dry, recharged very slowly,

and exhibited groundwater turbidities that did not stabilize at values less than 50 NTUs. For these shallow zone wells and the three sand unit wells (MW002, MW034, and MW044), development was considered complete once five volumes of the standing water column had been removed.

2.5.3 Groundwater Sampling

Forty-two monitoring wells were installed on the ASL site and along the site boundaries (see Tables G-18 and G-19). In addition, the nearest potential public water supply well (an emergency stand-by well) was sampled to determine existing groundwater quality in the Gonzales-New Orleans aquifer. When encountered, groundwater was also collected from test pits.

2.5.3.1 Monitoring Well Groundwater Samples

The 42 newly installed groundwater monitoring wells were sampled in late May 1994. Prior to sampling, the static water level and total depth of each well were recorded in a field logbook to within 0.01 foot using a calibrated water level indicator; the volume of the standing water column in the well was then calculated using the formula presented in Section 2.5.2. Water level measurements were used to calculate the water volume in each well. The total amount of water for each well was composed of five individual well volumes of the standing water column.

Shallow-zone wells were purged using a dedicated polyethylene bailer and sand-unit wells were purged using a submersible pump with a dedicated 0.5-inch hose. Physical characteristics such as temperature, specific conductance, pH, and turbidity were measured after each well volume was removed from the well.

A well was considered to be fully purged after the required volume was removed, temperature, specific conductance, and pH had stabilized, and turbidity readings of 5 to 10 NTUs or an asymptotic low were obtained. Shallow-zone wells completed in heavy silt or clay were more turbid, and turbidity measurements reached a consistent asymptotic low at 50 to 100 NTUs.

If a well was pumped or bailed dry during purging operations, it was allowed to recover and was purged dry for a second and third time before sampling. This process was recorded in the field logbook along with pertinent physical characteristics at the time of sampling.

Groundwater samples were collected using a dedicated, bottom-loading, polyethylene bailer secured with polyethylene rope. The bailer was lowered slowly into the water column to avoid agitation or aeration of the well water. The first bailer of water was discarded. Sample containers were filled directly from the bailer, volatile organic analysis (VOA) vials were filled first, and care was taken not to agitate the sample. After collection of the VOC fraction, the remaining fractions were collected and placed in EPA-approved, prelabeled sample containers and preserved according to the protocol outlined in the FSP/QAPjP. An aliquot of the groundwater was filtered in the field to remove suspended solids for the dissolved TAL metals analysis.

The following sample collection details were recorded in the field logbook: well identification number, date, time, depth to water, total well depth, volume purged, and any relevant observations including water clarity, color, and odor.

2.5.3.2 Supply Well Groundwater Samples

The nearest Gonzales-New Orleans Aquifer water supply well (emergency stand-by well) to the ASL site is located at Schwegmans Brothers grocery store (at 5300 Old Gentilly Road, New Orleans, Louisiana), approximately 1 mile northeast of the site. The well is screened from 592 to 667 feet (see Table G-20). The well is pumped continuously to service the refrigeration and air conditioning systems of the store, and has been designated as an emergency drinking water supply well (Dial 1983).

Results of a 1991 pump test indicated that this well produced 654 gpm at a pressure of 15 pounds per square inch (psi). On May 20, 1994, at the time of sampling, the pressure gauge reading at the wellhead was 17.5 psi. Samples were collected from a tap releasing water directly from the wellhead (see Table G-20). Because the well is pumped continuously, purging of five well volumes was unnecessary; however, to ensure that the tap from which the samples were collected was adequately flushed, the tap was opened completely and water

was allowed to flow for 3 minutes. Groundwater temperature, pH, and specific conductance were measured when the tap was first opened and immediately prior to sampling. The sample was analyzed for TAL and TCL constituents (including dissolved metals) and water quality parameters.

2.5.3.3 Test Pit Groundwater Samples

Five shallow test pits, TP001 through TP005, were excavated as described in Section 2.4.2.11 (see Figure 2-5 and Table G-21). Groundwater was present in all of the pits except TP003. Groundwater in test pits TP002 and TP004 exhibited a strong diesel fuel odor, and groundwater in TP005 exhibited a hydrocarbon-like odor. The groundwater encountered in four test pits exhibited an oily sheen (TP001, TP002, TP004, and TP005).

Unfiltered groundwater samples were collected from each pit by lowering a decontaminated, stainless-steel container on a dedicated nylon rope and transferring the water to EPA-approved, prelabeled sample containers. Unfiltered groundwater sample analyses included TAL and TCL constituents.

2.5.4 Water Level Measurements

Water levels were recorded to support evaluation of the horizontal and vertical groundwater flow systems in the ASL study area. Tidal influences on water levels were also evaluated because the site is located near the Mississippi River and, consequently, the shallow zone and/or sand unit flow systems could be affected by tidal cycles.

2.5.4.1 Water Level Elevations

Two rounds of water level measurements were taken from the monitoring wells. The first round of measurements was taken on May 24 and 26, 1994, and the second round of measurements was completed on June 20, 1994. During the second round of measurements (on June 20, 1994) surface water elevations were also recorded at six locations in the Florida Avenue and Peoples Avenue canals. Monitoring well water levels were measured from a surveyed mark on the top of the inner casing to the nearest 0.01 foot using an electronic water level indicator. For the flowing sand unit wells, a 2-inch ID PVC extension was connected to

the top of the inner casing. The water level was allowed to stabilize, and the depth to water from the top of the PVC-extension was measured. The height of water above the top of the inner casing was obtained by subtracting the depth to water from the total length of the PVC extension. Surface water elevations were referenced to surveyed temporary benchmarks established by the field team and measured using the electronic water level indicator.

2.5.4.2 Tidal Influence on Water Levels

Long-term (20 to 76 hour) water level monitoring was performed at four monitoring wells located along the southern ASL site boundary to determine whether there is a tidal influence on water levels at the site. Shallow zone wells MW015 and MW017 and sand unit wells MW016 and MW018 were tested. Water level data were collected using a Well Sentinel® and pressure transducer manufactured by In Situ, Inc. The Well Sentinel® is designed exclusively for long-term water level monitoring and can be programmed to collect measurements at various time intervals.

For each well, the well cap was removed and the pressure transducer was placed into the well to a depth of approximately 10 feet below the top of the water column and secured to prevent any movement. The pressure transducer was then connected to the Well Sentinel®, which was programmed with the appropriate parameters and referenced to zero prior to the test. By referencing the Well Sentinel® to 0.0 feet, only relative changes in the water level were recorded. Each test was programmed to begin data collection approximately 30 minutes after activation to allow the water level in the well to stabilize completely. Water levels were recorded at 5-minute intervals.

Following completion of each test, the Well Sentinel® was disconnected from the pressure transducer and the data were downloaded onto a lap-top computer. The data were reviewed in the field to ensure acceptable data quality.

2.5.5 Hydraulic Conductivity Testing

Slug tests were performed on all on-site monitoring wells to estimate hydraulic conductivity (K). Falling head (slug-in) and rising head (slug-out) tests were conducted at each well, and shallow zone/sand unit well pairs were tested simultaneously using two

pressure transducers. Generally, rising head tests provide a more accurate estimate of hydraulic conductivity in both rapidly recovering wells and wells that are screened across the water table because the influence of the sand pack or unsaturated zone is minimized. Data were recorded in the field using a Hermit® 2000 data logger and pressure transducers, manufactured by In Situ, Inc. A 5-foot long, 1.25-inch diameter, PVC slug was used to displace the water. The data were downloaded in the field onto a lap-top computer.

Prior to slug testing, the bailer, if present, was removed and the water level was allowed to stabilize. Afterward, the static water level was measured from the top of the PVC inner casing and recorded. A 10-pound per square inch gauge (psig) transducer was placed to a depth of approximately 1 foot above the bottom of the shallow-zone well, and a 20-psig transducer was placed approximately 20 feet below the top of the water column in each sand unit well. After placement of the transducer, the water level was allowed to stabilize.

Most of the sand unit monitoring wells are flowing artesian wells. For these wells, a 2-inch ID, PVC extension was connected to the top of the inner casing, which allowed the water inside the well to rise to an equilibrium position above the ground surface. Afterward, the transducer was placed in the well, the water level was allowed to stabilize, and the slug test was performed.

A slug test (falling head) was performed first on each well. The slug was submerged below the water surface, and the change (decrease) in water level values with time was recorded as the water level returned to its original position. After the water level had recovered, the slug was withdrawn to perform a rising head test and the water level change (increase) during recovery was recorded.

All sand-unit wells exhibited fairly fast recharge and both the rising and falling head data appear to be valid. In several of the shallow-zone wells, the falling head data were not used because the wells were screened across the water table.

2.6 AIR INVESTIGATION

An air investigation was performed at the ASL site to evaluate the nature of VOCs that included:

- Measuring the soil gas flux from surface soils at various on-site locations;
- Sampling indoor and outdoor ambient air at study group and background residences, Moton School, and undeveloped portions of the former landfill (outdoor only);
- Real-time field monitoring to evaluate potential intrusion of VOC contaminants and methane at the study group and background residences, Moton School, as well as in subsurface storm drains, sewer manholes, and catch basins;
- Collection of meteorological information; and
- Air dispersion modeling to estimate the extent of historical off-site impacts from fugitive dust generated by former landfill operations.

2.6.1 Soil Gas Emissions

Soil gas flux samples were collected at the ASL study area utilizing emission isolation flux chambers. After review of the experimental procedures conducted in the field, it was determined that the data did not reliably reflect soil gas emissions. These data were judged unusable for their intended purpose and are neither included in this report nor discussed.

2.6.2 Ambient Air Sampling

Ambient air samples were collected from all study group and background residences, Moton School, and the undeveloped portion of the former landfill (see Figures 2-4 and 2-9). One sample was collected from the main bedroom of each study group and background residence. (The bedroom was chosen to minimize potential interference from kitchen fumes.) Outdoor samples were collected away from obvious interferences such as smoke, fires, and automobile exhaust. At Moton School, one sample was collected from the top floor and one from the bottom floor, each from a representative central location. One outdoor sample was collected near the school.

2.6.2.1 Ambient Air Sampling Procedures

Ambient air samples were collected in pre-evacuated Summa™ canisters using the sampling apparatus described in EPA method TO-14 (EPA 1988b). The sample flow rate was

set and calibrated to a primary standard for collection of approximately 12 liters of pressurized sample (10 to 20 psi above ambient) during a 1-hour sampling period. The sample was pressurized to achieve greater analytical sensitivity. Start and stop times for the corresponding indoor and outdoor ambient air samples were synchronized at each location so that sample results from different locations could be compared.

The following procedures were used to collect the ambient air samples:

- Sampling pumps and flow rates were calibrated using a primary standard to 0.2 liter per minute;
- A pre-evacuated Summa™ canister was attached to the sampling apparatus and the initial pressure in the canister was checked and recorded to ensure that canister integrity had been maintained during shipment;
- At both indoor and outdoor locations, the sample inlet was positioned at an elevation of 4.5 feet, the approximate height of an adult's breathing zone; and
- After sample collection, the canister pressure was recorded, and the location photographed and documented in the logbook.

2.6.2.2 Residential Ambient Air Samples

Study Group Residences

Ambient air samples were collected at all 33 study group residences (see Figure 2-9). Samples were collected at indoor and outdoor locations according to the procedures described in Section 2.6.2.1. Indoor samples were usually collected in the main bedroom, (see Table G-26). Outdoor samples were collected from the back yard of the single-story, ranch-style residences and two-story townhouses, or from the side yard if the back yard was not suitable. At the Gordon Plaza Apartments, the outdoor samples were collected in the common area. For the second-floor apartments located in Press Court, the sampler was placed on the second-floor landing outside the front door.

Background Residences

Indoor and outdoor ambient air samples were collected at all five background residences (see Figure 2.4 and Table G-28). Indoor samples were collected in the main bedroom of each residence and outdoor samples were collected in the back yard.

2.6.2.3 Moton School Ambient Air Samples

Ambient air sampling was conducted on a Saturday when: school was not in session, there was a minimum amount of traffic, and only a minimum number of school personnel were present. Indoor ambient air samples were collected from the top and bottom floors in central locations of the building. The first floor sample was collected in the cafeteria entrance and the second floor sample was collected in the main hallway outside study rooms and classrooms. The outdoor sample was located in an area west of the school (see Figure 2-9 and Table G-27).

2.6.2.4 Undeveloped Former Landfill Ambient Air Samples

Ambient air samples were collected on the undeveloped portion of the former landfill at two locations (see Figure 2-9). Samples LF001 and LF002 were collected using the method described in Section 2.6.2.1.

2.6.3 Air Intrusion Survey

Air intrusion monitoring for VOCs and methane was conducted at the study group and background residences and Moton School from April through June 1994 (see Figures 2-3 and 2-4). To evaluate the effect of VOC/methane intrusion on infrastructure systems, air measurements we recorded from storm drains, sewer manholes, and catch basins. The VOC/methane concentrations were monitored using OVAs.

The air intrusion survey was conducted along the interior and exterior areas of the residences and Moton School. The interior survey was performed by visually inspecting potential areas such as floors and baseboards. At locations where wall/floor/slab cracks or separations were observed, the instrument probe was inserted into the opening to monitor for organic vapors and methane.

Nineteen subsurface storm drains, 20 sewer manholes, and 20 catch basins were selected to determine the presence of VOCs and methane (Figure 2-10 and Tables G-32, G-33, and G-34). The perimeter of each sewer manhole was sprayed with water prior to monitoring to reduce the potential of creating a spark when prying open the cover. After partially removing the cover, the instrument probe was inserted into the open area of the manhole and total VOC and methane measurements were recorded. Additional locations along Montegut, Feliciana, and Clouet streets were also monitored.

2.6.4 Meteorological Information

A portable meteorological station manufactured by Campbell Scientific, Inc., was installed at the command post to collect meteorological data. Station set-up and operation procedures were consistent with EPA guidelines (EPA 1983). The station utilized a 20-foot mast with sensors for: wind speed, wind direction, temperature, relative humidity, barometric pressure, and precipitation. The station began logging data prior to the start of the residential sampling study which began on April 8, 1994, and the system was checked to ensure it was functioning within the required specifications. All systems functioned normally, with the exception of the relative humidity (RH) sensor which would not calibrate properly. The RH sensor was replaced on April 14, 1994 and RH data for April 8 through April 14, 1994 were obtained from the local weather station at the New Orleans International Airport. All data were stored in a data logger and either read through the data logger's digital display or downloaded onto a lap-top computer. Readings for the various climatic factors were recorded at 15-second intervals and compiled in 15-minute intervals (see Appendix P).

2.6.5 Air Dispersion Modeling

Air dispersion modeling was performed at the ASL site to estimate the extent of off-site impacts from fugitive dust generated by the historical operation of the landfill. Air dispersion modeling was only performed to account for fugitive dust emissions caused by landfill disposal equipment, construction equipment, and wind erosion of exposed soil. Dispersion modeling of open burning could not be performed due to the absence of accurate site-specific information required to complete the model.

Estimated quantities of fugitive dust generated by landfill operations were modeled using EPA's Fugitive Dust Model (FDM) Version 91109 (EPA 1988c; see Appendix I). This model is recommended by EPA for modeling ground level particulate releases at ambient temperature (EPA 1993d). The FDM is a Gaussian plume model that computes downwind particulate matter concentrations and deposition from point, line, or area sources. Emissions from all sources can be divided into a maximum of 20 particle-size classes for particle deposition calculations. If multiple size classes are selected, gravitational settling and deposition velocities are calculated for each size class. Soil parameters used in this analysis were classified by using the reported soil particle size distribution data from Alabama and Houston, Texas soils (EPA 1990b). The distribution data were similar to soils present in New Orleans and were assumed to be representative of ASL soils. (Particle size distribution and similar parameters used for the FDM model are reported in Appendix I.)

FDM calculates both short-term (hourly) and long-term (annual) concentration and deposition values. For this analysis, only annual deposition values were calculated to estimate the long-term impact that the historical operation of the landfill may have had on neighboring areas. Four historical landfill scenarios were modeled to create a range of potential off-site impacts. Differences in the extent of the area and type of activity at the landfill were used to create each landfill scenario based upon historical documentation and photographs (EPA 1986d). The first scenario assumes an operational landfill as depicted in a 1952 aerial photograph. This scenario assumes an active landfill with receiving areas, dumping areas, and several areas of recent trash disposal. Active trash disposal was assumed to consist primarily of dumping and bulldozing operations as the trash was unloaded and compacted. The second scenario assumes the landfill as depicted in a 1964 aerial photograph shortly after trash disposal was discontinued. This scenario assumes an inactive landfill with exposed areas of surface material and vegetation. The third scenario was created to model the landfill after Hurricane Betsy in September 1965. The landfill during this time period appeared to be entirely exposed to wind erosion as there was no significant vegetative cover present. The last scenario includes fugitive dust emissions which were caused by the development and construction of housing upon the former landfill. Aerial photographs from 1977 and 1986 were used to determine the extent of the construction activity.

Meteorological data for each landfill scenario consisted of stability array (STAR) data sets from 1984 to 1989. STAR data sets are composed of 16 wind directions classified by wind speed and atmospheric stability class recorded at the New Orleans airport weather station (Station No. 12916). Actual meteorological data for the specific years in each scenario could not be used because the data lack sufficient meteorological parameters required by the FDM. However, wind speed and wind direction measurements from representative data from 1984 to 1989 were compared to historical New Orleans data from 1930-1938 and 1958-1959 to ensure that the current meteorology data were representative of historical meteorological conditions.

Wind measurements from 1984 to 1989 are depicted in the windrose in Figure 2-11. As shown in this figure, winds in New Orleans occurred more frequently from the northerly and southerly components, with other major components originating from the east. Calm wind periods occurred approximately 12% of the time. This same wind pattern is evident in the 1930 to 1938 and 1958 to 1959 data sets (see Figures 2-12 and 2-13). The similarity of these data sets indicates that the 1984 to 1989 meteorological data provided a fair representation of meteorological conditions during landfill operations.

Emission source terms for the landfill operating scenarios were based on assumptions of landfill activity derived from historical information, on-site sampling, soil classification, and published emission factor data. Different emission factors were calculated for the scenarios discussed above. The emission factor for the first scenario was estimated using EPA guidance for bulldozing activity (EPA 1992c). This emission factor was determined to be 1.6 tons/month-acre based upon silt and moisture content of the soil. Emission factors for the second and third scenarios were determined to be 0.46 ton/month-acre using silt content of the soil, precipitation data, and wind speed frequency (EPA 1992c). The emission factor for the last scenario was assumed to be 1.2 tons/month-acre based on EPA field measurements of suspended dust emissions from general construction projects with a medium activity level (EPA 1985). Estimates of concentration and deposition of particulate matter for each scenario were modeled for the area within a 2-mile radius of the ASL site. The distance was limited to a 2-mile radius because of the nonbuoyant nature of the pollutant release and ground level height at the ASL site. All calculations and variables are presented in Appendix I.

2.7 ADDITIONAL RESIDENTIAL SAMPLING

To support the HHRA and RRII objectives, a variety of media were sampled for lead in accordance with the WP/FSP. The sampling included collection of garden produce, tap water, indoor dust, and indoor and outdoor paint chip samples.

2.7.1 Garden Produce Samples

Available garden produce samples were collected from study group residences from April 8 through April 28, 1994. Although 11 of the 33 study group residences had gardens, harvestable produce was available at only two residences. Carrots and parsley samples were collected from RES-4, and garlic and cabbage samples were collected from RES-34 (see Figure 2-3 and Table G-35). Following sample collection, the vegetables were washed with deionized water and the sample jars were filled with at least 300 grams of plant tissue. According to the WP/FSP, each sample was intended to be analyzed for TAL metals and TCL pesticides. However, an acceptable laboratory could not be procured for TAL metals. Therefore, samples were only analyzed for TCL pesticides and selected inorganics that were of health-based concern or known to accumulate in plants. Selected inorganics included lead, arsenic, cadmium, and mercury. Carrot and parsley samples were frozen and held under chain-of-custody for 43 and 44 days, respectively, because a suitable laboratory had not been identified at the time of sample collection.

2.7.2 Tap Water Samples

First draw and 3-minute purge samples were collected from kitchen faucets at study group and background residences, and from the cafeteria and first and second floor drinking water fountains at Moton School from April 8 through April 28, 1994 (see Figures 2-3 and 2-4, and Tables G-36, G-37 and G-38). Samples were collected according to the tap water sampling protocol for lead (40 CFR 141.86b, January 15, 1992, as amended).

Three-minute purge samples were collected at all locations. The cold water tap was allowed to run for 3 minutes to purge the water line before the sample was collected in a 1-liter polyethylene bottle. Temperature, pH, and specific conductance were measured immedi-

ately and recorded in logbooks along with the date, time, and residence associated with the sample. Plumbing under the kitchen sink was also evaluated to determine the composition of water line material.

The sampling team provided a 1-liter polyethylene bottle to each residence for the collection of a first draw tap water sample. The first draw tap water sample was collected at the kitchen tap by the resident in the morning prior to running water in the house (sink, shower, tub, or toilet). The 1-liter polyethylene bottle was held directly under the cold water tap and filled with water that had been standing in the pipes overnight (6 hours or more). A member of the sampling team returned to the residence to retrieve and preserve the sample. All sample collection information was recorded in the field logbook, and the sample was preserved to a pH of less than 2 and cooled to 4 degrees celcius (°C) for shipment to the analytical laboratory.

2.7.3 Indoor Dust Samples

Three interior dust samples were collected and analyzed for lead at each study group and background residence (see Figures 2-3 and 2-4). Samples were collected from high-traffic pathways in bedrooms, living room areas, and indoor entrances (front or back door). Lead-free, 8-inch by 10-inch cellulose acetate or quartz filters were prepared by the CLP laboratory for to use in the field.

The following procedure was used to collect indoor dust samples:

- A decontaminated sampling apparatus containing a pre-weighed filter was attached to the high-volume vacuum system;
- A 1-meter-square template was used to isolate sample locations and a 60-second sample was collected by vacuuming 30 seconds in a parallel direction, then 30 seconds in a direction 90° from the first direction (the purpose of the rotation was to ensure that the carpet was vacuumed with the warp of the nap and then perpendicular to the warp of the nap);
- After all three locations had been sampled, the filter was removed from the high-volume sampler, folded in half (with the dust inside the fold), and placed into the pre-weighed, zipper-locked bag (which remained inside the outer protective bag); and

- Filters were shipped to the same analytical laboratory that pre-weighed the filters for post-weighing, where they digested the entire filter and analyzed the digested filter for lead content.

Information relating to the sample collection was recorded in the logbook. The location of each sample was photographed and the location was sketched in field logbooks.

2.7.4 Paint Survey and Samples

An indoor and outdoor paint survey was conducted for lead at study group and background residences using a Spectrace 9000 XRF instrument. In addition, paint chip samples were collected and submitted for CLP laboratory analysis to confirm the XRF screening results.

2.7.4.1 Indoor and Outdoor XRF Survey

The indoor or outdoor area selected for XRF screening was based was on the differences in the color and/or age of paint, the apparent condition of the paint, and the differences in surfaces (i.e., siding versus trim). The location and condition of all paint XRF readings was noted on the sketches completed by the sampling team.

Up to four surfaces (painted woodwork and walls) were screened in the three most frequently occupied rooms or areas of each study group or background residence. Screening was performed in the kitchen, the room most utilized by the child, and the child's bedroom. If these rooms were unpainted, overlapped in function, or if no children were present in the home, alternative rooms were selected. Three 60-second readings were recorded for each wall screened.

Indoor unpainted surfaces such as paneling, wallpaper, and unpainted woodwork were not screened. Painted surfaces with metal substrates were not screened due to possible lead contribution from the metal substrate. When painted woodwork was screened, three separate readings were taken at different locations. When painted walls were screened, screening procedures varied according to the condition or age of the paint. Three separate readings were recorded on the same wall or one XRF reading was recorded on three different walls

within the same room. For outdoor paint, three separate areas on the outside of the structure were screened for lead, and unpainted surfaces were not considered.

2.7.4.2 Indoor and Outdoor Paint Chip Sampling

Paint chip sampling was performed in conjunction with the interior and exterior XRF paint survey. For each residence, a maximum of one interior and one exterior paint sample was collected. Paint chip samples were collected only from areas where flaking or loosely adhering paint was observed. If more than one interior or exterior area was found to have flaking or loose paint, then paint was collected from the area with the highest XRF reading. If loose or flaking paint was not observed, then samples were not collected. A total of 29 paint chip samples were collected from 21 study group residences, and a total of four paint chip samples were collected from four background residences (see Tables G-41 and G-42).

Paint chips were collected by peeling a minimum of 1 gram (approximately 2 square inches) of paint chip material from the wall and placing it into a plastic, zipper-locked bag. XRF paint screening was performed for lead at all but six paint chip sampling locations. The six exceptions were due to the presence of metal substrates or inaccessible locations.

2.8 ECOLOGICAL INVESTIGATION

Surface water and sediment samples were collected from the Florida Avenue and Peoples Avenue canals to support the ERA. In addition to the surface water and sediment samples, an aquatic survey was conducted.

2.8.1 Surface Water Sampling

Surface water samples were collected from ten locations. Four samples and two QA/QC duplicates were collected from the Peoples Avenue Canal located west of the site, and six samples were collected from the Florida Avenue Canal located south of the site (see Figure 2-14 and Table G-45). The surface water samples were analyzed for TAL and TCL constituents and water quality parameters by the EPA Region 6 ESD laboratory. Water quality parameters included: hardness, alkalinity, sulfate, total dissolved solids (TDS), total suspended solids (TSS), ammonia, TOC, phosphate, chloride, fluoride, and nitrate.

The surface water samples were collected first so as not to disturb the sediment. Prior to collecting the surface water samples, the following field parameters were measured using a Horiba U-10™ unit: temperature, pH, conductivity, dissolved oxygen content, and turbidity. The measurements were recorded in field logbooks.

The surface water samples were collected using a 1-liter, stainless-steel container attached to a 10-foot aluminum pole. The sampler stood on the canal bank and collected samples from mid-canal. The VOC aliquot was collected first, then samples for the remaining analytical parameters were collected using the following sequence: organics (i.e., BNAs and pesticide/PCBs), inorganics (metals and cyanide), and water quality parameters. After collection, required preservatives were added to the appropriate samples.

2.8.2 Sediment Sampling

Ten sediment samples were collocated with the surface water samples (see Figure 2-14 and Table G-46). The sediment samples were analyzed by assigned CLP laboratories for TAL and TCL constituents and physicochemical parameters. The physicochemical parameters included: grain size, cation-exchange capacity, alkalinity, pH, percent moisture, TOC, fluoride, sulfate, nitrate, and phosphate.

Similar to the surface water samples, sediment samples were collected using a 1-liter, stainless-steel container attached to a 10-foot aluminum pole. The sampler stood on the canal bank and collected sediment by scraping the bottom of the canal. The VOC aliquot of the sediment was collected first to reduce loss due to mixing or agitation. The remaining analytical parameters were collected by placing sediment in a decontaminated, stainless-steel mixing bowl. The sediment was homogenized and transferred to EPA-approved, prelabeled sample containers using a stainless-steel spoon in the following collection sequence: remaining organic parameters (i.e., BNAs and pesticides/PCBs), inorganic parameters, and physicochemical parameters.

2.8.3 Aquatic Survey

One of the objectives of the ecological reconnaissance survey was to characterize the aquatic habitats associated with the Florida Avenue and Peoples Avenue canals. Surveys were

performed by a three-person field team of E & E ecologists for those sections of the canals that border the southern and western boundaries of the ASL site. These surveys were performed over a three-day period from March 28 through March 30, 1994. Habitat maps and species lists generated during these surveys were incorporated in the ERA.

2.8.3.1 Florida Avenue Canal

The segment of Florida Avenue Canal that is adjacent to the site was initially surveyed by the field team to select potential seining locations. However, it was determined by the site safety officer that the canal could be considered a confined space because of the distance from the top of the walls to the bottom of the canal. Based on this determination, a decision was made not to seine the canal by wading, but instead, to seine by walking along the top of the wall on either side of the canal. Therefore, seining locations were selected along the canal at locations where the canal could be crossed in order to close the seine. The Florida Avenue Canal was seined in two locations, at the southeast corner of the site and at the southwest corner of the site (see Figure 2-14).

The first Florida Avenue Canal seining location was immediately west of the Louisa Street Bridge. The 25-foot-wide, 5-foot-deep purse seine was placed in the canal approximately 70 feet west of the bridge. Two members of the field team, one on either side of the canal, dragged the seine eastward toward the bridge at a rate of approximately 20 feet per minute. When the west side of the bridge was reached, the team member on the south side of the canal crossed over the bridge to close the seine while being careful not to invert the seine. The seine was lifted out of the canal and placed on the ground next to the canal. The contents were analyzed and recorded in a field logbook.

The second Florida Avenue Canal seining location was at the southwest corner of the site, below the Almonaster Street Bridge, and immediately east of Peoples Avenue Bridge. The seine was placed in the canal approximately 100 feet east of Peoples Avenue Bridge. Two members of the field team, one on either side of the canal, dragged the seine westward toward the bridge at a rate of approximately 15 feet per minute. (This seining rate was slower because of increased water flow.) When the east side of the bridge was reached, the person on the south side of the canal crossed over the bridge to close the seine, being careful

not to invert the seine. The seine then was lifted out of the canal and placed on the ground next to the canal. Because no aquatic biota were captured during either seining attempt, additional locations along this segment of the canal were surveyed using a long-handled dip net. The contents were analyzed and recorded in a field logbook.

2.8.3.2 Peoples Avenue Canal

As shown in Figure 2-14, the segment of Peoples Avenue Canal adjacent to the site was initially surveyed by the field team to select potential seining locations. After the initial survey, it was determined by the ERA team leader that seining the canal would not be attempted because of the absence of appropriate crossover locations and the width of the canal. For health and safety reasons, the decision was also made not to seine the canal by wading. Therefore, the Peoples Avenue Canal was also surveyed at several locations using a long-handled dip net.

2.9 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The QA/QC procedures and requirements (e.g., precision, accuracy, representativeness, comparability, and completeness [PARCC]) governing activities performed during the RRII for the ASL site are summarized here and fully described in the QAPjP (E & E 1994c). Technical and administrative acceptability and reasonableness of data and activities have been verified through assessment of work and through validation/review of data and logbooks in the field and office.

2.9.1 Field Quality Assurance/Quality Control

Two on-site field audits (quality reviews) were conducted during ASL RRII field activities. The audits included procedural reviews to maintain consistency with the WP (E & E 1994a), FSP (E & E 1994b), QAPjP (E & E 1994c), and HASP (E & E 1994d). Sampling methodologies/activities, decontamination procedures, logbooks, and documentation (e.g., traffic reports and chain-of-custody) were also reviewed. (Results of both audits are presented in Appendix J.) No uncorrected major errors or flaws were identified during either field activity or analytical field screening audits. Deviations from the WP or FSP were

usually the result of field conditions. For example, the presence of buildings precluded sampling at certain locations or depths. However, a flaw in the field procedures utilized during the collection of soil gas emission samples was identified during a post-field work logbook review. Flux chamber data did not meet RRII DQOs specified in the WP (E & E 1994a). These data are not further discussed or utilized in the RRII.

Analytical field screening included routine QA evaluation of sample and QC parameters. A summary of XRF screening results is presented in Appendix Q. QA/QC of data entry, summaries, and statistical evaluations were components of the data management effort that is briefly summarized in Section 2.10.

QC samples collected and submitted from the field were analyzed in CLP laboratories with the field samples. Field QC sample data have been utilized to evaluate sampling, decontamination, and transport procedures as they related to possible sources of sample contamination, and to determine overall sampling and analytical precision. Summa™ canister laboratory blanks, utilized in place of field canister blanks, did not impact data quality or useability. A complete evaluation of field QC sample results and their potential impact on data usability are described in Section 2.9.3 and in Appendix J.

2.9.2 Laboratory Quality Assurance/Quality Control

Samples collected during ASL RRII field operations were analyzed by laboratories utilizing approved EPA guidelines, statements of work (SOWs), and/or methodologies. Most samples were analyzed according to the EPA CLP under Routine Analytical Service (RAS) or Special Analytical Service (SAS) requests for the most rapid turn-around time practicable. Laboratory QA/QC requirements are specified in EPA CLP SOWs and/or ASL site-specific SAS requests. QA/QC procedures associated with samples analyzed by the EPA Region 6 ESD laboratory in Houston, Texas, were internal to the laboratory.

Due to timing or scope of work, a small number of samples was analyzed outside of the CLP or EPA Region 6 ESD laboratory systems. Some dioxin samples, although not formally CLP, were analyzed at the same laboratory and under the exact same protocol and deliverable requirements as the samples submitted under CLP. Similarly, some filter samples were analyzed outside CLP, but under the exact same protocol as the remaining filter

samples. Produce samples were analyzed by EPA-approved laboratories and methods supplied either by the United States Department of Agriculture (USDA) Texas Department of Agriculture Laboratory or Armstrong Forensics Laboratory. Laboratory services utilized outside of the CLP or EPA Region 6 ESD laboratory systems were procured and subcontracted under the TAT contract following all relevant federal procurement procedures and the requirements of the analytical project TDD. Method-, matrix-, and analyte-specific QA procedures and sample results were scrutinized under QA review/data validation.

2.9.3 Data Validation

All CLP RAS sample data, with the exceptions noted below, were validated by the EPA Environmental Services Assistance Team (ESAT) contractor according to *U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 1988d) and *U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 1988e). All SAS analyses were evaluated by ESAT under the contractual requirements specified in the EPA Region 6 SAS request for each type of SAS analysis. E & E conducted a 10% check of all ESAT data validation work.

Analyses procured outside of the CLP RAS or SAS programs and all dioxin analytical data were validated by E & E chemists according to the EPA-approved subcontract SOWs or EPA SOWs for analysis of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). As previously stated, the EPA Region 6 ESD laboratory in Houston, Texas, analyzed samples with all QA/QC internal to the laboratory (i.e., external data validation was not required).

2.10 DATA MANAGEMENT

It was evident that the extensive field investigation associated with the RRII would generate a tremendous amount of data. In an effort to expedite data processing and report writing tasks, field- and laboratory-generated data were entered into a computerized database and a relational database management system was used to maintain and sort the data. Data collected from field and laboratory sources were input to the system either manually or electronically and checked for QA/QC purposes. Once the data were determined to be free of

error, analytical results were integrated with field data to provide a comprehensive data set. This data set was queried in a variety of manners to produce a variety of data subsets that represent the various source areas and analytical tests. Several software packages were utilized to perform project tasks such as table preparation and statistical analyses.

2.10.1 Data Entry

Data used in the RRII were derived from three major sources: the RRII field investigation, the laboratories that analyzed the samples, and the EPA Region 6 ESI study. The more than 1,600 samples collected resulted in more than 94,000 data points generated from field and laboratory analyses.

The manner in which data were entered varied according to the source. Information from field logbooks was entered manually, whereas data from field monitoring equipment was generally downloaded as electronic data files. Similarly, most of the analytical results were transferred in an electronic format, although some results were entered manually. The extensive use of electronic data transfer and analysis significantly increased project efficiency. A data entry program was developed to facilitate the rapid entry of data and qualifiers. Data generated during the ESI were also entered into the system to provide a broader basis for performing statistical analysis. QA/QC procedures performed for all of the data that was entered included proof reading and the use of error-checking programs.

2.10.2 Data Coordination

Data coordination involved identifying the sources and formats for incoming data and defining the uses and format necessary for exporting data to users. Each data source, including field personnel and the laboratories, was contacted and directed to provide data to the Data Manager. Wherever possible, the Data Manager identified the format for data submittal. To ensure the integrity of the database, no users were permitted direct access to the central data files, but copies of data files were provided to users upon request.

2.10.3 Statistical Analysis

A statistical analysis was performed on the laboratory-generated data to aid in observing data trends and relationships. The statistical techniques employed included: correlation analysis, principle component analysis, scatterplots, and box plots. Descriptive statistics were also generated to further define the data set, such as: the mean value, minimum and maximum values, frequency of detection (FOD), standard deviation, etc. (See Appendix K for complete descriptions and definitions of statistical terms and procedures used in this study.) The following text provides a brief overview of methodologies used.

Correlation analyses are used to determine relationships between different data sets. For example, they could be used to determine whether the arsenic concentrations detected in surface soils correlate with the lead concentrations detected in surface soils. The correlation between two contaminants can be either positive (i.e., one contaminant tends to be found at high concentrations when the other contaminant is found at high concentrations) or negative (i.e., one contaminant is usually low when the other is high). Nonparametric correlation analyses were primarily used to evaluate data associated with the ASL site (see Appendix K).

Principle component analysis is used to determine whether there are factors or influences in the data that lead to groupings with similar behavior within the data. In the case of this investigation, chemical similarities between some of the contaminants were expected to lead to several such groupings (e.g., transition metals, sorbing metals, PAHs, etc.). Principle component analyses were performed to support evaluation of the correlation analysis results.

Similar to principle component analysis, scatterplots were used to support evaluation of the correlation analysis results. In a scatterplot, the concentration of one component is plotted against the concentration of another. When the contaminants are correlated, the resulting points tend to fall into a straight line. If the two contaminants are not well correlated, the resultant plot appears to be random. Many scatter plots show a combination of both trends, indicating correlation across part of the data set.

Box plots were used to graphically display the range of data and compare two or more different data populations of the same contaminant (e.g., lead concentration in the soils at different sampling depths).

2.11 INVESTIGATION-DERIVED WASTE MANAGEMENT

The process of collecting groundwater, surface soil, subsurface soil, and surface water samples resulted in the generation of IDW. A drum storage pad and a decontamination area, which was used to clean drill rigs and associated equipment, were constructed at the west end of Industry Street on the undeveloped portion of the former landfill. The drum storage pad was graded and covered with gravel. Water from the decontamination process was collected on visqueen in a small sump area and then pumped into United States Department of Transportation (DOT)-approved, 55-gallon drums. The drums were placed on wooden pallets and labeled with date and content information. The entire area was enclosed within a chain-link fence with locking gates.

A smaller decontamination pad was located within the command post area and was used to clean smaller pieces of equipment such as bailers, hand augers, mixing bowls, and miscellaneous sampling gear. Water and trisodium phosphate (TSP) used during the decontamination process were collected on visqueen and pumped into DOT-approved, 55-gallon drums. Disposable sampling equipment and used personal protective equipment (PPE) were also placed in DOT-approved, 55-gallon drums. All drums were labeled with date and content information, transported to the drum storage area, and placed on pallets.

Solid IDW, such as mud generated by drilling, and cuttings from monitoring wells and soil borings, was collected at each individual source location and placed in DOT-approved, 55-gallon drums. All drummed wastes were moved to the drum storage area and placed on pallets at the end of each work day or when activity was completed at the source location.

Liquid IDW from the development, purging, and sampling of monitoring wells was also collected in DOT-approved, 55-gallon drums. These drums were moved to the drum storage area at the end of each work day or when an activity was completed at the source location.

Nonhazardous IDW such as cardboard boxes, PPE from nonhazardous waste-related activities, and packing material was placed in plastic bags and disposed of with a local solid waste hauler.

IDW generated at the ASL site from field activities conducted from April through June 1994 was composed of the following:

- One hundred fifty-four drums of soil cuttings;
- Fifty-nine drums of decontamination fluids;
- Twenty-eight drums of well development water;
- Thirty drums of drilling water;
- Fifteen drums of potentially contaminated, disposable PPE;
- Twelve drums of well purge water;
- Three drums of decontamination area supplies (e.g., plastic sheeting);
- Two drums of drilling mud; and
- Two drums of EPA split samples.

All drummed IDW was stored on pallets and placed in rows to facilitate handling, sampling, and inspection. The drums were labeled to indicate the source, type of waste material, and the date collected. A complete list of drummed IDW was recorded in a drum inventory logbook.

Table 2-1

SHALLOW ZONE MONITORING WELL CONSTRUCTION DATA
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Well Number	Total Depth (feet BGS)	Screened Interval (feet BGS)	Filter Pack Interval[a] (feet BGS)	Bentonite Seal Interval[b] (feet BGS)	Grout Interval[c] (feet BGS)	Completion Date
MW001	16.5	6 - 16	4.5 - 16.5	3.3 - 4.5	0 - 3.3	4/20/94
MW003	15.5	5 - 15	4 - 15.5	2 - 4	0 - 2	4/22/94
MW005	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/22/94
MW007	15.4	5 - 15	3.5 - 15.4	2.0 - 3.5	0 - 2.0	4/20/94
MW009	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/21/94
MW011	15.6	5 - 15	3.8 - 15.6	2.8 - 3.8	0 - 2.3[d]	4/21/94
MW013	17.5	7 - 17	4.5 - 17.5	3.5 - 4.5	0 - 3.5	4/20/94
MW015	15.5	5 - 15	4 - 15.5	2.5 - 4	0 - 2[d]	4/22/94
MW017	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/22/94
MW019	15	4 - 14	2 - 15	1 - 2	0 - 1	5/8/94
MW021	14.5	4 - 14	3 - 14.5	1 - 3	0 - 1	5/8/94
MW023	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/21/94
MW025	15.5	5 - 15	4 - 15.5	2 - 4	0 - 2	5/14/94
MW027	15	4 - 14	3 - 15	2 - 3	0 - 2	5/8/94
MW029	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/23/94
MW031	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/23/94
MW033	15.5	5 - 15	4 - 15.5	2 - 4	0 - 1.5[d]	4/21/94
MW036	18	4 - 14	3 - 18	1.5 - 3	0 - 1.5	5/13/94
MW038	15	4 - 14	3 - 15	2 - 3	0 - 2	5/10/94
MW040	15.5	5 - 15	4 - 15.5	2.6 - 4	0 - 2.6	5/10/94
MW041	14.5	4 - 14	3 - 14.5	1.5 - 3	0 - 1.5	5/13/94
MW043	14.5	4 - 14	3 - 14.5	1.5 - 3	0 - 1.5	5/13/94
MW046	14.5	4 - 14	3 - 14.5	1.5 - 3	0 - 1.5	5/13/94

Notes: All wells were constructed of 2-inch ID, Schedule 40, PVC casing and 2-inch ID, Schedule 40, PVC screens with 0.010-inch slot size. Screens are 10 feet long. All wells were completed as flush mounts. All depths and intervals are in feet below ground surface.

Key:

a = Filter pack was 20-40 mesh silica sand.
b = Bentonite seal was 0.25-inch pellets; well was screened across the water table.
c = Grout was Portland cement with 5% bentonite powder.
d = 0.5-foot layer of fine sand was placed on top of the bentonite seal prior to grouting well.
ID = Inside diameter.
PVC = Polyvinyl chloride.
BGS = below ground surface.

Source: Ecology and Environment, Inc., 1994

Table 2-2

SAND UNIT MONITORING WELL CONSTRUCTION DATA
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Well Number	Total Depth (feet BGS)	Screened Interval[a] (feet BGS)	Filter Pack Interval[b] (feet BGS)	Bentonite Seal Interval[c] (feet BGS)	Grout Interval[d] (feet BGS)	Completion Date
MW002	68.5	58 - 68	55 - 68.5	50 - 55	0 - 50	5/10/94
MW004	67.5	57 - 67	54 - 67.5	49 - 54	0 - 49	5/11/94
MW006	67.5	57 - 67	54 - 67.5	49 - 54	0 - 49	5/11/94
MW008	72.5	62 - 72	59 - 72.5	54 - 59	0 - 54	5/6/94
MW010	67.5	57 - 67	55 - 67.5	50 - 55	0 - 50	5/6/94
MW012	63.5	58 - 63	55 - 63.5	50 - 55	0 - 50	4/22/94
MW014	64.5	59 - 64	56 - 64.5	51 - 56	0 - 51	4/23/94
MW016	69.5	59 - 69	57 - 69.5	52 - 57	0 - 52	5/7/94
MW018	64.5	54 - 64	51 - 64.5	46 - 51	0 - 46	5/17/94
MW020	67.5	57 - 67	52 - 67.5	46 - 52	0 - 46	5/14/94
MW022	74.5	64 - 74	60 - 74.5	55 - 60	0 - 55	5/12/94
MW024	82.5	72 - 82	68 - 82.5	61 - 68	0 - 61	5/5/94
MW026	76.5	66 - 76	63 - 76.5	58 - 63	0 - 58	5/13/94
MW028	74.5	64 - 74	61 - 74.5	56 - 61	0 - 56	5/8/94
MW030	72.5	62 - 72	58 - 72.5	53 - 58	0 - 53	5/6/94
MW032	67.5	62 - 67	60 - 67.5	54 - 60	0 - 54	4/17/94
MW034	73.5	63 - 73	61 - 73.5	56 - 61	0 - 56	5/4/94
MW042	60.5	50 - 60	44 - 60.5	41 - 44	0 - 41	5/15/94
MW044	67.5	57 - 67	55 - 67.5	50 - 55	0 - 50	5/14/94

Notes: All wells were constructed with 2-inch ID, Schedule 40, PVC casing. A 6-inch ID surface casing was installed from the surface to a depth of 80 feet. All wells were completed as flush mounts. All depths and intervals are in feet below ground surface.

Key:

[a] = All wells have 10-foot-long screens, except MW012, MW014, and MW032 which have 5-foot screens. All screens are 2-inch ID, Schedule 40, PVC with a slot size of 0.010 inch.
[b] = Filter pack was 20-40 mesh silica sand.
[c] = Bentonite seal was 0.25-inch bentonite pellets.
[d] = Grout was Portland cement with 5% bentonite powder.
ID = Inside diameter.
PVC = Polyvinyl chloride.
BGS = below ground surface

Source: Ecology and Environment, Inc., 1994

Figure 2-1 GEOPHYSICAL SURVEY LOCATIONS
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc.1994

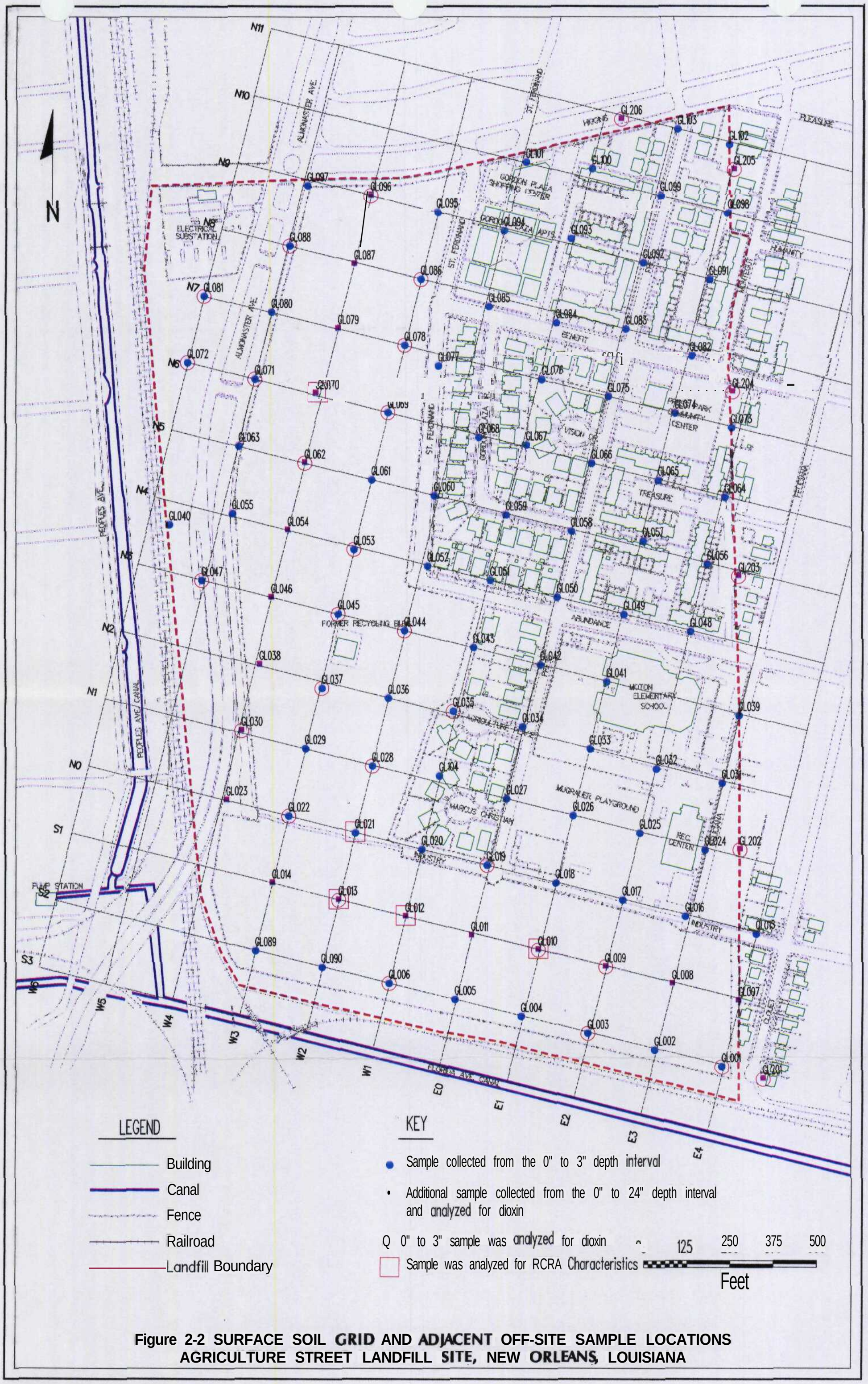


Figure 2-2 SURFACE SOIL GRID AND ADJACENT OFF-SITE SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc. 1994

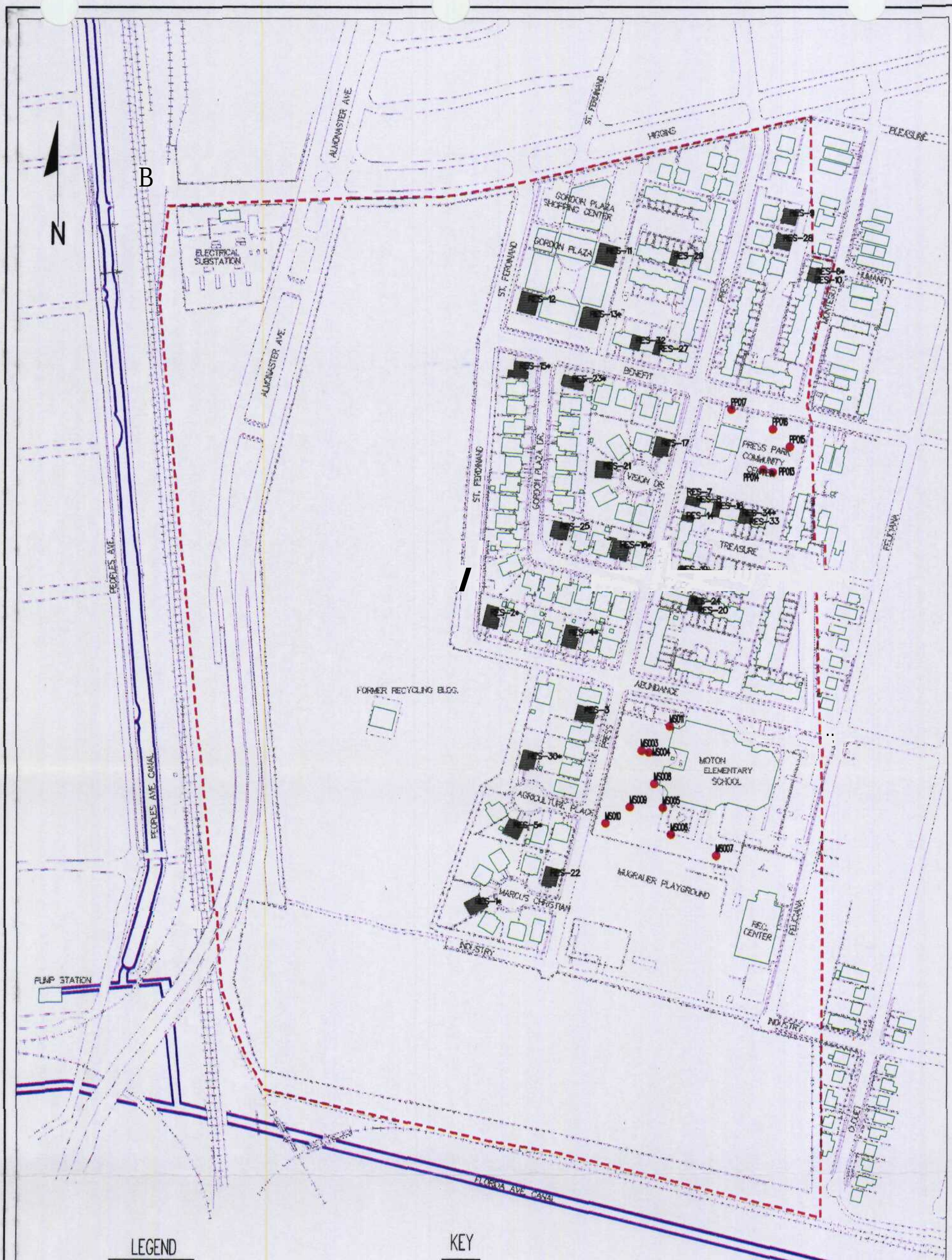
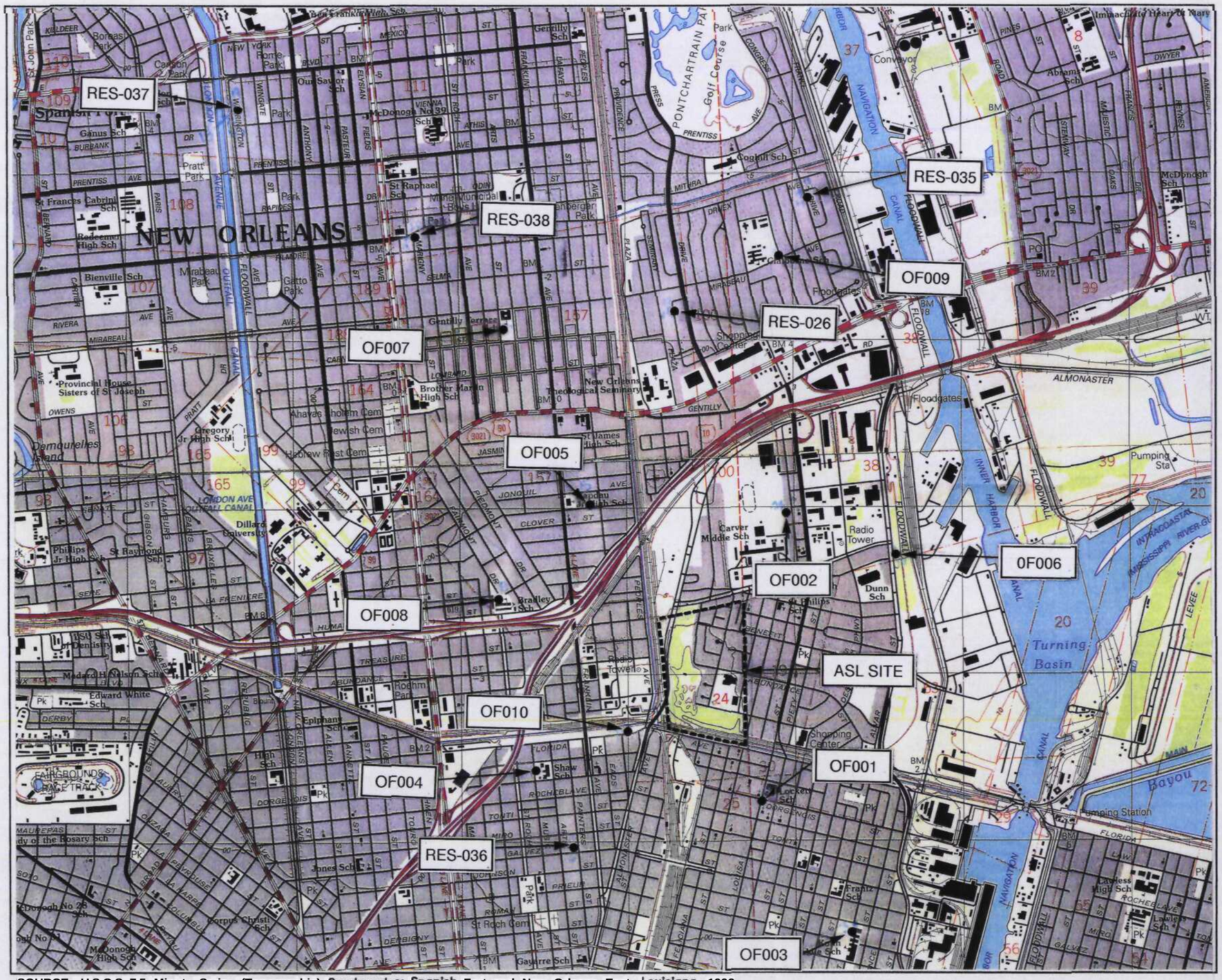


Figure 2-3 STUDY GROUP RESIDENCES, MOTON SCHOOL, AND PRESS PARK C C SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994



KEY

RES-000 BACKGROUND RESIDENCE LOCATION

OF000 OPEN LAND LOCATION

• SAMPLE LOCATION

NOTE:

At least three surface soil samples and four sub surface soil samples were collected from each background residence. Tap water, indoor dust, al and paint samples were also collected at each background residence.

Figure 2-4
BACKGROUND RESIDENCE/OPEN LAND
BACKGROUND SAMPLING LOCATIONS
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

SOURCE: U.S.G.S 7.5 Minute Series (Topographic) Quadrangles: Spanish Fort and New Orleans East, Louisiana, 1992.

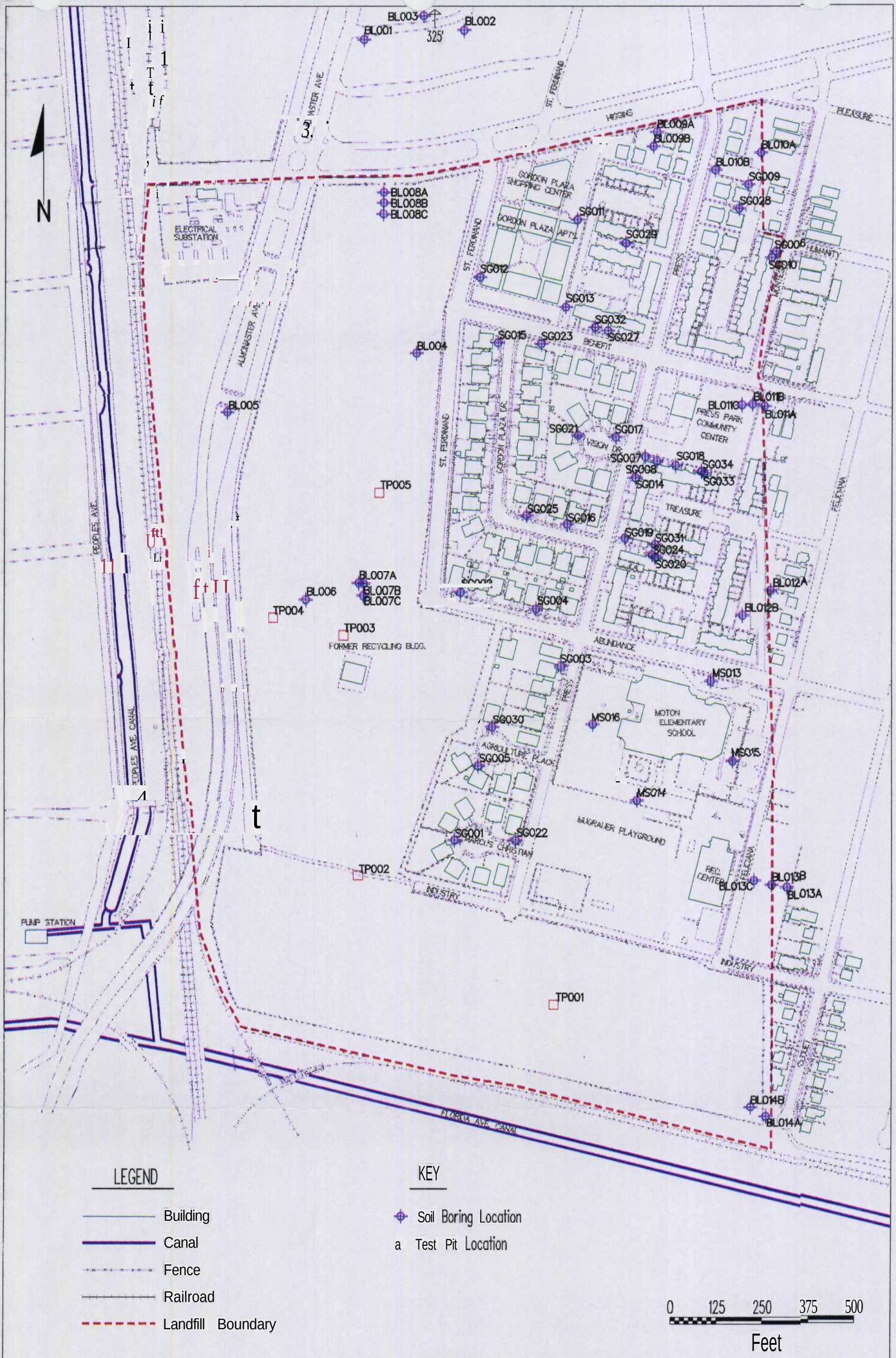


Figure 2-5 SOIL BORING AND TEST PIT LOCATIONS
AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

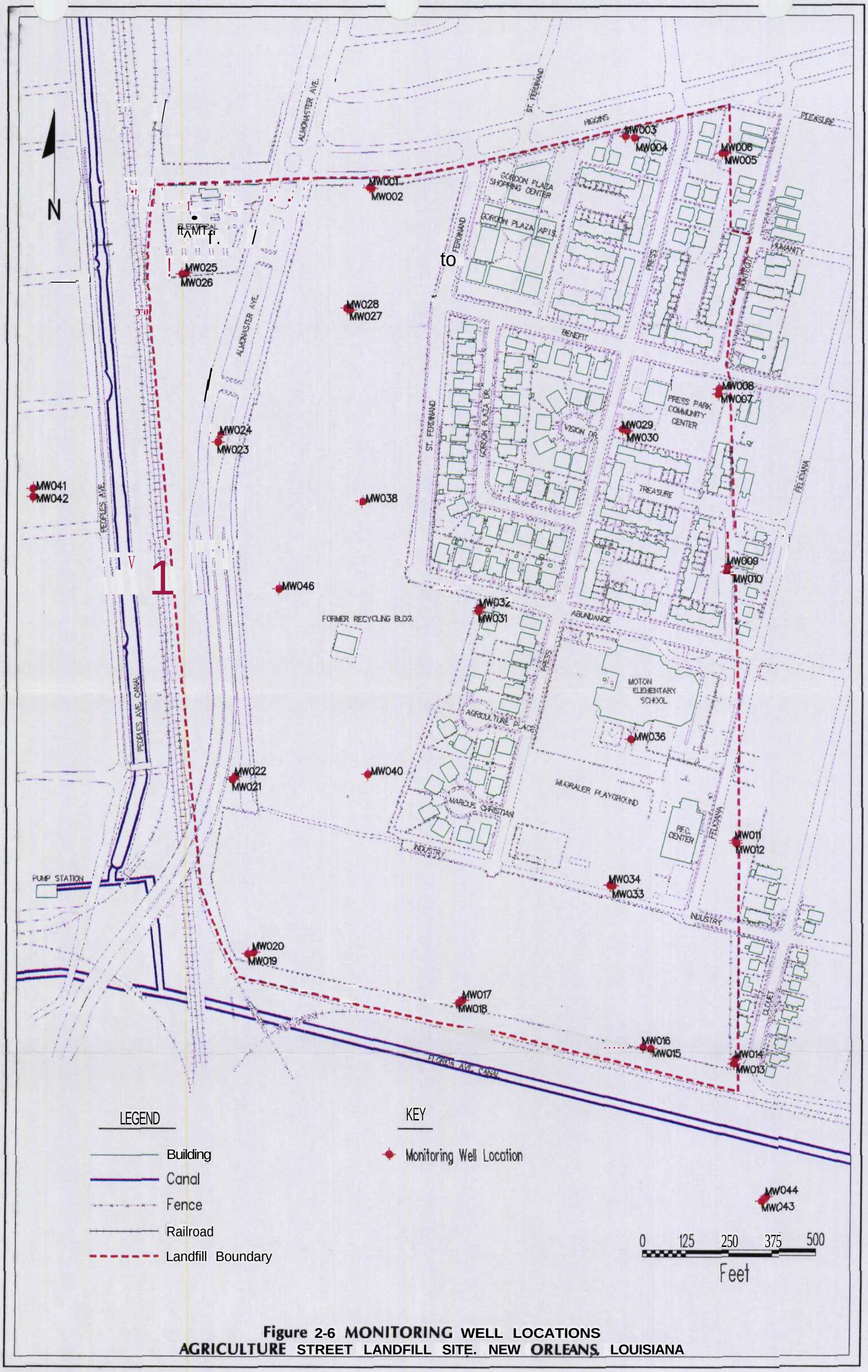
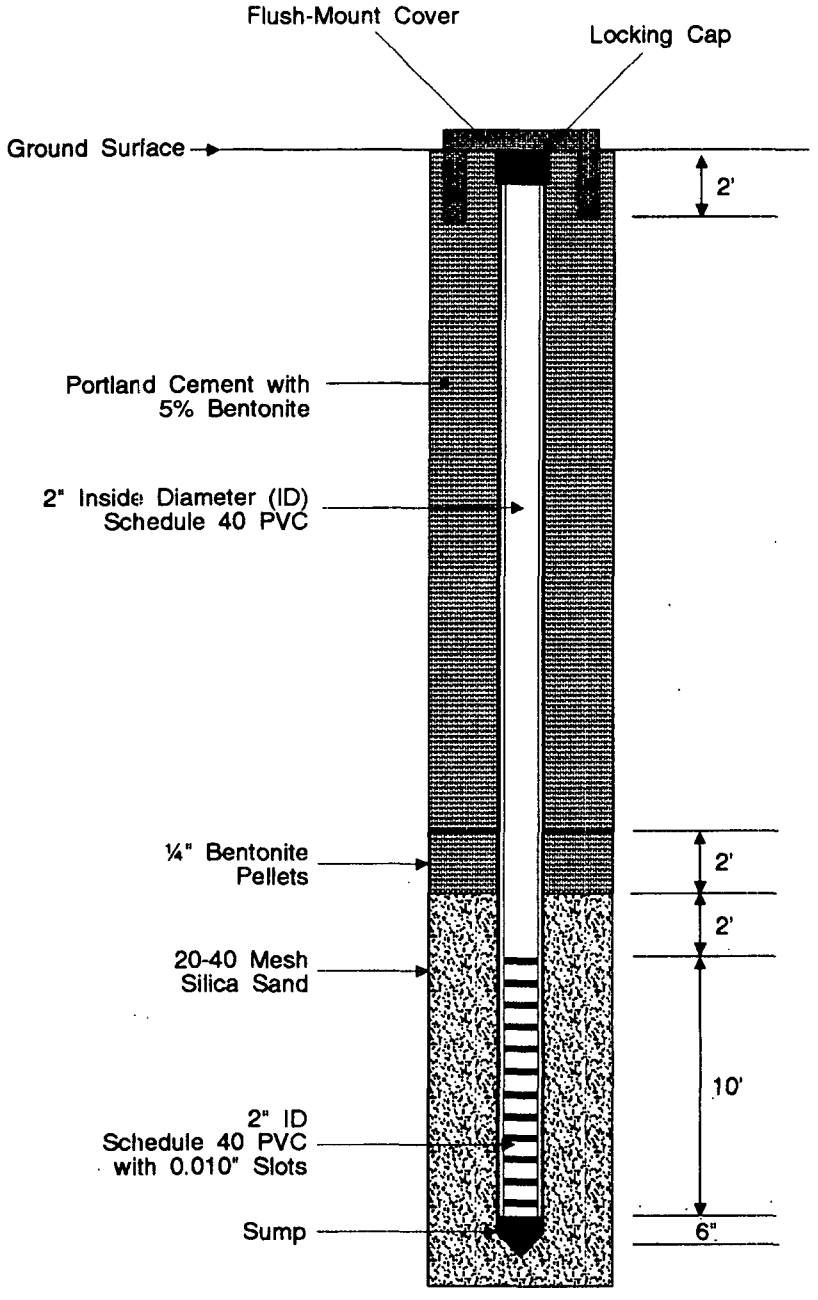


Figure 2-6 MONITORING WELL LOCATIONS
AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994

ZT2WC_3.CDR



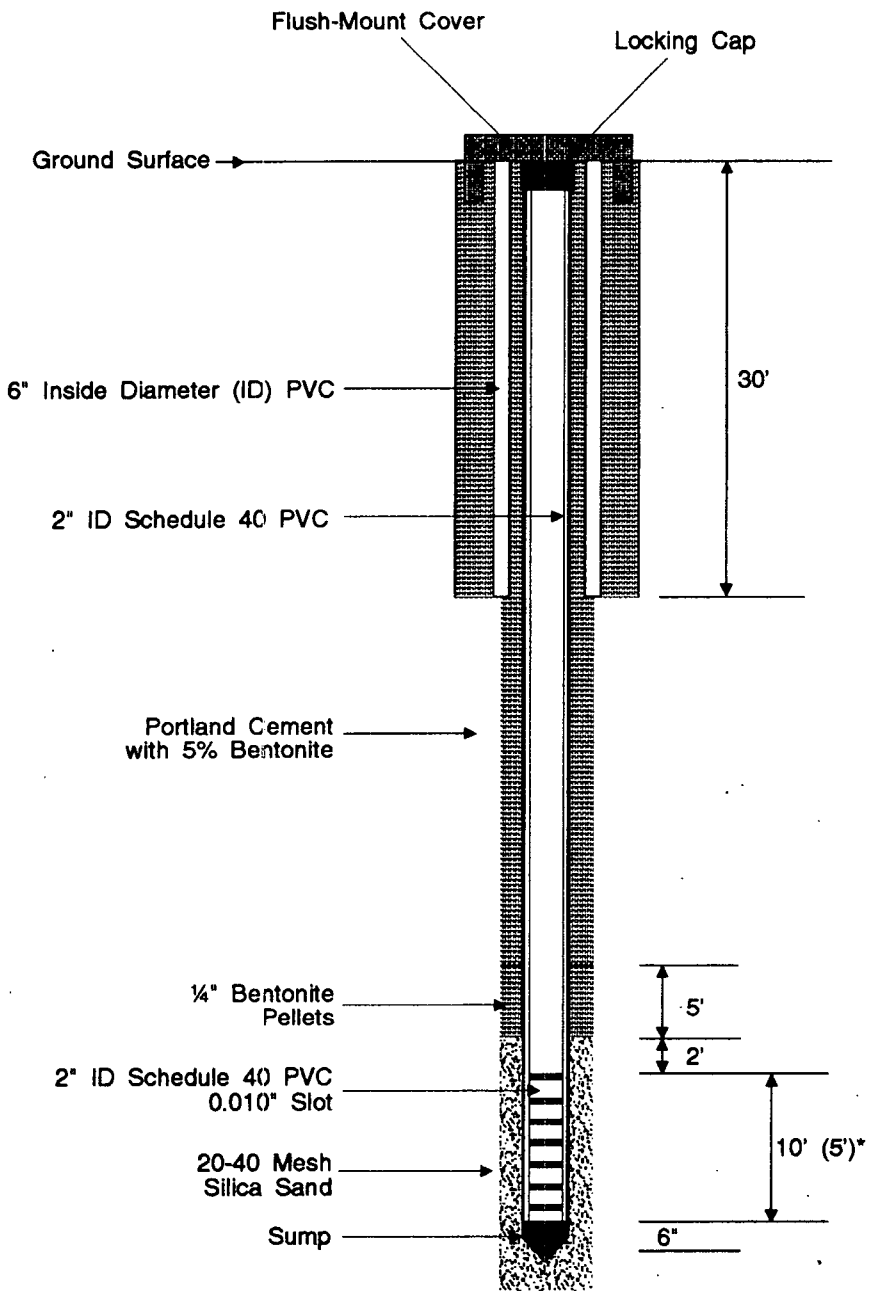
NOT TO SCALE

SOURCE: Ecology and Environment, Inc. 1994

Figure 2-7 SHALLOW ZONE MONITORING WELL CONSTRUCTION DIAGRAM AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.218

ZT2SW3.CDR.CDR



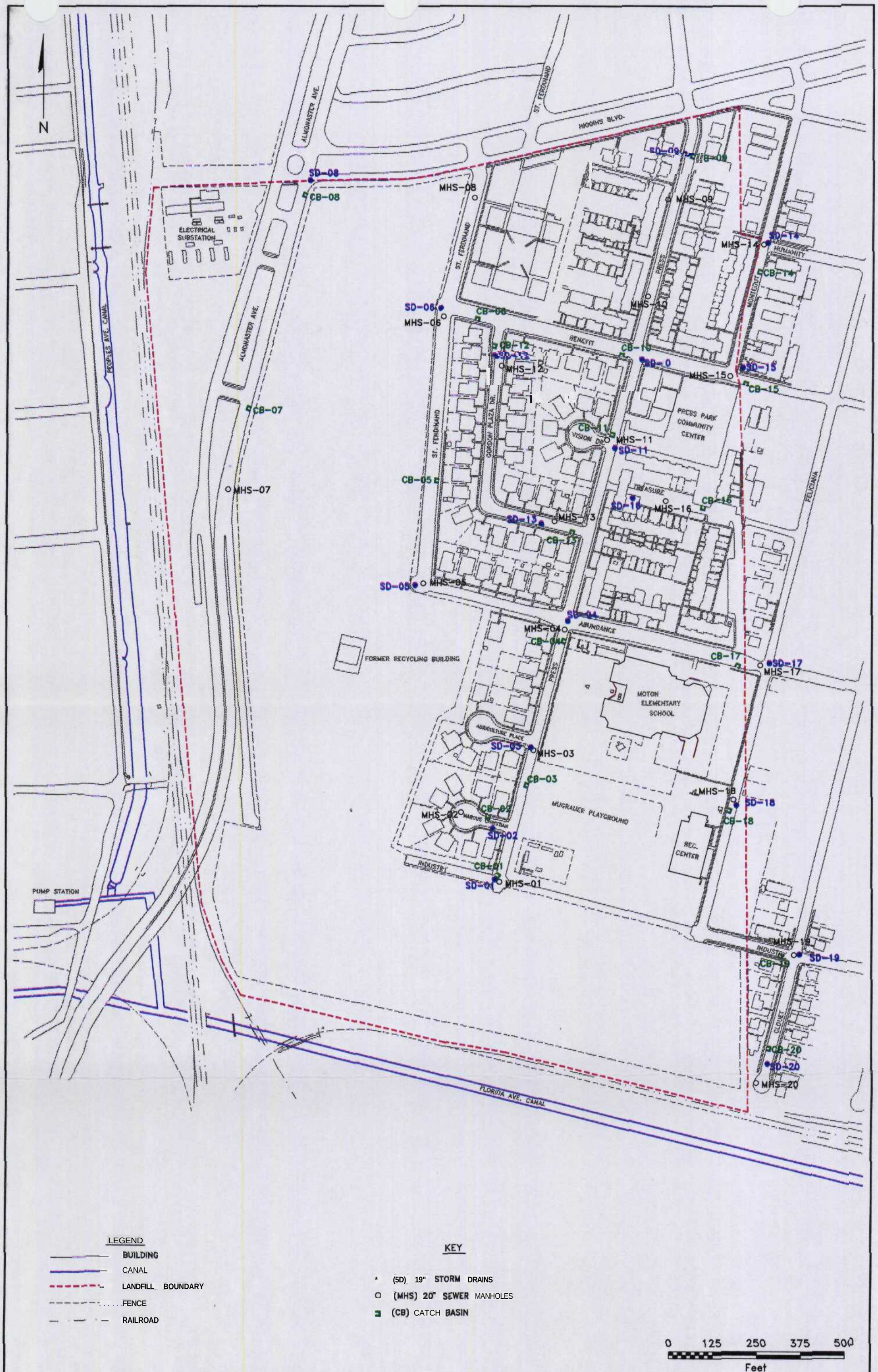
NOT TO SCALE

NOTE: There is a 5-foot-long screen in MW012, MW014 and MW032

SOURCE: Ecology and Environment, Inc. 1994

Figure 2-8 SAND UNIT MONITORING WELL CONSTRUCTION DIAGRAM
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.219



LEGEND

- BUILDING
- CANAL
- LANDFILL BOUNDARY
- FENCE
- RAILROAD

KEY

- * (SD) 19" STORM DRAINS
- O (MHS) 20" SEWER MANHOLES
- ▪ (CB) CATCH BASIN

0 125 250 375 500
Feet

Figure 2-10 AIR INTRUSION MONITORING LOCATIONS AT SEWER MANHOLES, STORM DRAINS, AND CATCH BASINS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc. 1934

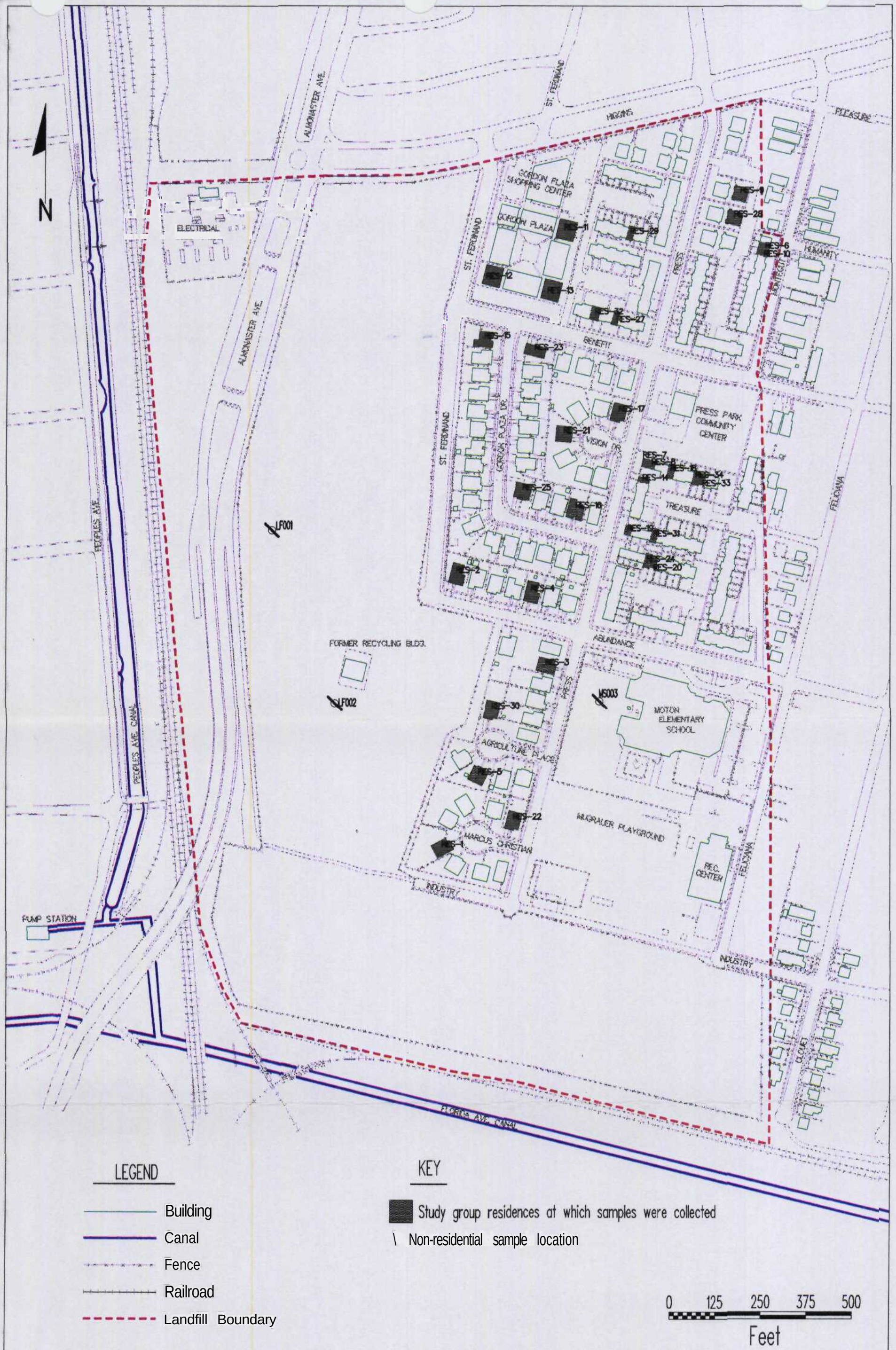
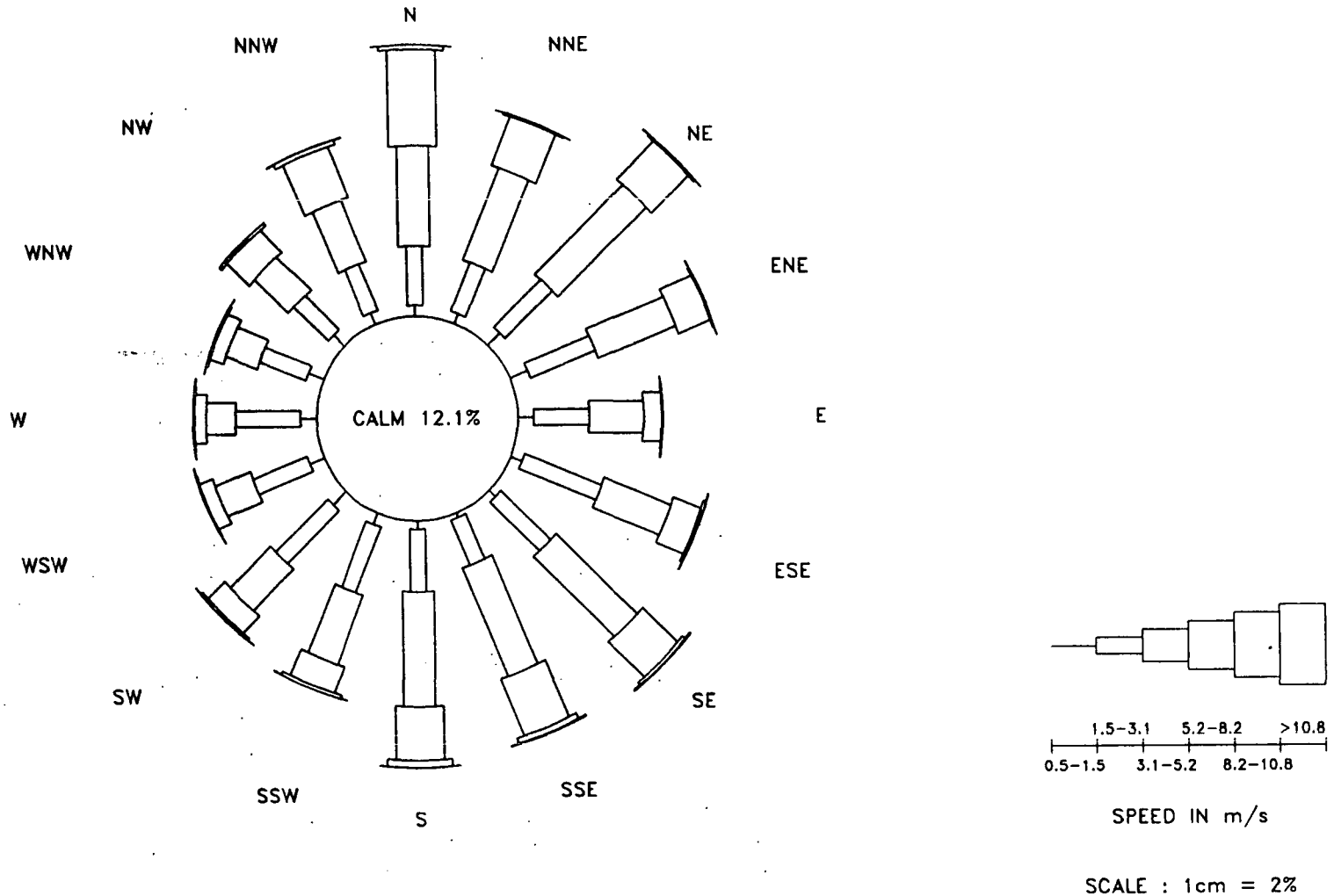


Figure 2-9 AMBIENT AIR SAMPLE LOCATIONS
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

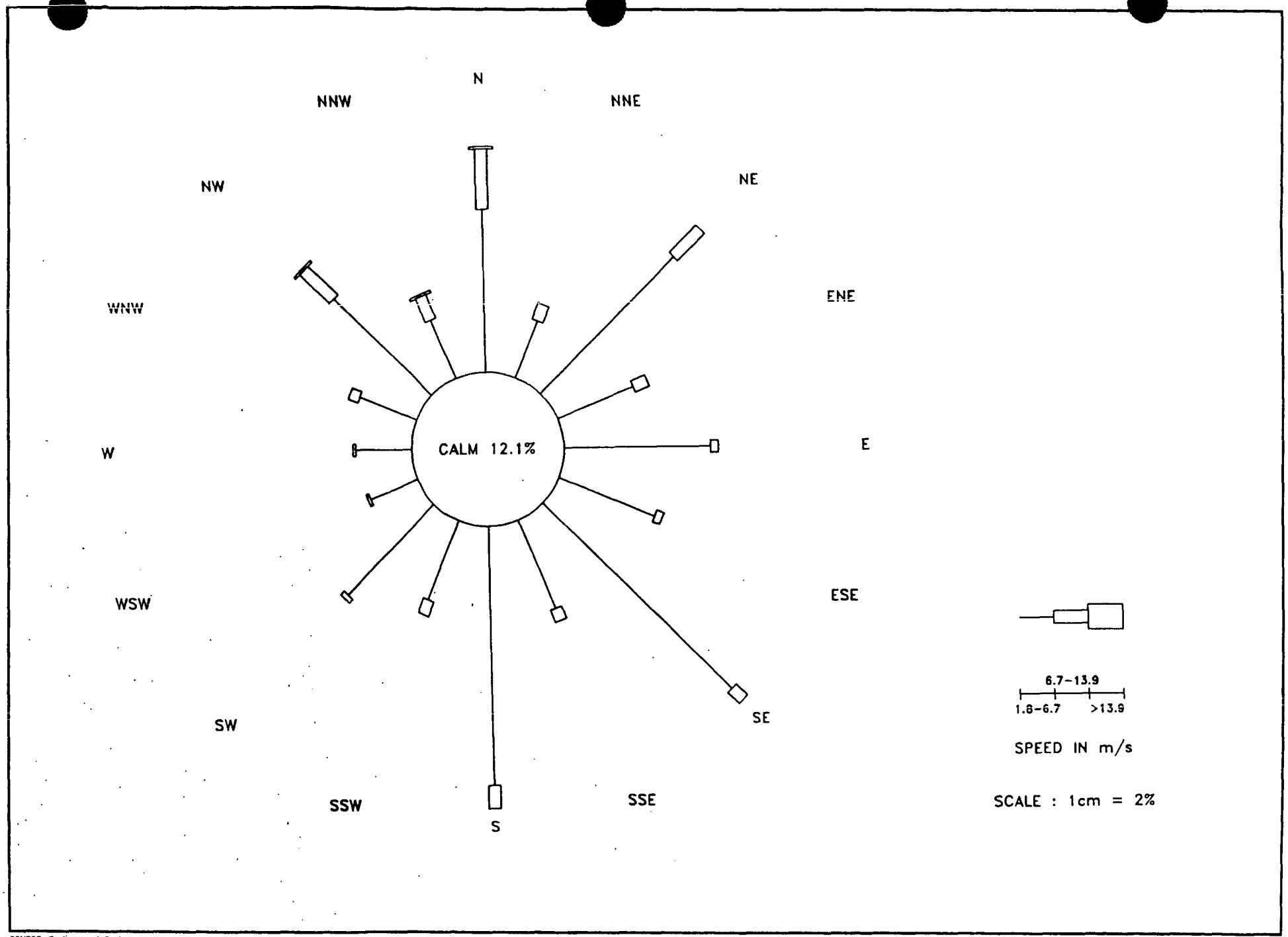
SOURCE: Ecology and Environment, Inc. 1994



SOURCE: Ecology and Environment, Inc. 1994

001157.222

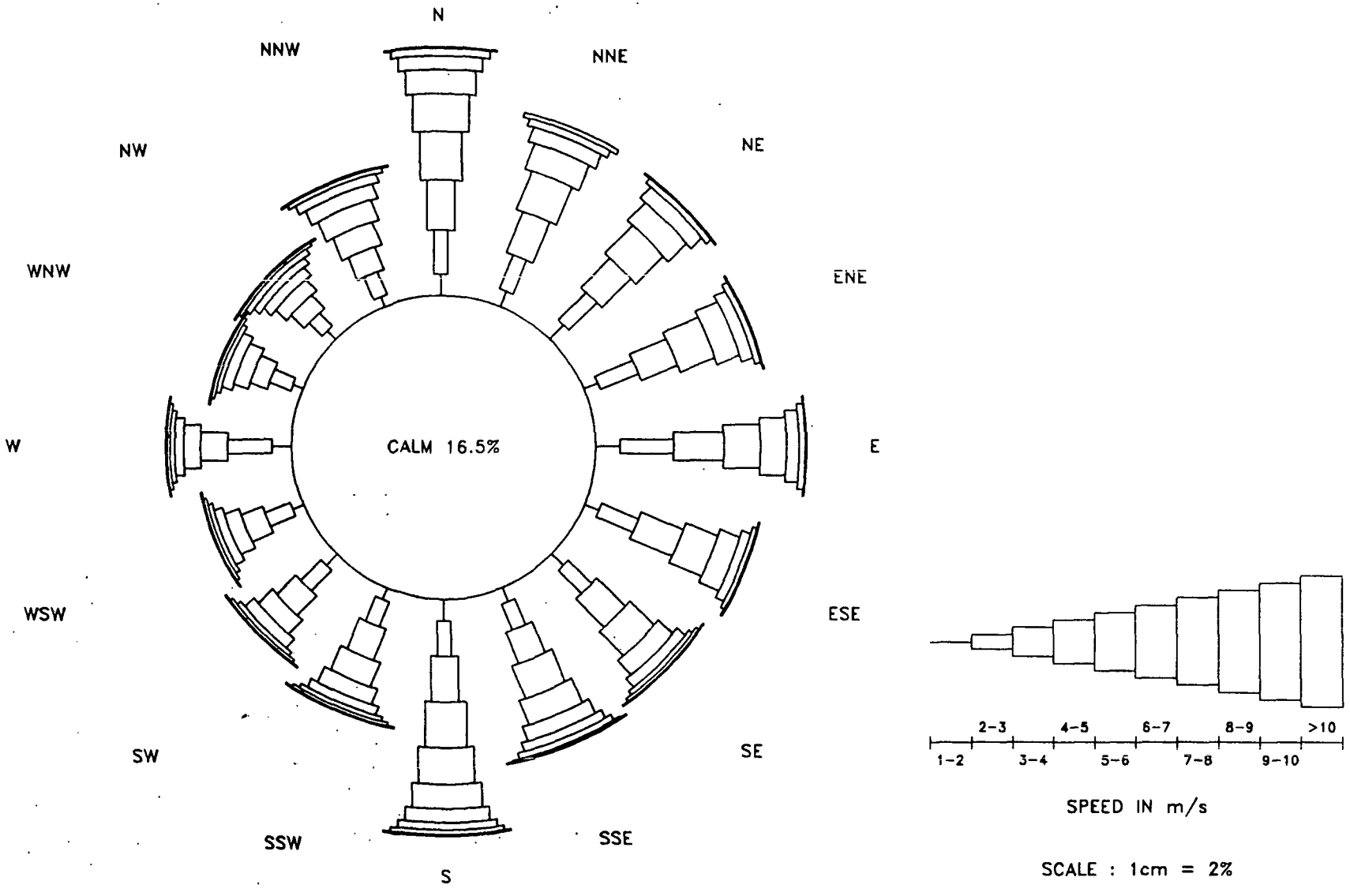
Figure 2-11 WINDROSE DIAGRAM FOR NEW ORLEANS, 1984-1989
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



SOURCE: Ecology and Environment, Inc. 1994

Figure 2-12 WINDROSE DIAGRAM FOR NEW ORLEANS, 1930-1938
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.223



SOURCE: Ecology and Environment, Inc. 1994

Figure 2-13 WINDROSE DIAGRAM FOR NEW ORLEANS, 1958-1959
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.224

Figure 2-14 SEDIMENT AND SURFACE WATER SAMPLE LOCATIONS AND SEINING LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994

3. PHYSICAL CHARACTERISTICS OF THE STUDY AREA

As stated in Section 1, the study area for the RRII includes the area within the defined boundaries of the ASL site and selected areas as designated by EPA. The selected areas include background locations and areas adjacent to the ASL site that might have been affected by contaminant migration. Section 3 summarizes information collected during the RRII which pertains to:

- An updated evaluation and description of the former landfill based on analysis of historical aerial photographs and field investigation data; and
- Physical characteristics of the study area, including geology, hydrogeology, surface water hydrology, ecology, and meteorology.

3.1 DESCRIPTION OF THE FORMER LANDFILL

The ASL site occupies approximately 95 acres of developed and undeveloped property. The former landfill is bound on the north by Higgins Boulevard, and on the south and west by railroad tracks. The railroad tracks on the southern boundary are parallel to the Florida Avenue Canal, and the railroad tracks on the western site boundary are parallel to the Peoples Avenue Canal (see Figure 1-2). A subterranean drainage culvert is located beneath Higgins Boulevard (Higgins Boulevard Canal). Based on a review of aerial photographs, field and geophysical investigations, and an evaluation of material recovered from shallow borings, the eastern site boundary was determined to be a nearly straight line that extends northward from the cul-de-sac at the southern end of Clouet Street to Higgins Boulevard, between Press

and Montegut streets. Almonaster Avenue and an overpass cross part of the western boundary of the ASL site.

Approximately 47 acres of the ASL site were developed from the 1970s through the late 1980s to provide single-family residences, multiple-family public and private housing units, an elementary school, a community center, a recreational center, businesses, and an electrical substation. The residences, housing units, school, businesses, and public buildings on the developed portion of the ASL site are served by underground public utilities, including water, sewer, electric, and natural gas. Aboveground infrastructure includes, concrete and asphalt streets, concrete sidewalks, and overhead high-tension power lines. Single-family residences comprise the Gordon Plaza Subdivision located near the center of the ASL site. Multiple-family housing consists of HANO structures and the Gordon Plaza Apartments. The HANO housing units are two-story brick structures located in the northeast and east-central portions of the site. The Gordon Plaza Apartments are located just west of the HANO structures, in the north-central part of the ASL site, and are constructed as a series of two-story, square-shaped buildings. The Press Park Community Center is located on the eastern boundary of the ASL site and contains a one-story brick building and an open area south of the parking lot. The recreational center is located south of the school and includes an indoor gymnasium. The electrical substation is located within the northwestern portion of the site. Moton School is a two-story brick structure located on the eastern portion of the site. The school property is secured by a chain-link fence and includes an open playground. Another play area, Mugrauer Playground, is located just south of the school and west of the recreation center.

Forty-eight acres of the ASL site remain undeveloped. The majority of the undeveloped portion is covered with extensive vegetation. A former recycling building is located in an elevated area in the west-central portion of the site. High-tension power lines cross the site from the end of Abundance Street to Almonaster Avenue. A dirt road originates at the intersection of St. Ferdinand and Abundance streets and continues southwest, past the former recycling building, toward Almonaster Avenue. Several other dirt roads are present on the undeveloped portion of the ASL site, but they have become overgrown and are impassable by vehicles.

Surface debris on the undeveloped portion of the ASL site is composed mostly of household trash, tires, automobile gas tanks, yard trash, and construction debris, including materials that potentially contain asbestos. This surface debris is probably unrelated to former landfill operations, and word-of-mouth information suggests that this debris was disposed of after the landfill closed. Until recently, access to the undeveloped portion of the site was unrestricted and the site was subject to unauthorized trash disposal. Under removal authority and concurrent with the RRII, EPA installed an 8-foot-high chain-link fence around the undeveloped portion of the former landfill to restrict access and prevent unauthorized disposal.

3.1.1 Topography

Differences in elevation exist between the developed and undeveloped portions of the ASL site. Surface elevations across the former landfill range from approximately 10 feet above mean sea level (MSL) in the east-central part of the undeveloped area to between MSL and approximately 9 feet below MSL near the northwestern site boundary (see Figure 3-1 and Plate 1).

In general, the undeveloped portion rises from the western boundary eastward toward the developed portion of the former landfill, but it slopes down just before it meets the developed area. Several topographic highs are located throughout the eastern and northwestern areas of the undeveloped portion of the former landfill. Along the southern edge of the developed area, there is a decrease in elevation from the developed to the undeveloped area. as the grade generally slopes downward from the developed area toward the railroad tracks and the Florida Avenue Canal. The railroad tracks, parallel to both canals, sit on a bed that is approximately 5 feet higher than the surrounding land on either side.

The developed portion of the ASL site is generally topographically higher in the area between Abundance and Industry streets than in the area north of Abundance Street. Elevations south of Abundance Street reach approximately 2.4 feet above MSL, whereas the highest elevation north of Benefit Street is 1.4 feet below MSL. Elevations on the developed portion of the former landfill are largely a result of residential construction requirements, but there is a general downward slope across the developed area towards Higgins Boulevard.

3.1.2 Operational History and Extent of ASL Site

To determine the maximum operational boundaries and extent of landfill material present at the ASL site, E & E reviewed historical aerial photographs, performed a geophysical survey, and completed a subsurface boring program.

3.1.2.1 Analysis of Aerial Photographs

E & E reviewed historical aerial photographs of the ASL site for the period from 1936 to 1992. An earlier aerial photographic analysis of the Press Park site (now known as the ASL site) was performed by the EPA Environmental Monitoring Systems Laboratory (EMSL) in Las Vegas, Nevada, in May 1986 utilizing aerial photographs from 1952, 1964, 1977 (November), and 1986 (EPA 1986d). These aerial photographs depict an area that includes the ASL site and the surrounding area.

During the ongoing investigation of the ASL site, seven additional aerial photographs were obtained to investigate activities prior to 1952 and during the period from 1964 to 1977. Copies of all available aerial photographs are presented in Appendix A.

1936 Photograph

The 1936 aerial photograph shows an approximately 1,200-foot by 1,200-foot active landfill area in the west-central portion of the ASL site. Landfill activities do not appear to extend beyond the area currently occupied by Moton School. Land access is visible only from Peoples Avenue to the active portion of the landfill. One building is located on the access road approximately 500 feet from the entrance, and another is located in a triangular land area between the railroad spurs in the southwestern corner of the site. Railroad tracks parallel to the Florida Avenue and Peoples Avenue canals form the southern and western landfill boundaries.

Buildings and farms are visible in the 1936 photograph along the unpaved Louisa Street, east of the ASL site. The area currently occupied by Higgins Boulevard is represented by a drainage ditch and an associated access path. Small residential and/or commercial structures are evident in the southeastern portion of the site, beyond the area of landfill activities.

1946 Photograph

The landfill area appears to have increased slightly from 1936 to 1946. According to the 1946 photograph, the landfill occupied a 1,400-foot by 1,500-foot area; however, the eastern extent could not be determined because aerial coverage did not extend far enough east. The two buildings on the access road and southwestern corner of the landfill are still present, and several new buildings appear in the southern section. The entire landfill area appears to be graded, and an additional cleared area is present in the northwestern corner of the site. The primary access route is still from Peoples Avenue.

1951 Photograph

Landfill dimensions and topographic features appear to change from 1946 to 1951. As shown in the 1951 photograph, the entire 95-acre parcel was regraded with the exception of a 650-foot by 1,100-foot wooded area in the north-northeast portion of the site. The building previously identified on the west-central portion of the landfill is still present, but some of the buildings observed in the southern and southeastern portions of the site, and the building in southwestern corner, which appeared in both 1936 and 1946 photographs, are no longer present.

A new 200-foot by 200-foot building (former recycling building) appears in the 1951 photograph, approximately 200 feet north of the original site building. Several small buildings are visible in the northwestern corner of the site and along the western boundary near the railroad tracks. An almost 200-foot-diameter lagoon is visible approximately 200 feet northeast of the large building. An irregularly shaped drainage ditch runs east to west in the southern portion of the site, and numerous small areas assumed to contain standing water are scattered throughout the southeastern portion of the site. A crescent-shaped ridge of recent deposits appears in the southwestern portion of the site.

A dirt road extends northward from the central portion of the site, divides the north-northeastern wooded area, and crosses the drainage ditch along the northern boundary that later became Higgins Boulevard. Although landfilling activities appear to have only occurred south of the drainage ditch (Higgins Boulevard), there is a clearing in the wooded area north of the drainage ditch. Paved roads and houses are visible along Louisa, Metropolitan, Clouet,

and Feliciana streets. Feliciana, Industry, Abundance, Benefit, and Humanity streets truncate to the west to present a well-defined north-south trending eastern boundary of the landfill operations area.

1952 Photograph

Although the outer boundaries of the landfill appear to be nearly the same in the 1952 photograph as in the 1951 photograph, several changes appear within the landfill. Recent surface deposits are visible in the northeastern, central, and southern portions of the site, and half of the wooded area in the 1951 photograph has been cleared.

The crescent-shaped ridge in the southwestern portion of the former landfill and the irregularly shaped drainage ditch in the southern portion are still present in the 1952 photograph. In addition, a prominent ridge is located along the northern and eastern portions of the site, a large mound and two depressions are located along the western boundary, and two new lagoons appear in the southern portion. The mound is approximately 100 feet in diameter, the depressions are 175 feet and 210 feet in diameter, and the new lagoons are 70-feet by 210-feet and 125-feet by 550-feet. The small lagoon in the central portion of the site is all that remains of the larger lagoon shown in the 1951 photograph.

The small buildings in the southern and southeastern portions of the site that appeared in the 1946 photograph, and the small buildings that appeared in the northwest portion of the site in the 1951 photograph, are still present, but the eastern and western portions of the 200-foot-long building (former recycling building) appear to have been dismantled and separated into in two smaller buildings. According to the EMSL report, a possible drum disposal area was located west of the large building (EPA 1986d). The primary access route is still on the west from Peoples Avenue, but a prominent road to the north and three small paths along the eastern portion of the landfill are also visible.

1960 Photograph

Landfill topography appears to have changed between 1952 and 1960. According to the 1960 photograph, almost all of the site appears to have been regraded, and most of the depressions, lagoons, drainage ditches, and mounds are no longer present. New vegetation

appears across the site, and both depressions that appeared along the western boundary in the 1952 photograph are slightly smaller and appear to be filled with water. Several other small water-filled depressions are also visible along the landfill perimeter. The irregularly shaped drainage ditch to the south no longer exists, but a prominent ditch is present along the southern and southeastern site boundaries.

The remains of the former recycling building shown in the 1952 photograph are still present in the 1960 photograph, but the small buildings in the northwestern and southeastern corners of the site have been removed. Activities appear to be occurring in the west-central portion of the site around the remaining buildings. A new road is under construction along the western boundary, passing through the northwestern corner of the site in the approximate location of Almonaster Avenue. The northern portion of Montegut Street, between Higgins Boulevard and Humanity Street, is also under construction. The primary access route is still on the west from Peoples Avenue, and access on the east from the residential area appears to have been eliminated. The northern boundary of the site is not visible in this photograph.

1964 Photograph

The 1964 photograph shows few changes from the 1960 photograph. Landfill activity appears to be ongoing in the vicinity of the remaining buildings, with recent disposal evident diagonally across the northern portion of the site and near the southern end of Feliciana Street. Water-filled depressions along the western border are much smaller, and what appears to be areas of standing water are visible in the north-central portion of the site. Montegut Street appears to have been extended south to Benefit Street, and the ditch along the current Higgins Boulevard is still visible. The main access route to the site is still on the west from Peoples Avenue, but possible access routes are visible from the western ends of Humanity and Benefit streets and from the southern end of Feliciana Street. The electrical substation is under construction between Almonaster Avenue and the railroad tracks in the northwestern corner of the site. Homes are present on the west side of Montegut Street between Pleasure and Humanity streets.

1967 Photograph

The 1967 photograph shows major changes in landfill topography. All vegetation has been removed and the entire site regraded as a result of disposal activities associated with the aftermath of Hurricane Betsy in 1965. Although the site has been regraded, one 50- to 100-foot-diameter, water-filled depression occurs near the western landfill boundary, north-northwest of the former recycling building. Smaller water-filled depressions are visible in the northern portion of the site. Numerous cars, storage tanks, and other scrap materials are visible across the vicinity of the site buildings. Two new buildings and a multiple-story structure are located east of the former recycling building. Fine-grained material, possibly ash, had been spread on the surface in a 200-foot radius from the new multiple-story structure. Vehicles and debris are also visible along the eastern landfill boundary.

Electric power poles have been installed along the northern boundary of the site and on the east and west sides of Almonaster Avenue, extending south to the railroad spur in the southwestern corner of the site. Electric power poles also extend from the Peoples Avenue access road toward on-site structures, and across the landfill, along what now is the extension of Industry Street, to the intersection of Press and Industry streets. High-tension power lines run south-southwest along the extension of Press Street to a point by the Southern Railroad.

Construction of a culvert has begun northwest of the site for the drainage ditch along the northern boundary. Almonaster Avenue is still under construction, and the area north of the northern drainage ditch has been regraded. The primary access route is still on the west from Peoples Avenue, and numerous accessory dirt roads extend from the main access road to the northern portion of the site and the west ends of Humanity and Benefit streets. The railroad spur appears to have been removed from the site, but the switch and a small extension from the mainline tracks remain visible.

1977 Photographs

Site conditions change extensively between 1967 and 1977. Based on the standard photograph of October 3, 1977, and the infrared photograph of November 11, 1977, the site appears inactive, and the eastern half has been partially developed to include the HANO housing units, the Press Park Community Center, and the recreational center. St. Ferdinand

Street is under construction, and Benefit, Abundance, and Industry streets are being expanded westward across the site. Press Street, which had been partially developed, is being extended into the previously undeveloped portion of the site. Higgins Boulevard and Almonaster Avenue are complete, and homes have been constructed on the former landfill between Higgins Boulevard and Abundance Street, and west of Montegut Street.

The undeveloped area, adjacent to the east side of St. Ferdinand and Press streets, has been regraded and the vegetation removed. The remaining undeveloped area is being revegetated. The multiple-story structure and two smaller buildings, junked cars, storage tanks, and scrap have been removed, but the area containing possible ash material is still visible. Numerous unpaved paths are present across the western undeveloped area. The former primary access route from Peoples Avenue stops where construction of the elevated portion of Almonaster Avenue begins. Access to the site from the west is now provided by a side road extension of Almonaster Avenue.

1986 Photograph

The 1986 photograph shows continued development of the ASL site since 1977. Numerous new homes appear in the Gordon Plaza Subdivision, in the parcel east of St. Ferdinand Street, and along the west side of Press Street. The Gordon Plaza Apartments and a shopping area appear along Higgins Boulevard, east of St. Ferdinand Street. Gordon Plaza Drive is complete and the Moton School is under construction. The Mugrauer Playground has also been completed.

The former recycling building is still visible in the 1986 photograph, but many of the unpaved roads have been covered by vegetation. According to the EMSL report, several areas of potentially stressed vegetation were noted across the undeveloped portion of the site (EPA 1986d).

1992 Photographs

The April 27 and October 5, 1992, photographs are similar to the 1986 photograph. Moton School construction is complete, and the areas in the undeveloped portion, once

believed to contain stressed vegetation, appear to be filled in with new growth. Recent dumping activity is visible across an area in the southeast corner of the site.

Summary

Landfill activities at the ASL site were observed as early as 1936. The active landfill area increased in size until sometime between 1967 and 1977, when landfill-related activities appear to end and the eastern portion of the former landfill undergoes rapid development. Based on the aerial photographic analysis, the farthest extent of the landfill boundary appears to be defined to the south and west by the Southern Railroad and the former railroad spur (in the southwest corner), to the north by the area slightly south of Higgins Boulevard, and to the east by the well-defined line observed in the 1952 aerial photograph.

Several major changes in landfill topography occurred between 1936 and 1992. A major change occurred between 1946 and 1951 when the site was almost entirely regraded. Numerous ridges, lagoons, and depressions were created from 1951 to 1952 before the entire site was regraded again between 1952 and 1960. Only a few changes were observed between 1960 and 1964, including construction of several homes near the northeastern corner of the landfill. The entire site was regraded again between 1964 and 1967, electric power poles were erected, and a fine-grained material (possibly ash), junked cars, storage tanks, and scrap material appeared on site.

Landfill activities appear to have ceased sometime between 1967 and 1977, and the eastern half of the former landfill underwent rapid development, including construction of the HANO housing units, the Press Park Community Center, the Mugrauer Playground, and the recreational center. The Gordon Plaza Subdivision, the Gordon Plaza Apartments, and the business mall located north of the Gordon Plaza Apartments were constructed on the former landfill from 1977 to 1986, and Moton School construction was completed in 1987. By 1992, all major development on the former landfill was complete and only an approximately 48-acre "L-shaped" portion remained undeveloped.

Analysis of the historic aerial photographs did not provide any evidence concerning: the reported excavation of formal landfill cells on the northern part of the site; the reported subsequent excavation of 300,000 cubic yards of landfill material for use as construction

backfill elsewhere in the New Orleans area; and the reported presence of a municipal incinerator on the landfill.

3.1.2.2 Former Landfill Boundary Geophysical Survey

Surface geophysical surveys were performed to assist in the identification of former landfill boundaries, the vertical extent of landfill materials, and the presence of buried debris. Survey profile lines were established along the streets and boulevard that intersect or are adjacent to the 1952 landfill boundary (see Figure 2-1). The following discussion summarizes the results from the MAG and EM surveys. Useable data were obtained from the MAG surveys and from the EM surveys in one or more modes. The resolution of a geophysical anomaly is dependent upon the distance between instrument readings: the closer the readings, the better the definition of the configuration of a potential anomaly and its magnitude. Although a survey instrument can identify anomalies, it cannot identify their source. Supplemental data must be acquired through excavation to classify the source of the anomaly. A complete description and analysis of the geophysical investigation conducted at the ASL site are presented in Appendix F.

A significant amount of interference was encountered during the surveys of the developed portion of the ASL site. This interference was caused by cultural features such as houses, fences, buried utilities, overhead power lines, and steel-reinforced, concrete-paved streets. However, useable data were obtained from the EM31 and EM34-3 in one or more of the various operation modes available (see Section 2.3 and Appendix F).

When surveys are performed in residential settings or settings with many cultural interferences, data interpretation is usually based upon changes to the baseline signature of the survey profiles rather than a specific negative or positive anomaly. The MAG survey performed at the ASL site was significantly influenced by cultural sources in the vicinity of the former landfill which resulted in either positive or negative anomalies relative to the baseline of a particular profile. The baseline values along various survey profiles ranged from 49,000 to 50,500 gammas. The MAG profiles along Industry Street and Higgins Boulevard show fewer cultural influences (see Appendix F). With the exception of negative anomalies associated with culverts buried beneath the boulevard, the baseline gamma values

for the Higgins Boulevard profile are relatively consistent with the rest of the profile. The Industry Street profile shows only a small shift of approximately 300 gammas in the baseline MAG profile, which resulted from the transition from blacktop to concrete pavement. No distinct anomalies occur in the MAG profiles which correspond to the approximate location of the 1952 landfill boundaries. Anomalies appear to be the result of buried ductile pipe, water mains, sewers, and electrical power supply lines.

Although the EM31 and EM34-3 surveys were also affected by cultural features, such as the transition from blacktop to concrete pavement, several profiles established for the EM31 and EM34-3 surveys helped to identify the general transition zone from the former landfill to the surrounding area. The EM31 H1 and H2 profile for Industry Street showed an increase over the baseline of approximately 200 mmhos/meter during the transition from blacktop to concrete pavement (see Appendix F). Profiles that demonstrated a change in proximity to the 1952 landfill boundary showed variations in the baseline profiles for the EM readings from 30 to 100 mmhos/meter, depending on the underlying material and cultural influences. The EM31 H1 profile along Feliciana Street showed a significant increase in the baseline of approximately 80 mmhos/meter across the landfill boundary. The EM34-3 profiles along Feliciana Street also showed a change in EM readings near the 1952 landfill boundary. The general signature of an EM change that might represent the extent of landfill material was identified along Abundance, Treasure, Montegut, and Benefit streets. In general, the EM baseline signature of the soils east of the boundary was higher than the baseline signature over the landfill material. The EM34-3 profiles most distinctly identified the former landfill boundary due to its greater depth of investigation and lower susceptibility to surface interference. The survey results indicate the absence of landfill material beyond the eastern ASL site boundary suggested by the 1952 aerial photograph.

3.1.2.3 Former Landfill Boundary Subsurface Borings

A subsurface soil boring program was conducted to more accurately determine the northern and eastern extents of landfill material occurrence and to characterize the landfill material at these former landfill boundaries. Prior to conducting field work, the lateral extent of ASL operations was estimated through an examination of aerial photographs. Boring

clusters were advanced to a depth of 10 feet BGS or until landfill material was recovered, whichever occurred first. Boring clusters BL008 through BL014 were placed at seven locations along the northern and eastern site boundaries (see Figure 2-5). With the exception of boring set BL008, at least one of the two or three borings in each of the other six clusters was completed at a location in which no landfill material was detected so that monitoring well clusters could be installed beyond areas of landfill material occurrence. Boring logs are provided in Appendix L.

Trash or debris (e.g., glass, plastic, metal, etc.), was observed in samples collected at all boundary boring locations; however, the presence of such debris was not necessarily indicative of landfill activities. For delineation purposes, landfill material was identified as compacted, deteriorated debris in which ash was commonly present. Near-surface trash and debris found at or near the boundary boring locations is probably the result of unauthorized dumping activities that occurred after the landfill had closed.

It was difficult to unequivocally delineate the horizontal extent of landfill waste based on the boundary borings because the developed portion of the site and adjacent off-site areas had been graded and filled with a variety of materials. Discounting the surface debris from recent, unauthorized dumping, six of the seven boundary boring sets appear to clearly define the extent of landfill material occurrence (BL009, BL010, BL011, BL012, BL013, and BL014). The other boring set (BL008) only provides an approximation of the outer extent of landfill material occurrence. However, lithologic data collected during completion of monitoring wells near the northwestern site boundary allow delineation of the extent of landfill material occurrence in this area also. Based on the results of the subsurface drilling program and surface geophysical survey, the estimated extent of landfill material occurrence is presented in Figure 3-2.

3.1.3 Characterization of Former Landfill Interior

To assist in development of removal/remedial alternatives for the FS, it was necessary to characterize and determine the vertical extent of landfill material. Historical descriptions of landfilling activities suggest that most landfill material was spread across the existing land surfaces rather than placed in cells and covered with soil.

3.1.3.1 Previous Investigations

Information pertaining to landfill material composition and thickness is available from investigations conducted at the site from 1976 to 1984. In these studies, landfill material was encountered in every boring completed within the former landfill area as depicted in the 1952 aerial photograph. Reported landfill material thicknesses ranged from 2.5 to 33 feet BGS, with the greatest thickness encountered in a boring collected near the corner of St. Ferdinand and Abundance streets (Gillen 1976).

Gillen (1976) and Gore (1984) identified landfill material as composed of rocks, glass, rubber, metal, wood, trash, and clay. Pavia-Byrne (1984) also identified two "unnatural" materials within the borings. One material was a granular ($\leq$0.75-inch diameter), reddish-brown, semi-soft material that began at depths between 2 and 4 feet BGS and continued for an interval of 10.5 feet. The other material was a black, cohesive greasy material that was encountered at a depth of 7 to 8 feet BGS in one boring (Pavia-Byrne 1984). Studies also reported that the upper 2 to 6 feet of the landfill material was composed of a firm, granular, compacted ash that was spread on the site from approximately 1950 to 1970 (E & E 1994a). Figure 2-6 of the ASL WP summarizes on-site shallow subsurface geology, including reported thickness of landfill material as mapped from previous studies (E & E 1994a).

Due to the development of the area subsequent to these studies, the composition and landfill material thicknesses previously reported cannot be directly compared to the boring information collected as part of the RRII. However, similar trends in landfill material composition and thickness are exhibited by both data sets.

3.1.3.2 Former Landfill Interior Geophysical Survey

MAG, EM31, and EM34-3 surveys were conducted to determine the presence of ferrous-bearing or other conductive materials which could indicate a waste disposal area that warranted further study through test pit excavations, interior borings, or monitoring wells. Detailed analysis of the geophysical surveys, including the southwest detail grid, the south detail grid, and the Feliciana Street detail grid, are presented in Appendix F. MAG and EM31 readings were initially measured at the 49 accessible survey nodes of the grid at which

there were no major surficial cultural interferences. The area over which the geophysical survey was conducted is shown in Figure 2-1.

Background MAG readings at the undeveloped portion of the site were similar to background MAG readings at the developed portion of the site and ranged from 49,000 to 50,500 gammas. The base station chosen for the geophysical survey showed readings from 49,500 to 49,800 gammas during the survey. The MAG survey detected the presence of one significant negative linear anomaly on the undeveloped portion of the former landfill, along the western portion of the geophysical survey area (see Appendix F). The lowest value associated with this anomaly was 12,000 gammas, detected at node position N4W4, but this value was probably influenced by a nearby high-tension power line. The negative anomaly continues south to node position N2W4, where it becomes more representative of subsurface conditions, with fewer power line effects. The 1967 aerial photograph shows that a significant amount of metal was present in the area (e.g., drums, cars, and other debris; see Section 3.1.2.1). Remnants of this storage/disposal area might be present and have caused this magnetic anomaly. This anomaly was also documented by the EM31 H1 and H2 surveys (see Appendix F). The EM signature was represented in the H1 survey by a positive anomaly with a maximum value of 702 mmhos/meter at node position N3W4. Both horizontal profiles, H1 and H2, have similar conductivity plots, but the V1 and V2 plots associated with use of the EM31 in the vertical mode do not show profiles that are similar to the H1 and H2 profiles (see Appendix F). This absence of correlation suggests that the anomaly is probably shallow. In general, conductivities in the area north of grid line N2 ranged from 44 mmhos/meter to 702 mmhos/meter in the H1 and H2 surveys, but the V1 and V2 plots show much less variation, ranging from -171 mmhos/meter to 189 mmhos/meter. The negative values were probably influenced by the proximity of power lines.

Two smaller anomalies were detected during the initial EM31 survey of the undeveloped portion of the former landfill south of the N1 grid line. The anomalies were investigated by performing detailed MAG and EM surveys with smaller grid spacings. The first of these smaller anomalies was located along the N0 grid line between W2 and W3 (see the Southwest detail grid in Figure 2-1). The MAG survey of this anomaly shows four small areas in which the magnetic field drops to less than 10,000 gammas. The conductivity plots

for H1, H2, V1, and V2 indicate small positive and negative anomalies (see Appendix F). The location and slope of the magnetic and EM anomalies do not match; however, the magnetic anomaly shows the location of buried ferrous-bearing materials. Due to the small extent of these anomalies, the material is probably buried at a depth of 5 to 15 feet BGS.

The second small EM anomaly was associated with node position S1E1, where an EM disturbance was located approximately 44 feet south of the node (see the South detail grid in Figure 2-1). The magnetic field disturbance at this location was approximately 800 gammas, and the H1 and H2 data from the EM-31 survey showed a small depression of 40 mmhos/meter. The source of this anomaly is presumed to be an object buried at a shallow depth.

Test pit excavations (TP001 and TP002) were later made in the area of the two smaller geophysical anomalies to determine whether they might be caused by buried drums or a buried tank. No drums or tanks were found, but metal-containing debris was found in both test pits at significant depths.

To aid in the siting of monitoring wells MW010 and MW011, the Feliciana Street detail grid was established east of the recreation center (see Figure 2-1). This 75-foot by 100-foot grid showed no significant magnetic or EM anomalies associated with landfill material occurrence. Along Feliciana Street on this grid, there was some increase in EM readings associated with the steel reinforcement of the pavement.

3.1.3.3 Former Landfill Vertical Extent

Subsurface Borings

Trash was found on the surface across both the developed portion and the undeveloped portion of the ASL site. Most near-surface debris found on the central portions of the undeveloped landfill was likely deposited during disposal activities in the aftermath of Hurricane Betsy. Trash unrelated to landfill activities has been dumped at the boundary of the undeveloped portion since the former landfill was closed. This trash was found at or very near the surface.

Subsurface soils (except for the shallow residential borings) were sampled continuously during the soil boring and well installation programs, thereby ensuring that the entire

landfill material interval would be characterized. Landfill material was encountered in most soil and monitoring well borings on the ASL site at thicknesses ranging from less than 1 foot to greater than 15 feet (see Figure 3-2 and Appendix L). Landfill material is thickest (greater than 15 feet) across the central area of the site and thins radially outward toward the former landfill perimeter. This vertical distribution of landfill material is consistent with leveling and compacting operations that are known to have occurred at the site and were observed in the historical aerial photographs. Figure 3-2 shows the total thickness of landfill material as determined from logging of the soil and monitoring well borings completed during the RRII. The data from previous investigations were not used in the development of this figure due to subsequent alteration of the now-developed areas encompassed by those investigations.

Test Pits

Landfill materials were found in all five test pits (TP001 through TP005; see Figure 3-2). The landfill materials were generally composed of glass, ash, bricks, concrete, tires, car parts, wood, clothing, cans, and scrap metal. No large metal containers were encountered in any of the test pits. Anomalies detected by the MAG and EM31 surveys generally were caused by abundant metallic debris.

Groundwater was encountered in all test pits except TP003. Landfill materials and/or groundwater exhibited strong diesel fuel odors in pits TP002 and TP004, and hydrocarbon-like odors were detected in pits TP003 and TP005.

The following is a description of the materials encountered during test pit excavations.

Test Pit No.	Description
TP001	Excavation TP001 was 9 feet long, 18 feet wide, and 9 feet deep. Landfill material was encountered to a depth of 6 feet BGS. These materials consisted of numerous glass bottles, bricks, cans, wood, shoes, panty hose, plastic, tires, a 5-foot-long metal stake, and wire. Yellowish-green, ash-like material was found at 3.5 feet BGS. These landfill materials were within a reddish sandy soil matrix. The fill layer was underlain by gray clay. Ground-

water entered the pit at a depth of 6 feet BGS. Using the OVA, there were no organic vapor readings detected above background from the landfill material or groundwater.

TP002 Excavation TP002 was 15 feet long, 2 feet wide, and 10 feet deep. Landfill material was encountered throughout the 10-foot depth of this pit. From 0 to 2 feet BGS, glass bottles, bricks, tires, concrete, automobile mufflers and seat springs, and sheet metal were encountered within a brownish-red soil matrix. From 2 to 5 feet BGS, glass bottles, bricks, automobile muffler pipes and chrome parts, sheet metal, silverware, aerosol cans, electrical parts, and an ash-like material were encountered. These materials were incorporated in a reddish-orange soil matrix from 2 to 4 feet BGS and in a reddish-brown soil matrix from 4 to 5 feet BGS. A black ash matrix was encountered from 6 to 10 feet BGS; this material had a strong diesel fuel odor and registered 50 ppm on an OVA. The ash contained abundant metallic debris, roofing material, coal, wire, metal strapping, sheet metal, electrical conduit, and printed paper. Groundwater was encountered at 8 feet BGS and exhibited an oily sheen. A layer of sheet metal scrap was encountered at 10 feet BGS.

TP003 Excavation TP003 was 10 feet long, 5 feet wide, and 15 feet deep. Landfill material was encountered throughout the 15-foot depth of this pit. From 0 to 2 feet BGS, glass bottles, wood, tires, and metal fragments were encountered within a medium- to dark-brown soil matrix. From 2 to 6 feet BGS, glass bottles, sheet metal fragments, and tar-like lumps were encountered within a black matrix. This layer had a hydrocarbon-like odor. From 6 to 10 feet BGS, glass bottles, ceramic plates, white ash, bricks, and cans were encountered in a brownish cinder-like matrix. From 10 to 15 feet BGS, glass and metal debris were encountered in a black layer. This layer also had a hydrocarbon-like odor. The highest OVA reading recorded during the excavation was 10 ppm. No groundwater was encountered in this pit.

TP004 Excavation TP004 was 12 feet long, 4 feet wide, and 9 feet deep. Landfill material was encountered throughout the 9-foot depth of this pit. From 0 to 5 feet BGS, a very hard, compact layer of black cinders and ash was encountered. This layer was similar to concrete in hardness, resulting in a very slow penetration rate by the backhoe. Numerous crushed cans were encountered at approximately 1 foot BGS. Below a depth of 5 feet, the black cinders and ash became softer, and glass bottles, wood, and metal

fragments were encountered. Groundwater was encountered at 8.5 feet BGS and exhibited an oily sheen. The soil matrix below the shallow zone appeared to be brown, was coated with a black liquid, and had a strong diesel odor. The highest OVA reading recorded during the excavation was 10 ppm.

TP005 Excavation TP005 was 10 feet long, 4 feet wide, and 15 feet deep. Landfill material was encountered throughout the 15-foot depth of this pit. From 0 to 9 feet BGS, glass bottles, bricks, wood, and scrap metal were encountered in a dark brown soil matrix. From 9 to 15 feet BGS, black ash was encountered. The ash contained glass bottles and wood fragments (e.g., tree branches) and had a hydrocarbon-like odor. Groundwater was encountered at 12 feet BGS and exhibited an oily sheen. The highest OVA reading recorded during the excavation was 10 ppm.

3.1.4 Summary Description of Landfill Materials

Several types of landfill materials are present on site, but not all of these materials are associated with former landfill activities. Landfill materials found at the site can be categorized based on when disposal occurred: during landfill operations prior to Hurricane Betsy, during landfill operations after Hurricane Betsy, and after landfill operations had ceased.

Unauthorized disposal of trash (e.g., yard wastes, old tires, automobile parts, household wastes, cars, and construction debris potentially containing asbestos) continued on the undeveloped portion of the site until it was fenced by EPA in 1994. Pieces of potential asbestos-containing materials, such as transite boards, were observed during the RRII. Trash is aboveground and visible. Household debris consists of paper, cans, plastic, glass, and similar trash.

Landfill material encountered during the RRII was mixed with natural soil materials (e.g., silts and clays). The landfill material was composed primarily of a layer of glass, metal, brick, and wood debris set in a reddish-brown, fine-grained matrix underlain by a layer of similar debris mixed with black ash and natural soil materials. The black ash layer is normally wet, somewhat plastic, and exhibits a hydrocarbon-like or diesel odor. Landfill material is thickest (maximum measured depth of 17 feet) across the interior of the site and thins radially outward toward the former landfill perimeter. Based on current site topography and geotechnical studies conducted prior to construction on the developed portion of the site,

landfill material could possibly be thicker than the maximum measured value at a few locations (e.g., current topographically highest points) within the interior of the site.

3.1.4.1 Physical/Physicochemical Data

Various physical and physicochemical analyses were conducted on samples of the landfill material and of the peat and clay materials below the landfill materials. These analyses included percent ash, BTU content, percent chlorine, dry density, percent moisture, percent organic matter, percent sulfur, and TOC (see Tables 3-1 to 3-3).

The landfill material generally exhibits low BTU and high ash contents, and relatively low percentages of chlorine and sulfur. This is consistent with the physical description of the landfill material (see Table 3-1). The presence of ash and other observed debris is usually indicative of complete combustion, which would yield low BTU and high ash content residue materials. The clays also exhibit low BTU and high ash contents, but moisture content of the clay samples are significantly higher, and sulfur, TOC, and percent organic matter are usually lower, than for the landfill materials (see Table 3-3). The peat samples exhibited slightly higher BTU content, percent organic matter, percent moisture, percent sulfur, and TOC. This is consistent with the organic nature of peat deposits (see Table 3-2).

3.2 GEOLOGY AND HYDROGEOLOGY

3.2.1 Geology

The geology beneath the former landfill is typical of a delta area. Lithology from land surface to a depth of greater than 80 feet BGS is composed of the following units, in descending order: a sandy-clayey silt surficial soil; landfill material (in most locations); peat/organic clay; silty clay; clay; silty-sandy clay with numerous shells; interbedded silts, clays, and sands; and fine- to medium-grained sand with some silt or clay. The deltaic depositional environment of the New Orleans area is summarized in Section 1.4.1 and described in greater detail in Appendix C.

The lithologic sequence beneath the site is illustrated on three geologic cross sections (Figures 3-4, 3-5, and 3-6) prepared from soil and monitoring well boring log data; cross section locations are presented in Figure 3-3. Cross section A-A' presents a west-east view of

the study area subsurface from monitoring well MW042, located west of Peoples Avenue Canal, to monitoring well location MW010, on the eastern site boundary (see Figures 3-3 and 3-4). Cross section B-B' presents a northwest-southeast view of the study area from Higgins Boulevard (well MW002) across the landfill to well MW044, located south of Florida Avenue Canal (see Figures 3-3 and 3-5). Cross section C-C' is a southwest-northeast traverse across the site from well MW020 to well MW006 (see Figures 3-3 and 3-6).

As shown in Figures 3-4 and 3-5, the interbedded silt-clay-sand sequence thickens noticeably at the location of well MW024 and to a lesser extent at the location of well MW028. The greater depth to the top of the sand unit at both of these well locations suggests that this unit may have been eroded during formation of a distributary or tidal channel before being subsequently buried. A thickening of landfill materials and corresponding thinning of the peat/organic clay layer is also noticeable across the interior of the landfill (see Figures 3-4, 3-5, and 3-6).

3.2.1.1 Surficial Soil

From the surface to a depth of approximately 1 foot, a primarily brown to dark brown sandy-clayey silt with some vegetative growth was encountered at most subsurface drilling locations across the site. A significant thickness of cover material was observed at only three locations within the former landfill boundaries. On the Moton School property, approximately 3 feet of clean, tan, fine- to medium-grained silty sand was encountered before the first appearance of landfill material.

3.2.1.2 Landfill Material

Landfill material was encountered at most subsurface drilling locations. As noted previously, landfill material is thickest (maximum measured depth of 17 feet) across the interior of the site and thins radially outward toward the former landfill perimeter (see Figure 3-2). Based on current site topography and the results of geotechnical studies conducted prior to construction on the developed portion of the site, landfill material thicknesses greater than the maximum measured value could possibly only be present at a few locations (e.g., current

topographically highest points) within the interior of the site. A description of the landfill materials encountered is provided in Section 3.1.4.

3.2.1.3 Peat/Organic Clay

A peat/organic clay unit was encountered below the surficial soil or landfill material. The peat layer varies in thickness from 6 inches to 2 feet and grades into an organic clay. Toward the interior of the former landfill, the peat layer is thin and difficult to distinguish from the organic clay. Some drilling locations at the site boundaries encountered a thicker, more distinguishable peat layer. The organic clay is composed of a brownish-grey to grey, silty clay with wood, roots, and other plant material throughout the interval. The peat/organic clay interval is approximately 10 feet thick across the site. Landfill material was not found below the first occurrence of the peat/organic clay unit at any of the subsurface drilling locations across the site. Figure 3-7 shows the depth to the top of the peat/organic clay unit across the site.

Figures 3-2 through 3-7 reveal a general relationship between the depth to the top of the peat/organic clay unit and landfill material thickness: depth to the peat/organic clay unit increases with increasing landfill material thickness. It is not clear whether the greater depth to the top of the peat/organic clay unit in the site interior, where landfill material thickness is greatest, is the result of peat removal during landfill activities, compaction of the unit by landfill loading, or a natural topographic depression.

3.2.1.4 Silty Clay

Below the organic clay, a plastic, grey, silty clay was encountered at depths ranging from approximately 12 feet BGS in boundary wells to 25 feet BGS in the interior wells. The thickness of this unit generally ranges from 15 to 20 feet and becomes thinner toward the interior of the former landfill. This unit exhibits minor silt banding (1 to 3 inches thick) throughout the interval. Grain-size analyses performed on samples collected from this interval classify the material as fat or lean clay, depending on the silt content (see Appendix M).

3.2.1.5 Clay

Grey clay underlies the silty clay at a depth of 30 to 35 feet BGS; the thickness of this unit is 5 to 12 feet. This clay is saturated, highly plastic, and homogeneous. Tri-axial permeability tests performed on clay samples collected from the borings for monitoring wells MW004, MW010, MW018, MW024, MW028, and MW032 indicate an average permeability of 1.8×10^{-8} centimeters/second. No traces of organic material or silt bands were detected in the upper part of this unit. In contrast, the lower several feet exhibited greater silt contents.

3.2.1.6 Silty-Sandy Clay

A grey, silty-sandy clay to clayey sand was encountered at depths of approximately 40 to 48 feet BGS. This unit ranges in thickness from 5 feet to approximately 15 feet and contains abundant unaltered shells. The silty-sandy clay is soft, slightly plastic, and saturated. In some sample intervals, increased sand content made the sample too loose to be retained in the sampling device. Several thin, grey, stiff, clay bands less than 6 inches thick were observed in this unit.

3.2.1.7 Interbedded Silts, Clays, and Sands

Interbedded silts, silty clays, clays, silty sands, and fine-grained sands were encountered below the shell-rich silty-sandy clay zone at a depths of 45 to 50 feet BGS. The unit is approximately 5 to 10 feet thick across most of the site, except at well MW024, where it is 20 feet thick. Each lithology within the unit is generally present as layers less than 2 feet thick and can be physically characterized as stiff and dense. The clays are grey to grey-brown depending on silt content, and the silts and sands are light brown. At well MW024, where this unit is 20 feet thick, it is characterized by a series of blue and blue-green silty clays and silts below the grey-brown clays and silts. The greater thickness and distinct lithology encountered at the well MW024 location are consistent with a channel-infilling depositional environment.

3.2.1.8 Sand

A well-sorted, compact, dense, fine- to medium-grained sand was encountered below the interbedded silts, clays, and sands unit at depths of 55 to 67 feet BGS. This unit is assumed to be part of the Pine Island Beach Trend. At the location of monitoring well MW024, this sand was not encountered until a depth of approximately 67 feet BGS due to the above-noted increased thickness of the overlying interbedded silts, clays, and sands unit. The sand is generally tan to brown, with some variations: the sand at well MW020 is white, and the sand at well MW014 is deep reddish brown. The base of the sand unit was not encountered by any of the sand unit monitoring well borings, the deepest of which was completed to 82 feet BGS. Two of the geotechnical borings completed prior to construction of the Moton School (pre-development) did not encounter the base of the sand unit at depths of 100 feet BGS. It was suggested in Section 1.4.1 that the sand unit might reflect deposition within a tributary of the entrenched valley system known to have been cut into the Pleistocene-age Prairie Formation across the New Orleans area. If so, the base of the sand unit should not be encountered much deeper than approximately 120 feet BGS, the basal depth of the main entrenched valley located west of the site. A sample for grain-size analysis was collected from the screened interval of each well completed in this sand (see Appendix M). The analyses generally classified the samples as fine- to medium-grained sand with some silt or clay.

3.2.2 Hydrogeology

The hydrogeologic characteristics of the shallow zone and sand unit were evaluated through water level measurements and hydraulic conductivity tests. The water level data were used to calculate water level elevations, generate groundwater flow maps, and calculate vertical and horizontal hydraulic gradients.

3.2.2.1 Water Levels and Groundwater Flow

Shallow Zone

Static water level data for shallow zone wells installed across the ASL study area are summarized in Table 3-4. Depth to the water table ranged from approximately 2 feet BGS to

8 feet BGS on both May 24, 1994 and June 20, 1994. The water table is usually encountered at greater depths in the topographically higher central areas of the site. Shallow zone water level elevation isopleth maps based on the May 24, 1994 and June 20, 1994 water level measurements are presented in Figures 3-8 and 3-9.

In general, groundwater flow in the shallow zone is radial. As shown in Figures 3-8 and 3-9, the radial flow patterns for the two water level measurement events are similar. This consistent appearance in the flow patterns indicates that a set of ongoing control factors influences the flow regimes. The radial flow pattern is centered on the developed former landfill in proximity to the Moton School and Mugrauer Playground. The radial flow pattern is regular in form to the north, east, and south of the central area of high groundwater levels. The western portion of this large radial flow pattern is disrupted by the effect of a second, smaller radial flow pattern associated with well MW021. This smaller radial flow pattern primarily reflects ponding of surface water runoff in this area, which was observed to occur numerous times after rainfall events during the RRII field work.

The presence and magnitude of the radial groundwater flow pattern might have a number of causes. The presence of the Florida Avenue and Peoples Avenue canals could impact groundwater flow through two mechanisms: First, the lack of structural integrity in the Peoples Avenue and Florida Avenue canals allows direct groundwater infiltration into the canals. (Field observations have documented the presence of cracks in the canal walls.) Second, the water surface elevations and the structural base elevations of the canals are lower than the elevations of the water table in proximity to the canals (see Figure 3-9). The combined effect of these conditions can be seen in the Florida Avenue Canal. The June 20, 1994 groundwater elevations in monitoring wells MW013 (9.18 feet below MSL) and MW043 (7.81 feet below MSL) range from 2.25 feet to 3.62 feet above the water level elevation in the Florida Avenue Canal (11.43 feet below MSL) and result in a steep horizontal groundwater flow gradient toward the canal. This gradient can be seen along the entire southern perimeter of the site as it parallels the Florida Avenue Canal; a similar but less steep horizontal hydraulic gradient toward the Peoples Avenue Canal is seen along the western site boundary (see Figure 3-9). Furthermore, the groundwater flow pattern shown in Figure 3-9 indicates that shallow zone groundwater might be discharging into the Florida Avenue Canal

and at least the southern portion of the Peoples Avenue Canal from both sides of the canals. Consequently, along these areas, on-site groundwater will discharge into the canals and not flow further downgradient (i.e., beneath/across the canals). In contrast, along the northern portion of the Peoples Avenue Canal, downgradient flow beneath/across the canal does appear to have been occurring at the time of the June 20, 1994 measurements.

The subterranean drainage culvert below Higgins Boulevard (Higgins Boulevard Canal) does not appear to have a significant effect on the shallow zone groundwater flow pattern. The Higgins Boulevard Canal flows into the Peoples Avenue Canal west of the intersection of Higgins Boulevard and Almonaster Avenue. Based on June 20, 1994 water level measurements, the water level in the Peoples Avenue Canal in proximity to the Higgins Boulevard Canal is 10.19 feet below MSL. Because the Higgins Boulevard Canal flows into the Peoples Avenue Canal, the water level elevation in the Higgins Boulevard Canal must be higher than 10.19 feet below MSL (see Figure 3-9). The water level elevation in well MW001 is significantly below the canal water level elevation, although the water level elevation in well MW003 could be above the base elevation of the Higgins Boulevard Canal. However, given that the well MW001 water level elevation is below the Higgins Boulevard Canal water level elevation, there does not appear to be good hydraulic connection between the canal and the shallow zone groundwater system. This might reflect the structural integrity of the newer Higgins Boulevard Canal. The absence of monitoring wells north of the Higgins Boulevard Canal prohibits a full understanding of the potential impact of the canal on shallow zone groundwater flow.

The shallow zone radial flow pattern might also be caused by the overall development on the former landfill. Several development factors might contribute to the mounding of groundwater in the proximity of Moton School and Mugrauer Playground, such as: leaking sewer and water lines; structural pilings of existing structures breaching the confining unit between the unconfined shallow zone and artesian sand unit; and potential presence of former supply wells associated with structures no longer present on the ASL site.

Leaking sewer and water lines are common in areas of differential subsidence. Natural settling of landfill material, which might not have been fully compacted, coupled with loading effects on the peat/organic clay unit might cause disruption to water and sewer lines.

Visual evidence of this subsidence throughout the study area includes cracked sidewalks and building pilings that were initially buried by landscaping but currently can be observed at the surface. Potentially ongoing discharge of water from the sewer and water lines could not be evaluated during the RRII.

Engineering specifications for the Moton School required pilings to extend through the confining unit into the sand unit. These pilings might be acting as conduits for upward groundwater movement from the artesian sand unit into the shallow zone because there is a naturally occurring upward hydraulic gradient. This type of leakage could contribute to the groundwater mounding seen on the developed former landfill. The pilings for the Almonaster overpass might also have penetrated the confining unit and hence upward groundwater movement from the sand unit might also contribute to the mounding observed in proximity to well MW021. However, as noted above, this mound is primarily caused by ponding of surface water runoff. Surface drainage off the former landfill, as well as off the Almonaster Avenue overpass and its associated side roads, was observed to collect near well MW021. The area near well MW021 is a topographic low relative to the former landfill (see Figure 3-1).

Finally, aerial photographs prior to 1951 show extensive development in the area now occupied by the southeastern portion of the groundwater mound proximate to Moton School and Mugrauer Playground. It is unlikely that these structures were served by municipal water supplies because no paved roads existed in this area. As a result, it is possible that one or more wells were drilled into the sand unit to serve these structures. Proper abandonment of the wells, including the sealing of the well pipes, probably did not occur when these structures were demolished in the late 1940s to early 1950s. As a result, the former well pipe(s) might be acting as conduits for upward groundwater movement from the sand unit into the shallow zone. There is evidence for this hypothesis based on the water level elevation in sand unit well MW034, which is much lower than the elevations in any of the other nearby sand unit wells.

Based on the June 20, 1994 water level elevations, a horizontal hydraulic gradient of 0.0012 foot/foot was calculated between wells MW029 and MW003. A gradient of 0.020 foot/foot was calculated between well MW017 and FE2, the Florida Avenue Canal

surface water elevation measurement point located due south of well MW017. These two gradients represent the minimum and maximum gradients associated with the large radial shallow zone groundwater flow pattern beneath the ASL site.

Sand Unit

The sand unit exhibits artesian characteristics, and 14 of the sand unit wells have hydraulic heads that rise above the ground surface (i.e., the wells flow) by as much as 4.6 to 4.7 feet. This indicates that the sand unit groundwater is under pressure, and at least some portion of the approximately 50 feet of low permeability silty and clayey materials separating the sand unit and shallow zone acts as a confining unit.

Figures 3-10 and 3-11 are sand unit potentiometric surface maps based on the May 24 through 26, 1994 and June 20, 1994 water level measurements. The configurations of the two flow patterns are similar, but not the same. The June 20, 1994 measurements are probably more representative of flow conditions because all of the sand unit water levels were measured on the same day. Figure 3-11 indicates that groundwater flow in the sand unit is predominantly from north to south across the site; however, components of groundwater flow to the west and southeast are also indicated. The potentiometric surface contours suggest that wells MW042 and MW044 are both located downgradient of the former landfill; therefore, they are not valid monitoring wells to evaluate background conditions in the sand unit. The anomalous low water elevation measured on May 24 through 26, 1994 in well MW044 might be due to the well not being in complete equilibrium prior to measurement. (As will be discussed in Section 3.2.2.2, this sand unit well has the lowest calculated hydraulic conductivity [1.417×10^{-4} feet/minute] as determined by slug testing.) The anomalous low groundwater elevation in well MW002 is not as easily explained. Soil from well MW002 has been classified as a clayey sand according to grain-size analysis performed on a sample collected from the screened interval. The hydraulic conductivity value for the unit at this location was not calculated due to poor response characteristics during the field test. This anomalous value seems to be localized, given that it does not similarly appear in well MW028. The anomalously low groundwater elevation in well MW034 might be related to discharge of sand unit groundwater through abandoned well casings in the formerly developed area on the

southeastern portion of the site, which could act as a conduit for upward movement from the sand unit. Another potential conduit for discharge and the resulting lower elevations could be the pilings beneath Moton School, which are reportedly set into the sand unit.

Based on the June 20, 1994 water level elevations, the following horizontal hydraulic gradients were calculated: 2.1×10^{-4} foot/foot between wells MW006 and MW012; 2.1×10^{-4} foot/foot between wells MW032 and MW018; 8.6×10^{-4} foot/foot between wells MW028 and MW042; and 0.003 foot/foot between wells MW016 and MW014 (representing the maximum gradient in the sand unit across the site).

Based on the June 20, 1994 water level elevations, vertical hydraulic gradients were calculated for the 19 shallow zone/sand unit well clusters installed across the study area (see Table 3-6). Upward vertical gradients are present in all well clusters and range from 0.018 foot/foot in well cluster MW021/MW022 to 0.167 foot/foot in well cluster MW001/MW002. The vertical gradients calculated for two well clusters, MW021/MW022 and MW033/MW034 (0.018 foot/foot and 0.030 foot/foot), are anomalously low compared to the remaining well clusters. Excluding these two well clusters, the average upward vertical gradient is 0.139 foot/foot. This relatively high upward gradient is consistent with the interpretation that sand unit groundwater is confined and under pressure.

Tidal Measurements

Continuous water level measurements were recorded from two shallow zone wells (MW015 and MW017) and two sand unit wells (MW016 and MW018) to evaluate possible tidal effects on the corresponding groundwater flow systems. Time versus change in head (water level) graphs for these four wells are presented in Appendix N. In addition to possible tidal effects, the groundwater levels in these wells, particularly the shallow zone wells, are subject to a number of other time-variable and location-specific influences based on changes in hydrogeologic characteristics across the site. Such influences include the rate of precipitation infiltration, pumpage from the canal system by the City of New Orleans, and changes in barometric pressure because the well casings were open to the atmosphere.

Potential precipitation infiltration and barometric pressure effects were evaluated through a review of records from the National Weather Service (NWS) for the City of New

Orleans (NOAA 1994). During the period form May 20 to May 27, 1994, no precipitation was recorded at the NWS facility. Consequently, the effects of infiltration were probably minimal and caused no changes in groundwater or surface water pumping rates. To evaluate potential barometric pressure changes, graphs of barometric pressure versus time were prepared for each monitoring well test period (see Appendix N). The trend of water level changes should be inverse to the trend of barometric pressure changes (i.e., as barometric pressure increases, water level decreases). Sand unit wells MW016 and MW018 and shallow zone well MW015 do not show any barometric pressure influences on the water level. In contrast, a 0.05 foot increase in water level associated with a corresponding decrease in barometric pressure was observed in the later stages of the test performed shallow zone well MW027.

In general, the range of water level fluctuations was 0.015 to 0.05 foot, and no distinct diurnal (12 hour) or semidiurnal (6 hour) tidal periodicity was observed. The elevated water level changes are within the normal fluctuations of any groundwater system and, given the absence of periodicity, cannot be attributed to tidal effects.

3.2.2.2 Hydraulic Conductivity Tests

Aquifer testing at the ASL site included the performance of both rising head and falling head slug tests on all monitoring wells installed during the field investigation. All slug tests were performed using the procedures described in Section 2.5.5. Selected slug test results are summarized in Tables 3-7 and 3-8. Appendix O presents data tables and graphics associated with the slug tests.

Based on site conditions, two methods were used with the slug test data to calculate hydraulic conductivities: the Bouwer and Rice method (Bouwer 1976) and the Cooper *et al.* method (1967). The Bouwer and Rice method uses the following equation to arrive at a hydraulic conductivity value from slug test data:

$$K = \frac{r_c 2 \ln(Re/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

where:

K = hydraulic conductivity (feet/minute);
L = length of the saturated portion of the well screen (feet);
y_t = vertical distance between the static water level and the water level in the well at a given time (feet);
y_o = water level in the well immediately after removing the slug at time = 0;
t = time (minutes);
r_c = internal radius of the well casing (feet);
r_w = internal radius of the well annulus (feet); and
Re = the effective radius over which y is dissipated (feet).

This equation is based on the assumption that the aquifer is isotropic and homogeneous, drawdown of the water table around the well is negligible, flow above the water table can be ignored, and head losses are negligible as water enters the well.

The solution involves plotting the time (t) versus water level change data on a semilog plot and fitting a straight line through the data. A value of y_t is determined from the straight line at a corresponding, arbitrarily selected value of t. The values of y_t and t are used to solve the $1/_t \ln y_o/y_t$ portion of the Bouwer and Rice equation. The remaining portion of the equation is solved by obtaining a value of Re, which is dependent on the shape and geometry of the well system. The value of Re, expressed as $\ln Re/r_w$, is obtained by solving an empirical equation relating the geometry of the well to Re. This empirical equation was developed through electrical analog techniques by Bouwer and Rice.

In cases where the water table occurs within the screened interval of the well, r_c has been corrected to allow for open porosity in the filter-packed portion of the annulus with the following equation:

$$r_{cor} = [r_c2 + 0.3(r_w2 - r_c2)]1/2$$

The Cooper *et al.* method determines transmissivity of a unit, which is then used to calculate the hydraulic conductivity. The Cooper *et al.* method is based upon several assumptions. Two of these assumptions are that the aquifer is confined and the well is screened entirely within the aquifer. The Cooper *et al.* method involves plotting the water

level change data versus time. The resulting curve is then matched with published type curves developed by Cooper *et al.* (1967) to arrive at a value for t. The value of t is then substituted into the following equation to solve for the transmissivity (T):

$$T = \frac{r_c^2}{t} \times 60$$

where:

T = transmissivity (feet^2/min);
t = time (seconds);
r_c = radius of the casing (feet); and
60 = conversion factor from feet^2/sec to feet^2/min.

In this report, the above procedure is carried out by a computer program, and the hydraulic conductivity (K) in feet/min is then calculated using the equation:

$$K = T/b$$

where b is the aquifer thickness, in this case assumed to be the length of the saturated portion of the well screen.

Some accuracy limitations are inherent to both techniques as a result of: the brevity of slug tests in sandy soils; the imprecise curves matching of curves to those presented by Cooper *et al.;* and the assumptions that must be made about the aquifer. (Such assumptions are that the aquifer is homogenous, isotropic, and of infinite areal extent; confining layers are impermeable; flow to the well is radial; removal of slug volume is instantaneous; and the well is fully penetrating.) However, the solutions provide a reasonable estimate of aquifer properties, which are generally accurate to within one order of magnitude. Both provide data for the design of more precise pumping tests if necessary.

The sand unit groundwater present at the ASL site is confined and hence exhibits limited hydraulic connection with shallow zone groundwater; however, some leakage from the sand unit through the overlying confining unit will occur. In addition, the sand unit wells

generally were installed near the top of the unit. These factors may account for many of the poor curve matches on the Cooper *et al.* sand unit well graphic plots (see Appendix O).

For this report, both the Bouwer and Rice equation and the Cooper *et al.* equation were solved using appropriate software. The software plot the data on a time versus drawdown graph and determine the best-fit line equation with which to calculate the hydraulic conductivity. In cases where more than one slope was present on the time versus drawdown graph and the monitoring wells had fully saturated sand packs, the earliest data were considered to be the most representative (Bouwer 1989). Therefore, in tests where this occurred, the earliest data were used to create the line match. For wells screened across the water table, the earliest data probably are influenced by the highly permeable screen filter pack zone around the well; consequently, for these wells, the earliest data were not used to create the line match (Bouwer 1989).

Appendix O presents a data table for each slug test. The data table lists relevant well information, relative head values, and the corresponding time of observation. For the shallow zone wells, the Bouwer and Rice solution was used to determine hydraulic conductivity. Appendix O contains both rising head and falling head graphic plots for all shallow zone wells with the exception of falling head plots for MW015, MW033, and MW036, which could not be generated because of poor hydraulic response. For the sand unit wells, both the Bouwer and Rice solution and the Cooper *et al.* solution were applied. Graphic plots representing both solutions for rising head and falling head test data are presented in Appendix O for all but two sand unit wells. No plot could be generated for MW002 and no Copper *et al.* falling head plot could be generated for MW034 because of poor hydraulic response.

Due to the greater flexibility in analyzing more complex data sets, the Bouwer and Rice solution for rising and falling heads was used to calculate conductivity values for all of the shallow zone wells except MW015, MW033, and MW036. In six wells, the conductivity values from the rising head test and falling head test were not within the same order of magnitude. Four of these six wells were screened across the water table. Falling head test data generally are not considered reliable in wells screened across the water table because of the effect of the sand pack. In four of the six wells, poor system response was noted during the rising head and/or falling head test. Because rising head hydraulic conductivity values

were generated for all shallow zone wells and the falling head test data might not be reliable in the wells screened across the water table, only the rising head data will be discussed. A summary of the rising head hydraulic conductivity values for shallow zone wells is presented in Table 3-7.

Shallow zone rising head hydraulic conductivity values range from 0.00003269 foot/min in well MW001 to 0.01454 foot/min in well MW029. Of 23 hydraulic conductivity values calculated, two are in the 10^{-5} range, six are in the 10^{-4} range, 14 are in the 10^{-3} range, and one is in the 10^{-2} range. These test results represent a relatively wide range of conductivity values and reflect the wide range of lithologies screened by the shallow zone wells (e.g., silty clays to fill). For the wells screened in natural lithologies (e.g., silty clays), the conductivity values fall within the normal range (i.e., grain-size analysis indicates the presence of both silty sand and silty clay in the shallow zone well screened intervals).

Once the hydraulic conductivity values are determined, the transmissivity (T) in feet/day is calculated using the equation:

$$T = K \times b \times 1{,}440$$

where:

b	=	aquifer thickness (feet);
K	=	hydraulic conductivity (feet/min); and
1,440	=	the conversion factor for feet/min to feet/day.

Horizontal flow velocities for the shallow zone groundwater were determined using: the highest and lowest hydraulic conductivities calculated for the shallow zone wells which are noted above; calculated hydraulic gradients based on the June 20, 1994 water level measurements; and an assumed effective porosity of 15%.

The groundwater flow velocity was determined using the following formula:

$$V = KI/n_e$$

001157.259

where:

V = groundwater flow velocity (feet/min);
K = hydraulic conductivity (feet/min);
I = horizontal hydraulic gradient (foot/foot); and
n_e = effective porosity (dimensionless).

A hydraulic gradient of 0.02 foot/foot was calculated between well MW017 and FE2, the surface water elevation measurement location in the Florida Avenue Canal south of well MW017. Resulting groundwater flow velocities range from 0.0063 foot/day to 2.79 feet/day. A hydraulic gradient of 0.0012 foot/foot was calculated from well MW029 northward to well MW003. Resulting groundwater flow velocities range from 0.00038 foot/day to 0.17 foot/day. The groundwater velocities obtained for these two flow directions represent the highest and lowest hydraulic gradients at the site outside of gradients caused by the anomalously high water level recorded in well MW021. As noted above, 14 of the 23 calculated hydraulic conductivity values for shallow zone wells were in the 10^{-3} foot/min range. Using an average hydraulic conductivity in the 10^{-3} range (0.00288 foot/min), groundwater flow velocities (based on gradients of 0.0012 foot/foot and 0.02 foot/foot) range from 0.033 foot/day (12.05 feet/year) and 0.55 foot/day (200 feet/year).

Based on an average thickness of 15 feet, transmissivity values ranging from 0.706 foot^2/day (258 feet^2/year) to 314 feet^2/day (114,633 feet^2/year) were calculated for the shallow zone.

For the sand unit wells, graphic plots were generated using both the Bouwer and Rice solution and Cooper *et al.* solution for both the rising head and falling head test data for 17 of 19 sand unit wells installed at the ASL site. No graphic plots were generated for well MW002, and no Cooper *et al.* falling head plot was generated for well MW034, because of poor hydraulic response. Hydraulic conductivity values calculated from the rising head data using both solutions are within an order of magnitude in 13 of these 17 wells. Hydraulic conductivity values calculated from the falling head test data using both solutions are within an order of magnitude in 14 of the 17 wells. In 10 of the 17 wells, the calculated hydraulic conductivity values using both solutions for both the rising head and falling head data are within an order of magnitude. Because the Cooper *et al.* values are not significantly different

from the Bouwer and Rice values, and for consistency with the shallow zone wells, only the Bouwer and Rice rising head conductivity values will be discussed (see Table 3-8).

Bouwer and Rice solution rising head hydraulic conductivity values were calculated for 18 sand unit wells, and values range from 0.0001417 foot/min in well MW044 to 0.01321 foot/min in well MW004. Two of the 18 values are in the 10^{-2} range, 13 are in the 10^{-3} range, and three are in the 10^{-4} range. The sand unit well test results represent a reasonable range of hydraulic conductivity values and reflect moderate permeability conditions. The conductivity values fall within a normal range for fine- to medium-grained sands with some silt or clay, the lithology screened in the sand unit wells. The narrower range of hydraulic conductivity values, as compared to the shallow zone wells, likely reflects the more homogeneous nature of the sand unit.

During development, slower recharge was noted in sand unit wells MW002, MW034, and MW044. The low conductivity values for wells MW034 (0.00023252 foot/min) and MW044 (0.0001417 foot/min) reflect this field observation.

Groundwater flow velocities in the sand unit were determined using the highest and lowest hydraulic conductivities for the sand unit wells which are noted above; calculated hydraulic gradients based on the June 20, 1994 water level measurements; and an effective porosity of 20%. A hydraulic gradient of 0.00086 foot/foot was calculated from well MW028 southwest to well MW042. Resulting groundwater flow velocities range from 0.00088 foot/day (0.3212 foot/year) to 0.082 foot/day (29.9 feet/year). A hydraulic gradient of 0.00021 foot/foot was calculated from well MW032 south to well MW018. Resulting groundwater flow velocities range from 0.00021 foot/day (0.7665 foot/year) to 0.20 foot/day (73 feet/year). A hydraulic gradient of 0.00021 foot/foot was also calculated from MW006 south to well MW012. Therefore, the resulting range of groundwater flow velocities between these two wells is identical to that calculated between wells MW032 and MW018. The hydraulic gradient of 0.003 foot/foot calculated between wells MW016 and MW014 results in a range of groundwater flow velocities from 0.003 foot/day (1.1 feet/year) to 0.31 foot/day (113 feet/year).

As noted above, 13 of the 18 calculated hydraulic conductivity values for the sand unit are in the 10^{-3} range. Using an average hydraulic conductivity value in the 10^{-3} range

(0.0037 foot/min), groundwater flow velocities based on the hydraulic gradients of 0.00021 foot/foot and 0.0031 foot/foot, range from 0.0056 foot/day (2.04 feet/year) to 0.083 foot/day (30.3 feet/year). This range of groundwater flow velocities might be more representative of the sand unit.

Based on a thickness of 10 feet (the screen length for 16 of the 19 sand unit wells) and the lowest and highest calculated hydraulic conductivity values, transmissivity values ranging from 0.471 foot^2/day (172 feet^2/year) to 209 feet^2/day (76,422 feet^2/year) were calculated for the sand unit.

3.3 SURFACE WATER HYDROLOGY

Surface water hydrology in the site vicinity includes two components: surface water runoff and storm water system drainage. Rainfall on the developed portion of the former landfill usually flows as surface runoff into the storm water drainage system that discharges into either the Florida Avenue Canal or the Higgins Boulevard Canal. Rainfall on the undeveloped portion of the former landfill predominantly percolates into the shallow zone groundwater unit; however, during more intense storm events, runoff can enter the storm water drainage system through drainage culverts on the developed portion of the former landfill, Almonaster Avenue, or Higgins Boulevard. This storm water will be transported into Florida Avenue Canal, Higgins Boulevard Canal, or Peoples Avenue Canal (either directly or via the Higgins Boulevard Canal).

3.3.1 Surface Water Runoff

Surface water runoff from the developed portion of the ASL site enters a storm water drainage system (see Section 3.3.2). Based on field observations, the rate of surface infiltration is high within most of the undeveloped portion of the landfill due to the unpaved conditions and the comparatively permeable nature of surficial soils. However, following heavy rain events, ponding of surface runoff was observed on the undeveloped portion of the site near monitoring well clusters MW001/MW002, MW017/MW018, and MW021/MW022.

The Florida Avenue Canal is separated from the undeveloped portion of the former landfill by railroad tracks. The railroad tracks are constructed on a rail bed that was built

approximately 5 to 6 feet above the land surface. This rail bed would preclude surface water runoff from the southern edge of the undeveloped portion of the former landfill from flowing directly into the Florida Avenue Canal.

Direct surface water runoff into Peoples Avenue Canal from the western edge of the undeveloped portion of the former landfill is blocked by both Almonaster Avenue and the elevated rail bed parallel to the canal. In addition, surface water runoff along the northern portion of the western boundary would be collected by drainage culverts located along both sides of Almonaster Avenue, which direct runoff into the Higgins Boulevard Canal and the Peoples Avenue Canal (either directly or via the Higgins Boulevard Canal). A limited amount of runoff from the northern part of the undeveloped portion of the site can also enter the Higgins Boulevard Canal via the Higgins Boulevard storm water drainage culverts.

Along the boundary between the developed and undeveloped portions of the ASL site, it is possible that the storm water drainage system receives surface water runoff from both portions of the former landfill. This would be most prevalent during heavy rainfall events when the infiltration capacity of surficial soils is exceeded. Furthermore, this runoff would be greatest where topographically high areas of the undeveloped portion border the developed portion, such as Peoples Avenue Canal (either directly or via the Higgins Boulevard Canal) along St. Ferdinand and Abundance streets, near wells MW031, MW032, and MW038.

3.3.2 Storm Water Drainage System

The developed portion of the ASL site is served by a storm water drainage system. Surface water runoff enters this system through drainage culverts located at road curbs throughout the developed area. Water collected by this system discharges to the Florida Avenue Canal, Higgins Boulevard Canal, and Peoples Avenue Canal (either directly or via the Higgins Boulevard Canal) (Lee 1993). Drainage culverts that receive runoff from the site also exist along Almonaster Avenue and Higgins Boulevard, which are adjacent to the undeveloped portion of the former landfill. This storm water drains into the Higgins Boulevard Canal or the Peoples Avenue Canal (either directly or via the Higgins Boulevard Canal). It is possible that the drainage system leaks, discharging storm water into the shallow

zone groundwater unit. Infiltration of groundwater into the storm water drainage system is also possible during periods of high groundwater levels.

3.3.3 Surface Water/Groundwater Connection

Shallow zone groundwater and Florida Avenue/Peoples Avenue canal surface water at the ASL site are in direct hydraulic communication. Cracks in the walls of both the Peoples Avenue Canal and the Florida Avenue Canal have been observed. Furthermore, surface water elevations in the Peoples Avenue Canal and Florida Avenue Canal on June 20, 1994 were lower than the water level elevations calculated for nearby shallow zone wells. As a result, any breach of the canal structure would permit direct groundwater recharge to the canal in that area. Shallow zone groundwater appears to discharge into the Florida Avenue Canal from both the north and south (see Figure 3-9). In contrast, based on Figure 3-9, although shallow zone groundwater appears to discharge into the Peoples Avenue Canal from the east, parallel to its entire length along the site, discharge into the canal from the west only appears to occur along the southern portion. Shallow zone groundwater does not appear to be in hydraulic communication with Higgins Boulevard Canal storm water.

3.3.4 Canal Flow System

The ASL site is bound on the north side by the subterranean Higgins Boulevard Canal, on the west side by the Peoples Avenue Canal, and on the south side by the Florida Avenue Canal. These storm water drainage canals comprise the surface water system in immediate proximity to the site. The three canals are part of the extensive storm water drainage system in the New Orleans metropolitan area which provides flood control and also maintains the water table below ground surface. Flow in the canals adjacent to the site is controlled by pumping. Figures 3-12 and 3-13 illustrate the dry and wet weather flow patterns in the Florida Avenue and Peoples Avenue canals. As stated previously, flow in the Higgins Boulevard Canal discharges into the Peoples Avenue Canal (Lee 1993).

3.3.4.1 Dry Weather Flow

During periods of dry weather, canal flow is controlled by Pumping Station D, located north of the northwest corner of the Florida Avenue and Almonaster Avenue intersection. Eastward and westward flows within the Florida Avenue Canal converge at the tributary canal and then flow north and west toward Pumping Station D. The portion of the Florida Avenue Canal adjacent to the ASL site flows from east to west. Southward flow within the Peoples Avenue Canal enters the tributary canal and converges with the surface water from the Florida Avenue Canal. From Pumping Station D, the water from these two canals is pumped to the Mississippi River.

3.3.4.2 Wet Weather Flow

During periods of wet weather, canal flow is controlled by both Pumping Station D and Pumping Station 19, located adjacent to the Industrial Canal (Inner Harbor Navigation Canal) approximately 1.3 miles east of the site. Under these conditions, when the combined volume of storm water within the Florida Avenue and Peoples Avenue canals exceeds the maximum capacity (625 cubic feet per second) of Pumping Station D, pumps are reversed and water within the tributary canal flows toward the Florida Avenue Canal (Parker 1994). Water in Peoples Avenue Canal continues to flow south, enters the tributary canal, and flows into the Florida Avenue Canal. Due to the reversal of the pumps at Pumping Station D under wet weather conditions, all water in the Florida Avenue Canal flows eastward toward Pumping Station 19. Water received at Pumping Station 19 is pumped into the Industrial Canal and subsequently into Lake Pontchartrain.

3.4 ECOLOGY OF THE UNDEVELOPED PORTION OF THE FORMER LANDFILL AND CANALS

A biological reconnaissance survey of the site and associated surface water was conducted to help plan and execute specific field elements of the RRII related to the ERA. In addition to biological surveys, observations on species and habitat conditions recorded by field personnel are also included in the subsequent discussion.

3.4.1 Undeveloped Portion of the Former Landfill

E & E ecologists qualitatively surveyed the undeveloped portion of the former landfill in March 1994. Habitat maps and species lists were generated during the reconnaissance survey for use in the ERA (see Section 7 and Appendices U and V).

Scattered surface debris was observed throughout the undeveloped portion of the former landfill. The majority of the debris was comprised of yard wastes, old tires, automobile parts, household wastes, cars, and construction debris. Debris coverage over this 48-acre area was estimated at approximately 15%. Several concrete foundations and an abandoned building were observed on the west-central portion of the undeveloped area. The concrete foundations were mostly covered with secondary successional growth.

Surface soil (0 to 24 inches BGS) on the undeveloped portion of the former landfill is a mixture of sandy-clayey silts (natural soils) and landfill material associated with historical landfill activities at the site or more recent unauthorized dumping. If undisturbed conditions were assumed at the site, the predominant soil type would consist of Harahan soils (USDA 1989). Harahan soils are poorly drained, low permeability soils that formed in clayey alluvium. In general, this soil type is characterized by the following physical and chemical properties: pH = 5.1 to 7.3, permeability = <0.06, and organic matter content = 2 to 25% (USDA 1989). However, these physical and chemical properties have been influenced by the addition of landfill material. The undeveloped portion of the former landfill is dominated by primary and secondary successional plant species that are characteristic of recently disturbed areas. The vegetative cover comprises approximately 80% of the overstory, 40% of the understory, and 60% of the herbaceous layer. Dominant plant species representative of these three groups are:

- Overstory: white ash (*Fraxinus americana*), red mulberry (*Morus rubra*), and weeping willow (*Salix babylonica*);
- Understory: saplings of dominant overstory species and shrubs such as chinaberry, honewort, and raspberries; and
- Herbaceous: cow vetch, cleavers (*G. aperine*), and virginia creeper.

The majority of ground cover is heavy leaf litter. Appendix V presents a list of plant species observed on site and species that possibly inhabit the site.

Wildlife found on the undeveloped portion of the former landfill includes several species of mammals, birds, and reptiles. The most frequently observed mammalian species on site was the eastern cottontail rabbit (*Sylvilagus floridanus*). However, other small mammal species such as mice (*Peromyscus spp.*), shrews (*Sorex spp.*), and rats (*Neotoma spp.*) are likely to inhabit the site as well. Because the site is located in an urban area, larger mammals (such as deer) are unlikely to be found, and they were not observed during the reconnaissance survey. Appendix V presents a list of mammalian species observed on site and species that possibly inhabit the site.

Many species of birds inhabit the site. Species observed on site during the reconnaissance survey include great blue heron (*Ardea herodias*), common crow (*Corvus brachyrhynchos*), brown thrasher (*Toxostroma rufum*), chipping sparrow (*Spizella passerina*), cardinal (*Cardinalis cardinalis*), and blue jay (*Cyanocitta cristata*). Evidence of crows nesting was also observed on site. Several raptors were observed flying over the site, but the species and their potential utilization of the site were not determined during the initial March 1994 survey. Raptor species tentatively identified during subsequent field activities include red-tailed hawk (*Buteo jamaicensis*), red-shoulder hawk (*Buteo lineatus*), Mississippi kite (*Ictinia mississipiensis*), and American kestrel (*Falco sparverius*) (E & E 1994f). Appendix V presents a list of avian species observed on site and species that possibly inhabit the site.

Three species of reptiles were observed on the undeveloped portion of the former landfill: ground skink (*Scincella lateralis*), green anole (*Anolis carolinensis*), and one snake. The ground skink and green anole were the most abundant wildlife observed on site. A positive identification of the snake species could not be made.

A diverse terrestrial invertebrate community probably exists at the site. Insect species observed include glossy pillbug (*Geotrupes splendidus*), wolf spider (*Pardosa spp.*), and numerous species of butterfly, dragon fly, and mosquito. These species and other invertebrate species that potentially inhabit the site might be important in nutrient cycling and food chain transfer.

3.4.2 Florida Avenue and Peoples Avenue Canals

The Florida Avenue and Peoples Avenue canals were qualitatively surveyed during the site reconnaissance. (The physical character and surface water hydrology of the Florida Avenue and Peoples Avenue canals are described in Section 3.3.) The objective of the survey was to characterize aquatic ecosystems within each canal by evaluating general habitat quality, species diversity and abundance, and the value of these ecosystems.

3.4.2.1 Florida Avenue Canal Ecology

The Florida Avenue Canal was surveyed to qualitatively characterize the aquatic habitat between the Louisa Street Bridge and Peoples Avenue Bridge (see Appendix U). Several storm water drainage system outfalls were observed on either side of the canal. The integrity of the canal walls along this section is particularly suspect and might be breached based on observed cracks in the walls at many locations. Scattered miscellaneous household debris was observed in the canal throughout the surveyed area.

The water in the canal was approximately 3 feet deep and contained an abundance of suspended solids. No oily sheen was observed on the water surface during the March survey and later field sampling, but a slight septic odor was noted. Sediment along the bottom of the canal was black and silty. The sediment had no distinctive odor and ranged from approximately 0.25 to 0.5 inch deep. Sediment does not have an opportunity to build up on the canal bottom because of the concrete construction and the velocity of water flow during wet weather. If sedimentation within the canals does occur, the canals are dredged (Parker 1994).

No evidence of aquatic macrophytes was found in the surveyed section of the canal. In general, no habitat suitable for propagation and maintenance of aquatic or semi-aquatic species was found at any location within this section of the canal.

A dip net survey of the canal yielded bloodworms (*Tubfix sp.*), snails (*Littorina sp.*), and leeches (see Section 2.7.3.1). Mosquitofish (*Gambusia affinis*) also were tentatively identified in the canal, but none was caught. Numerous crayfish (*Fallicambarus devistator*) chimneys lined the outside of the canal walls, but no captures or observations were made during the survey.

3.4.2.2 Peoples Avenue Canal Ecology

The Peoples Avenue Canal was surveyed between the Peoples Avenue Bridge and the approximate northern border of the site to qualitatively characterize the aquatic habitat (see Appendix U). The segment of the canal that is parallel to the western site boundary was divided into two sections: the northern one-third, and the southern two-thirds. This division was based upon the quality of canal maintenance, observations of aquatic biota captured or observed, and general habitat quality.

The northern third of Peoples Avenue Canal contains approximately 3-foot-high vertical embankments. Limited vegetative cover was present on the embankments, and slight erosion was evident along the portions adjacent to the water. Embankment tops were heavily vegetated. The southern two-thirds of the canal appeared to be maintained, and the canal walls in this section contained no sediment or vegetative cover.

Several characteristics are common to both sections of Peoples Avenue Canal: presence of scattered miscellaneous household debris; presence of storm water drainage system outfalls on both sides; off-gassing of sediment on the canal bottom as indicated by bubbling; and presence of crayfish chimneys lining the walls on both sides of the canal. Water throughout the canal contained an abundance of suspended solids, and oily sheens were observed around the scattered debris and when sediment was disturbed. Sediment along the bottom of the canal was black and silty, emitted a petroleum odor, and ranged from approximately 0.5 to 1.0 inch thick.

Ecological conditions in Peoples Avenue Canal were similar to those found in Florida Avenue Canal. No evidence of aquatic macrophytes was observed in either section of the Peoples Avenue Canal, and no habitat suitable for the propagation and maintenance of aquatic or semi-aquatic species was found. A dip net survey performed on the southern two-thirds of the canal yielded the following aquatic biota: bloodworms (*Tubfix sp.*), snails (*Littorina sp.*), and blue-green algae (see Section 2.7.3.2). Small mammal tracks and feces were observed along the east wall of the canal.

One bullfrog (*Rana catesbeiana*) was caught in the northern third of the Peoples Avenue Canal, and several others were observed jumping from the embankment into the canal. However, no evidence of egg bundles or tadpoles was found. Mosquitofish

(*Gambusia affinis*) were tentatively identified in this section, but none was caught. Several species of piscivorous birds were observed along the western bank of the canal in the northernmost portion of this section and north beyond the approximate site boundary. Species observed include four snowy egrets (*Egretta thula*) and one killdeer (*Charadrius vociferus*).

3.4.3 Rare, Threatened, Endangered, or Sensitive Species

In Louisiana, rare, threatened, endangered, or sensitive plant and animal species may be categorized by federal or state agencies such as the United States Fish and Wildlife Service (USFWS) and Louisiana Department of Wildlife and Fisheries (LADWF). USFWS maintains a general list of threatened and endangered plant and animal species in Louisiana. Appendix V provides a list of the federally and state-regulated species found in the vicinity of the site.

LADWF conducted a Natural Heritage Program database search to identify rare, threatened, endangered, or sensitive plant and animal species that inhabit the New Orleans East topographic quadrangle in which the site is located (LADWF 1994). Species identified in this search include Mississippi diamondback terrapin (*Malaclemys terrapin*), big brown bat (*Eptesicus fuscus*), and pallid sturgeon (*Scaphirhynchus albus*). To evaluate the potential for these species to inhabit the site, the database was further searched to determine the specific latitude and longitude coordinates of these species within this quadrangle. The coordinates for each species are listed below:

Species	Latitude	Longitude
Mississippi Diamondback Terrapin (*Malaclemys terrapin*)	29°57'20"	90°03'07"
Big Brown Bat (*Eptesicus fuscus*)	29°58'10"	90°03'22"
Pallid Sturgeon (*Scaphirhynchus albus*)	29°55'52"	90°03'32"

Based on the latitude and longitude coordinates of the site (29°59'20" north latitude and 90°02'31" west longitude), these species are not expected to be found on the site or within the immediate site vicinity.

3.4.4 Wetlands Survey

A survey of potential wetland habitats on the undeveloped portion of the former landfill was conducted during the reconnaissance survey. No obligate wetland species were observed on the undeveloped portion of the former landfill. Several depressions contained small amounts of standing water; however, the water appeared to be the result of heavy rainfall events and might only be present for short periods of time throughout the year.

In addition to the reconnaissance survey, an analysis of the National Wetlands Inventory Map for the New Orleans East topographic quadrangle showed no evidence of wetlands within the vicinity of the site (United States Department of the Interior 1991). Based on observations made during the site survey and the review of the National Wetland Inventory Map, no wetland habitats are present on site.

3.5 ON-SITE METEOROLOGY

Meteorological data were collected on site during field activities from April 8 through May 16, 1994. This period coincided with the on-site air, water, and soil sampling activities. Meteorological data collected during the course of the air sampling program (April 8 through April 29, 1994) are summarized below:

METEOROLOGICAL SUMMARY
AGRICULTURE STREET LANDFILL SITE
APRIL 8 THROUGH APRIL 29, 1994

Magnitude	Wind Speed		Temperature °F	Relative Humidity Percent (%)
	miles per hour	meters per second		
Maximum	12.1	5.4	86.2	100.0
Minimum	0.0	0.0	47.0	20.7
Average	4.3	1.9	73.2	77.8

Meteorological conditions for this period were typical for New Orleans based on its subtropical latitude and proximity to the Gulf of Mexico. Temperatures (in degrees Fahrenheit)

ranged from the upper 40s to the upper 80s, with relative humidity values averaging 78%. Winds were predominantly out of the east to southeast at an average windspeed of 1.9 meters per second (4.3 mph). A complete description of the wind patterns during this period is presented as a windrose diagram in Figure 3-14. Total precipitation for the period was 0.98 inch of rain with a maximum 15-minute recording of 0.13 inch.

Meteorological data collected from May 1 through May 16, 1994 are summarized below:

METEOROLOGICAL SUMMARY
AGRICULTURE STREET LANDFILL SITE
MAY 1 THROUGH MAY 16, 1994

Magnitude	Wind Speed		Temperature °F	Relative Humidity Percent (%)
	Miles per Hour	Meters per Second		
Maximum	9.6	4.3	88.5	100.0
Minimum	0.0	0.0	57.8	40.2
Average	3.4	1.5	75.6	80.7

Weather conditions recorded during this period were also typical for the New Orleans area. Temperatures (in degrees Fahrenheit) ranged from the upper 50s to the upper 80s, with a 2.4 degree increase in the average temperature as compared to those recorded during April. The average humidity increased to nearly 81%. Predominant winds split, coming out of the east/southeast and north/northwest at an average wind speed of 1.5 meters per second (3.4 mph) (see Figure 3-15). Total precipitation for the period was 1.6 inches of rain with a maximum of 15-minute recording of 0.3 inch.

Table 3-1

SUMMARY OF PHYSICAL/PHYSICOCHEMICAL DATA FOR WASTE
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Location Designation	Ash (%)	BTU Content (BTU/lb.)	Chlorine (%)	Dry Density (g/cm^3)	Moisture (%)	Organic Matter (%)	Sulfur (wt%)	TOC (%C)
AL-BL006-SB-01	85.97	305.00	0.01 U	1.46	20.85	7.10	0.29	9.18
AL-BL007-SB-01	78.18	1027.00	0.01 U	1.25	16.30	15.71	0.50	8.83
AL-MW004-SB-03	85.97	97.00	0.01	1.46	18.33	9.32	0.22	6.77
AL-MW010-SB-03	83.33	87.00	0.01	1.02	22.26	9.65	0.13	7.80
AL-MW018-SB-03	85.84	169.00	0.01 U	1.36	30.78	8.69	0.12	5.03
AL-MW024-SB-02	87.11	80.00	0.02	1.74	19.68	7.33	0.13	6.78
AL-MW027-SB-01	91.18	26.00	0.02	1.61	14.97	3.31	0.18	3.45
AL-MW031-SB-01	68.62	2204.00	0.02	0.91	44.22	22.45	0.49	18.60
AL-MW036-SB-04	78.26	2337.00	0.01	1.36	26.69	14.37	0.11	17.10
AL-MW038-SB-04	82.02	1230.00	0.01 U	1.27	29.79	12.12	0.65	11.20
AL-MW040-SB-04	85.53	910.00	0.02	1.55	19.14	8.69	0.27	10.60
AL-MW046-SB-04	89.72	610.00	0.03	1.36	21.34	7.15	0.35	9.16

Key:

BTU	=	British thermal unit.
BTU/lb.	=	British thermal units per pound.
g/cm^3	=	Grams per cubic centimeter.
TOC	=	Total organic carbon.
U	=	Not detected (number is detection limit).
%C	=	Percent carbon.
wt%	=	Percent by weight.

Source: Ecology and Environment, Inc., 1994.

Table 3-2

SUMMARY OF PHYSICAL/PHYSICOCHEMICAL DATA FOR PEAT
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Location Designation	Ash (%)	BTU Content (BTU/lb.)	Chlorine (%)	Dry Density (g/cm^3)	Moisture (%)	Organic Matter (%)	Sulfur (wt%)	TOC (%C)
AL-MW004-SB-04	73.96	2151.00	0.05	1.17	59.44	21.57	1.09	1.61
AL-MW010-SB-04	83.69	801.00	0.13	1.11	57.05	10.92	0.66	8.00
AL-MW018-SB-04	83.64	639.00	0.14	1.34	40.55	10.80	0.23	7.73
AL-MW024-SB-03	80.34	2063.00	0.01 U	1.19	56.28	14.13	1.81	15.80
AL-MW027-SB-02	62.89	2960.00	0.10	1.02	39.75	26.91	0.38	47.4 J

Key:

BTU = British thermal unit.
BTU/lb. = British thermal units per pound.
g/cm^3 = Grams per cubic centimeter.
J = Estimated.
TOC = Total organic carbon.
U = Not detected. Number is detection limit.
%C = Percent carbon.
wt% = Percent by weight.

Source: Ecology and Environment, Inc., 1994.

Table 3-3

SUMMARY OF PHYSICAL/PHYSICOCHEMICAL DATA FOR CLAY
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Location Designation	Ash (%)	BTU Content (BTU/lb.)	Chlorine (%)	Dry Density (g/cm^3)	Moisture (%)	Organic Matter (%)	Sulfur (wt%)	TOC (%C)
AL-MW004-SB-05	91.27	50 U	0.19	1.18	40.12	4.73	0.28	1.60
AL-MW010-SB-05	89.43	96.00	0.26	1.25	43.22	6.47	0.09	1.52
AL-MW018-SB-05	89.57	73.00	0.16	1.19	45.28	5.62	0.13	1.49
AL-MW024-SB-04	88.59	50 U	0.05	1.13	48.99	8.89	0.31	4.33
AL-MW027-SB-03	92.99	95.00	0.01 U	1.27	31.64	3.89	0.06	1.62
AL-MW028-SB-06	91.25	88.00	0.22	1.20	40.72	5.20	0.12	1.89
AL-MW032-SB-03	91.07	79.00	0.26	1.20	37.52	5.02	0.12	1.29
AL-MW034-SB-05	91.96	186.00	0.14	1.33	34.80	4.26	0.08	1.76

Key:

BTU = British thermal unit.
BTU/lb. = British thermal units per pound.
g/cm^3 = Grams per cubic centimeter.
TOC = Total organic carbon.
U = Not detected. Number is detection limit.
%C = Percent carbon.
WT% = Percentage by weight.

Source: Ecology and Environment, Inc., 1994.

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Table 3-4
STATIC WATER LEVEL DATA FOR SHALLOW ZONE WELLS
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Monitoring Well Number	Total Depth (feet BGS)	Ground Surface Elevation (feet MSL)	TOIC Elevation (feet MSL)	Screened Interval (feet BGS)	Depth to Water BTOIC (feet) 5/24/94	Static Water Level Elevation (feet MSL) 5/24/94	Depth to Water BTOIC (feet) 6/20/94	Static Water Level Elevation (feet MSL) 6/20/94
MW001	16.5	-7.55	-7.73	6-16	4.33	-12.06	3.65	-11.38
MW003	15.5	-5.93	-6.13	5-15	1.85	-7.98	1.31	-7.44
MW005	15.5	-4.87	-5.26	5-15	2.88	-8.14	3.15	-8.41
MW007	15.4	-3.82	-4.17	5-15	5.70	-9.87	5.59	-9.76
MW009	15.5	-5.06	-5.68	5-15	3.30	-8.98	2.65	-8.33
MW011	15.6	-5.26	-5.94	5-15	2.95	-8.89	2.55	-8.49
MW013	17.5	-3.67	-3.95	7-17	5.00	-8.95	5.23	-9.18
MW015	15.5	-2.49	-2.75	5-15	5.94	-8.69	5.61	-8.36
MW017	15.5	-5.20	-6.07	5-15	1.95	-8.02	1.67	-7.74
MW019	15.0	-4.48	-4.73	4-14	3.91	-8.64	3.56	-8.29
MW021	14.5	0.86	0.57	4-14	5.33	-4.76	4.00	-3.43
MW023	15.5	-2.83	-3.49	5-15	4.73	-8.22	4.29	-7.78
MW025	15.5	-5.40	-5.64	5-15	4.54	-10.18	4.71	-10.35
MW027	15.0	-3.88	-4.12	4-14	5.99	-10.11	5.96	-10.08
MW029	15.5	-0.99	-1.31	5-15	5.10	-6.41	5.08	-6.39
MW031	15.5	0.15	-0.50	5-15	7.50	-8.00	7.81	-8.31
MW033	15.5	-2.01	-2.64	5-15	3.55	-6.19	3.21	-5.85
MW036	18.0	1.18	0.65	4-14	6.40	-5.75	5.75	-5.10
MW038	15.5	-0.92	-1.21	5-15	6.16	-7.37	5.82	-7.03
MW040	15.5	2.19	1.99	5-15	8.10	-6.11	8.00	-6.01
MW041	14.5	-7.52	-7.77	4-14	3.64	-11.41	3.32	-11.09
MW043	14.5	-3.62	-4.18	4-14	4.99	-9.17	3.63	-7.81
MW046	14.5	-0.10	-0.34	4-14	8.52	-8.86	8.26	-8.60

Key:

BGS = Below ground surface.
BTOIC = Below top of inner casing.
MSL = Mean sea level.
TOIC = Top of inner casing.

Source: Ecology and Environment, Inc., 1994.

Table 3-5
STATIC WATER LEVEL DATA FOR SAND UNIT WELLS
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

Monitoring Well Number	Total Depth (feet BGS)	Ground Surface Elevation (feet MSL)	TOIC Elevation (feet MSL)	Screened Interval (feet BGS)	Depth to Water[a] TOIC (feet) 5/24-26/94	Static Water Level Elevation (Feet MSL) 5/24-26/94	Depth to Water TOIC (feet) 6/20/94	Static Water Level Elevation (feet MSL) 6/20/94
MW002	68.5	-7.18	-7.37	58-68	-0.59	-6.78	-2.99	-4.38
MW004	67.5	-4.88	-5.13	57-67	-2.64	-2.49	-2.95	-2.18
MW006	67.5	-4.92	-5.60	57-67	-3.28	-2.32	-3.43	-2.17
MW008	72.5	-3.56	-3.96	62-72	-1.56	-2.40	-1.74	-2.22
MW010	67.5	-4.86	-5.11	57-67	-2.58	-2.53	-2.71	-2.40
MW012	63.5	-5.33	-5.78	58-63	-3.07	-2.71	-3.19	-2.59
MW014	64.5	-3.70	-4.04	59-64	-1.38	-2.66	-0.76	-3.28
MW016	69.5	-2.20	-2.52	59-69	0.20	-2.72	-0.04	-2.48
MW018	64.5	-4.87	-5.11	54-64	-1.52	-3.59	-2.59	-2.52
MW020	67.5	-4.47	-4.71	57-67	-1.27	-3.44	-1.78	-2.93
MW022	74.5	0.51	0.12	64-74	1.99	-1.87	2.63	-2.51
MW024	82.5	-2.94	-3.19	72-82	-0.35	-2.84	-0.66	-2.53
MW026	76.5	-5.47	-5.81	66-76	-3.08	-2.73	-3.28	-2.53
MW028	74.5	-4.18	-3.83	64-74	-1.67	-2.16	-1.91	-1.92
MW030	72.5	-0.73	-1.02	62-72	1.12	-2.14	1.28	-2.30
MW032	67.5	0.20	-0.18	62-67	2.11	-2.29	2.10	-2.28
MW034	73.5	-1.85	-2.11	63-73	2.60	-4.71	2.31	-4.42
MW042	60.5	-7.31	-7.60	50-60	-4.61	-2.99	-4.76	-2.84
MW044	67.5	-3.32	-3.48	57-67	5.73	-9.21	0	-3.48

Key:

[a] A negative depth to water indicates that the water level was higher than the TOIC (flowing well). An extension was placed on the riser and the water level was allowed to equilibrate before measurements were taken.

BGS = Below ground surfac
MSL = Mean sea level
TOIC = Top of inner casing

Source: Ecology and Environment, Inc., 1994.

Table 3-6

VERTICAL HYDRAULIC GRADIENTS BETWEEN SHALLOW ZONE AND SAND UNIT BASED ON JUNE 20, 1994, WATER LEVEL ELEVATIONS REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL SITE NEW ORLEANS, LOUISIANA

Well Pair	Depth to Screen Bottom for Shallow Zone Well (feet BGS)	Depth to Screen Top for Sand Unit Well (feet BGS)	Distance Between Screen Intervals (feet)	Difference in Water Level Elevations (feet)	Vertical Hydraulic Gradient (foot/foot)[a]
MW001/MW002	16	58	42	7.00	0.167
MW003/MW004	15	57	42	5.26	0.125
MW005/MW006	15	57	42	6.24	0.149
MW007/MW008	15	62	47	7.54	0.160
MW009/MW010	15	57	42	5.93	0.141
MW011/MW012	15	58	43	5.90	0.137
MW013/MW014	17	59	42	5.90	0.140
MW015/MW016	15	59	44	5.88	0.134
MW017/MW018	15	54	39	5.22	0.134
MW019/MW020	14	57	43	5.36	0.125
MW021/MW022	14	64	50	0.92	0.018
MW023/MW024	15	72	57	5.25	0.092
MW025/MW026	15	66	51	7.82	0.153
MW027/MW028	14	64	50	8.16	0.163
MW029/MW030	15	62	47	4.09	0.087
MW031/MW032	15	62	47	6.03	0.128
MW033/MW034	15	63	48	1.43	0.030
MW041/MW042	14	50	36	8.25	0.229
MW043/MW044	14	57	43	4.33	0.101

Key:

[a] In all cases the vertical hydraulic gradient is upward from the sand unit to the shallow zone.

BGS = Below ground surface.

Source: Ecology and Environment, Inc., 1994.

Table 3-7

SELECTED SLUG TEST RESULTS FOR THE SHALLOW ZONE REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL SITE NEW ORLEANS, LOUISIANA

Well No.	Hydraulic Conductivity (feet/minute)[a]
MW001	0.00003269
MW003	0.002417
MW005	0.000062428
MW007[b]	0.0002611
MW009	0.008924
MW011	0.0001344
MW013	0.0009649
MW015[b]	0.0004999
MW017	0.006869
MW019	0.001211
MW021[b]	0.001072
MW023	0.0006257
MW025	0.0002482
MW027[b]	0.001898
MW029[b]	0.01454
MW031[b]	0.006466
MW033	0.002316
MW036[b]	0.001511
MW038[b]	0.001953
MW040[b]	0.00103
MW041	0.001197
MW043	0.001641
MW046[b]	0.004038

Key:

[a] Based on Bouwer and Rice solution for rising head tests.
[b] Wells screened across the water table.

Source: Ecology and Environment, Inc., 1994.

06:ZT2061_DWF1007_T3_7-10/28/94-D1

001157.280

Table 3-8

SELECTED SLUG TEST RESULTS FOR SAND UNIT WELLS REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL SITE NEW ORLEANS, LOUISIANA

Well No.	Hydraulic Conductivity (feet/minute)[a]
MW002	NC
MW004	0.01321
MW006	0.002672
MW008	0.00353
MW010	0.00167
MW012	0.007022
MW014	0.001775
MW016	0.002195
MW018	0.01066
MW020	0.0003393
MW022	0.00228
MW024	0.004714
MW026	0.002369
MW028	0.005812
MW030	0.001103
MW032	0.008451
MW034	0.0002325
MW042	0.004183
MW044	0.0001417

Key:

[a] Based on Bouwer and Rice solution for rising head tests.

NC = Not calculated due to poor system response.

Source: Ecology and Environment, Inc., 1994.

Figure 3-1 SITE TOPOGRAPHY
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994

Figure 3-10 SAND UNIT POTENTIOMETRIC SURFACE MAP
(MAY 24-26, 1994)
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

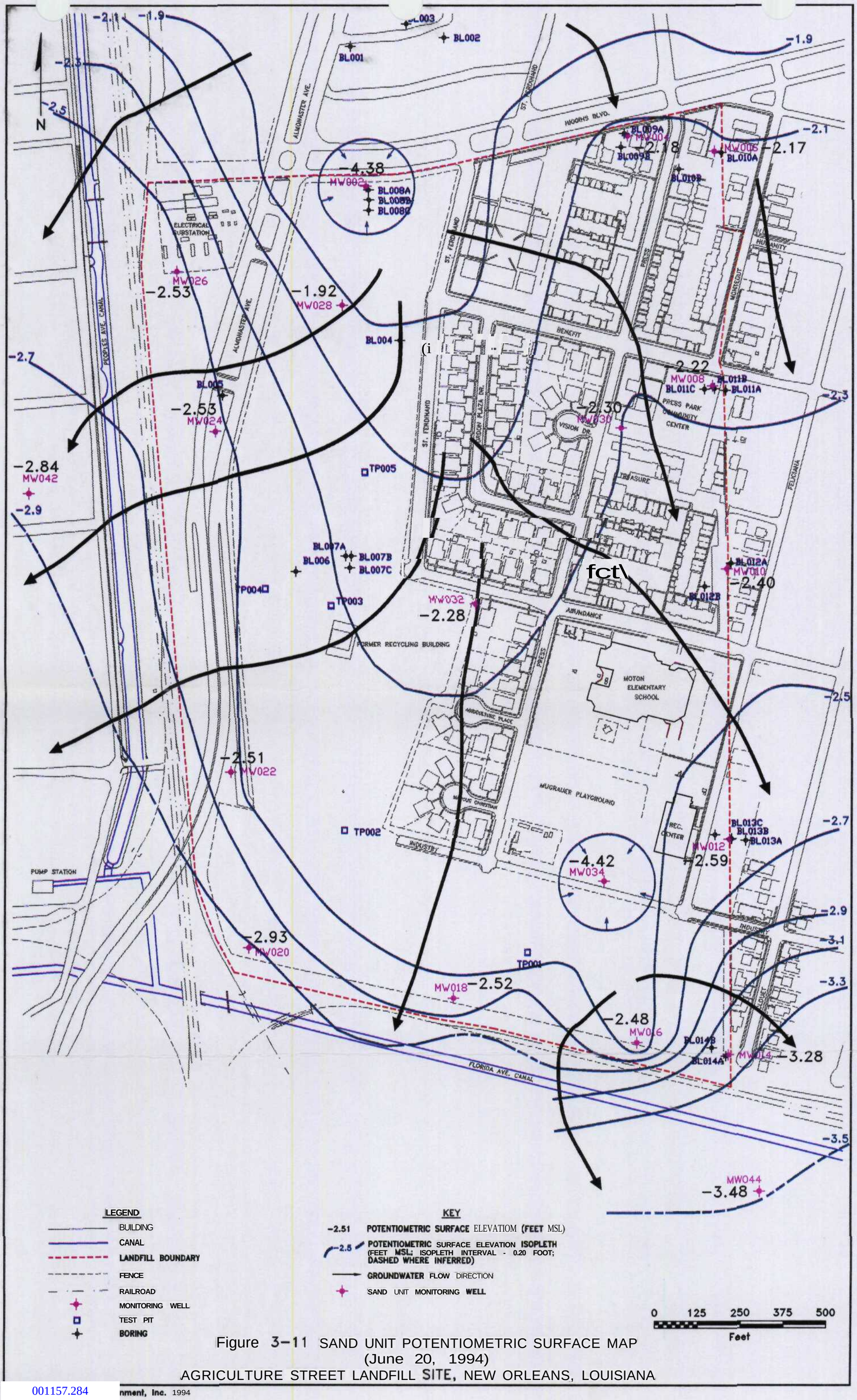


Figure 3-11 SAND UNIT POTENTIOMETRIC SURFACE MAP
(June 20, 1994)
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.284

nment, Inc. 1994

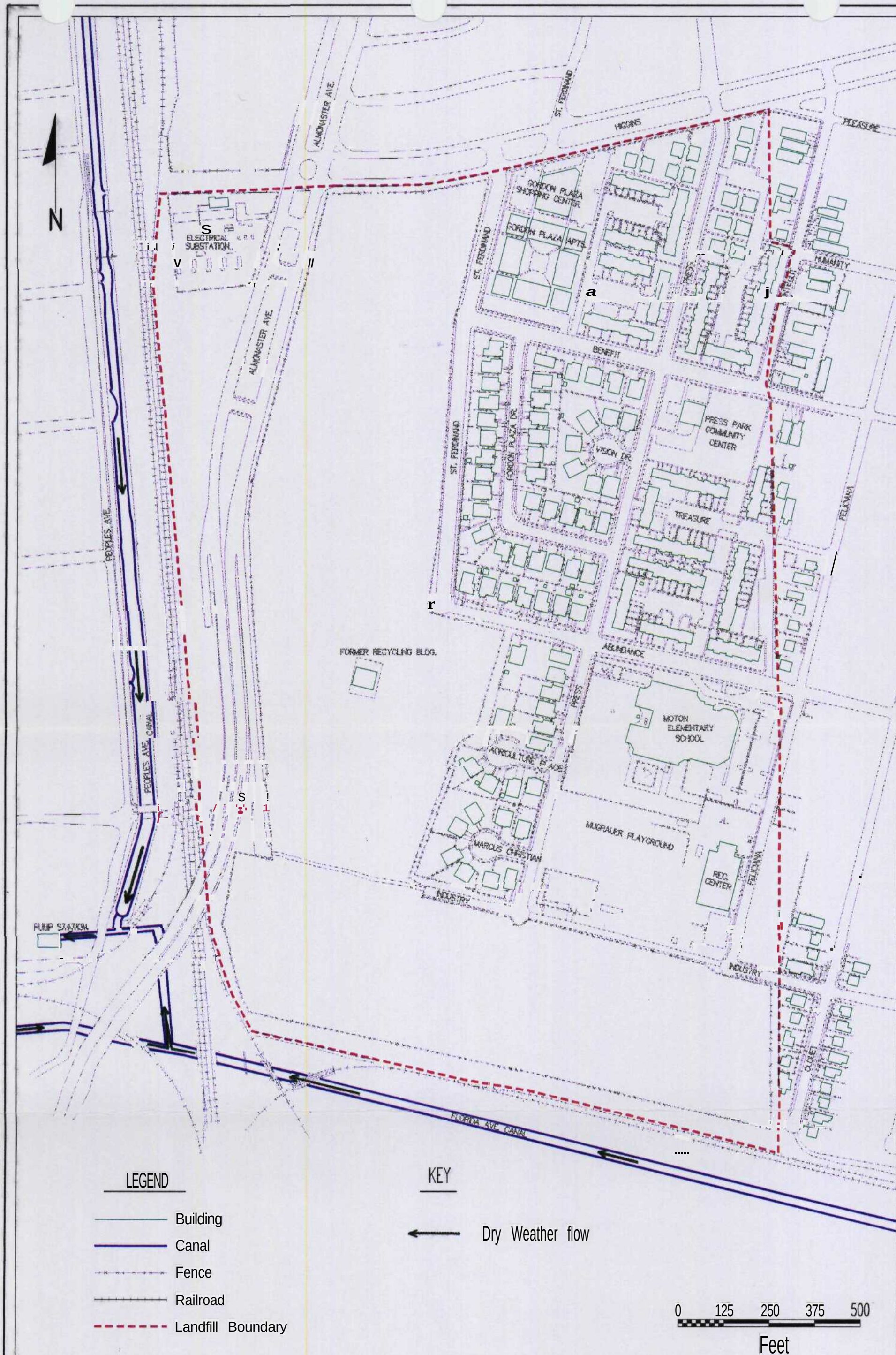


Figure 3-12 DRY WEATHER STORMWATER FLOW IN THE FLORIDA AVENUE AND PEOPLES AVENUE CANALS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Environmental Environment, Inc. 1994

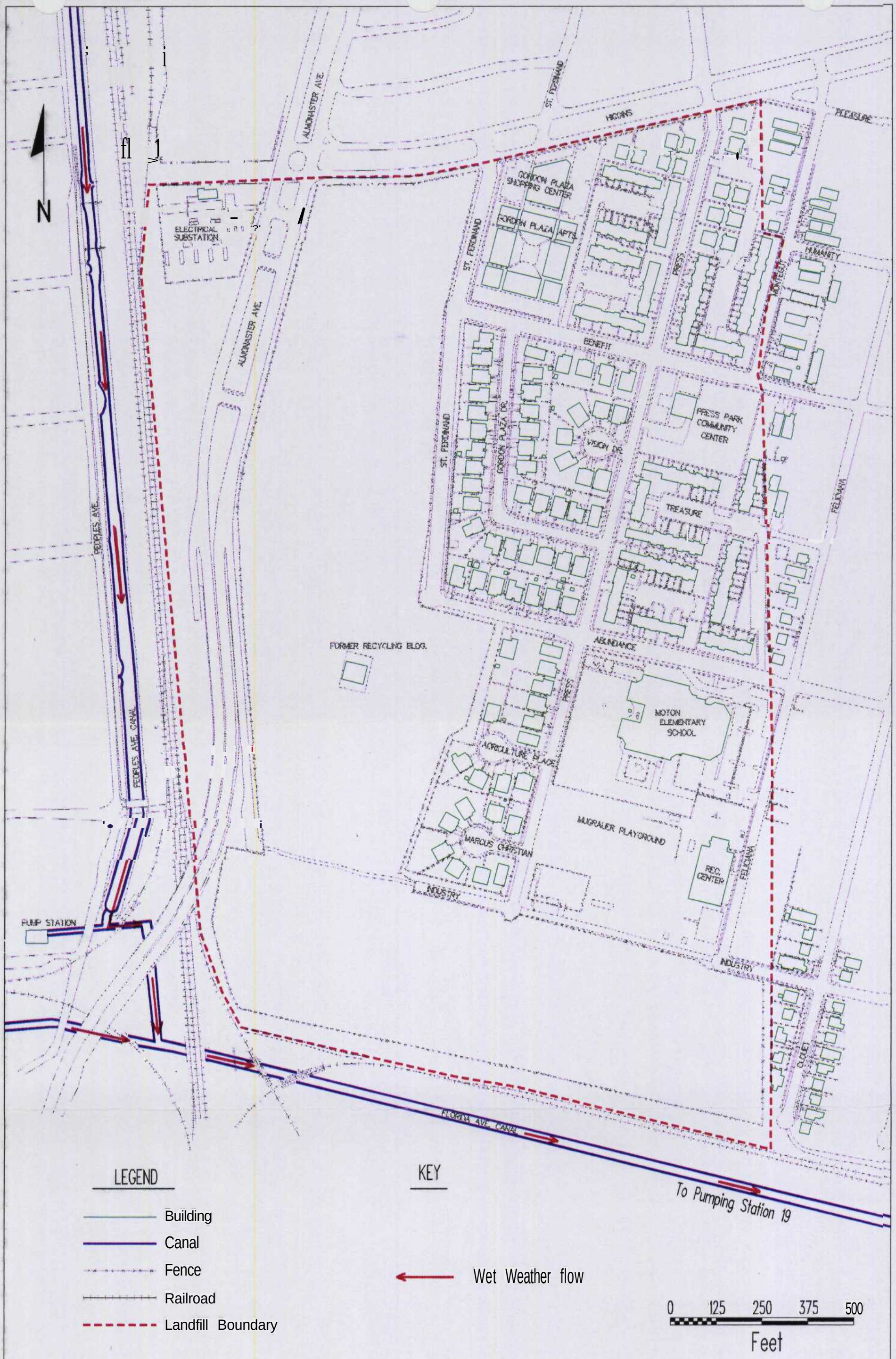
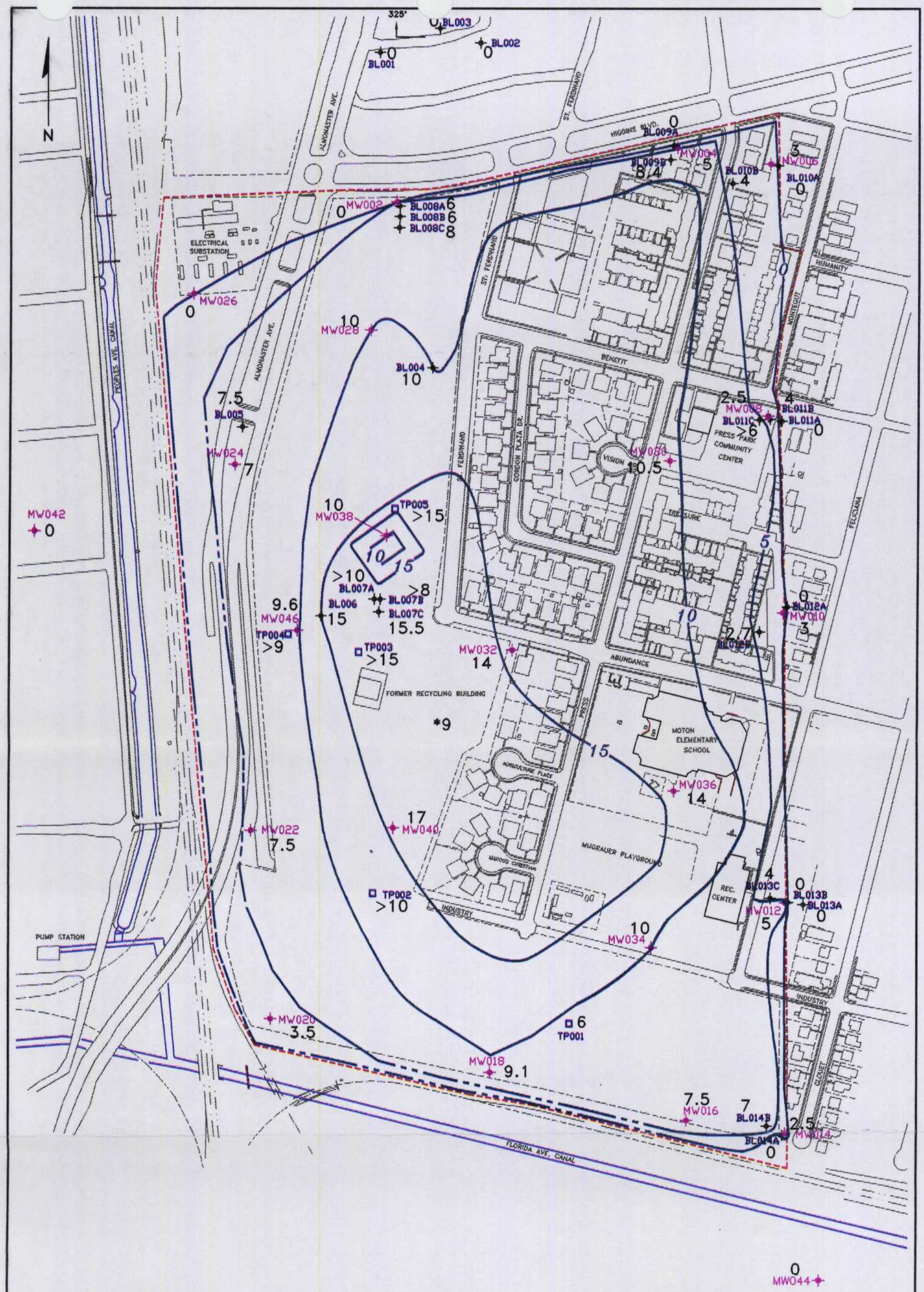


Figure 3-13 WET WEATHER STORMWATER FLOW IN THE FLORIDA AVENUE AND PEOPLES AVENUE CANALS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc. 1994



LEGEND

- BUILDING
- CANAL
- LANDFILL BOUNDARY
- FENCE
- RAILROAD
- MONITORING WELL
- TEST PIT
- BORING

KEY

7.5 THICKNESS OF FILL MATERIAL (FEET BGS)

10 FILL THICKNESS ISOPACH (FEET BGS; DASHED WHERE INFERRED: ISOPACH INTERVAL = 3.0 FEET)

»9 TOPOGRAPHICALLY HIGH AREA IN WHICH FILL MIGHT BE THICKER THAN INDICATED BY ISOPACH. (NUMBER INDICATES POTENTIAL GREATER THICKNESS IN FEET BGS.)

NOTES
Reported thicknesses are based on depth of fill below ground surface and locally include imported construction base surface fill materials an developed areas. In particular, approximately 3 feet of surface construction base fill is present across the Moton School ana. Reported thicknesses do not include surface trash and debris presumed to have been dumped after closure of the landfill.

Refusal encountered at borings BL007A and BL007B.

0 125 250 375 500
Feet

Figure 3-2 LANDFILL MATERIAL THICKNESS ISOPACH MAP
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.287

onment, Inc., 1994

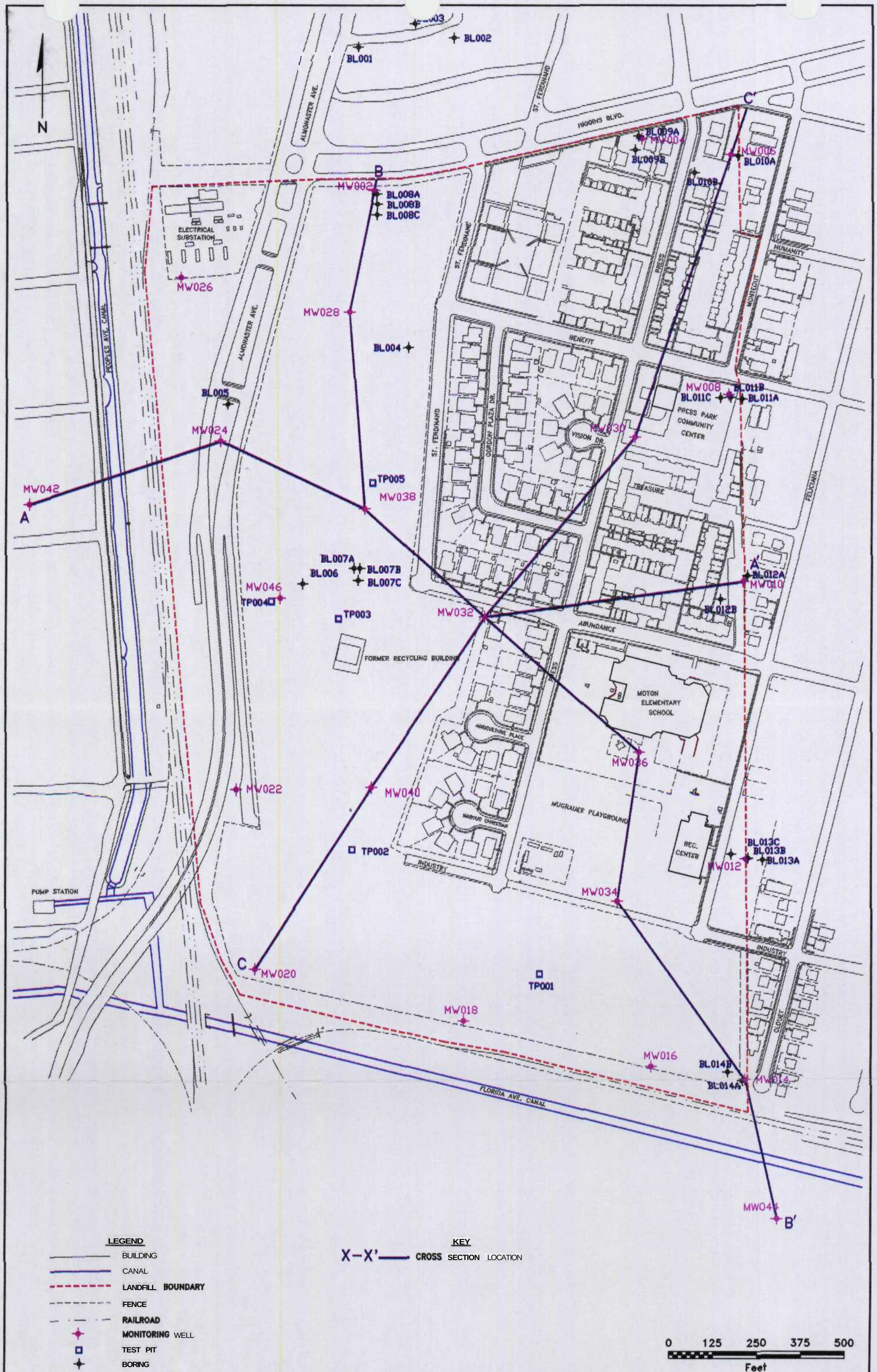


Figure 3-3 GEOLOGIC CROSS SECTION LOCATIONS
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

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ment, Inc. 1994

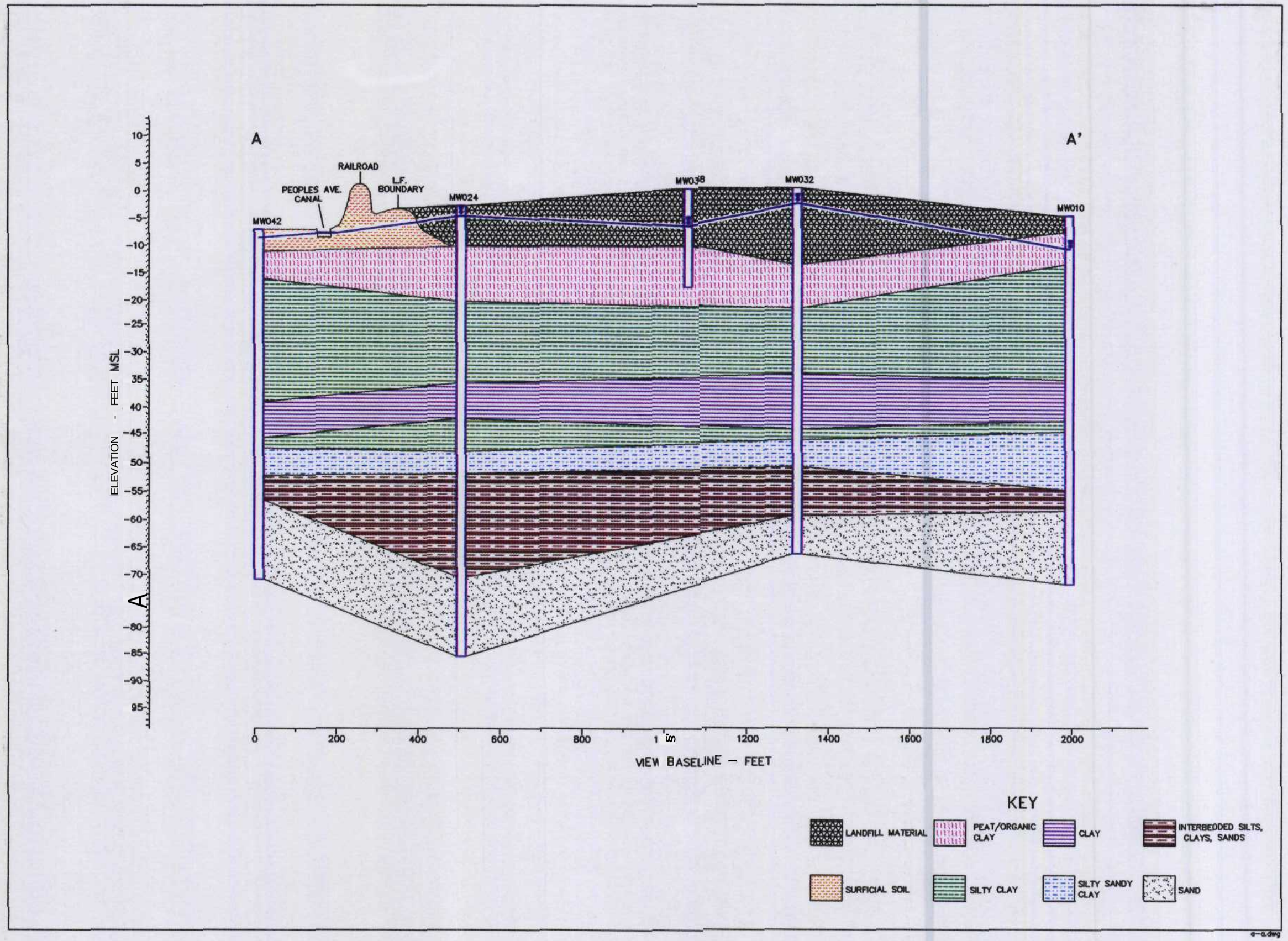

Figure 3-4
CROSS SECTION VIEW A-A'
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

001157.289

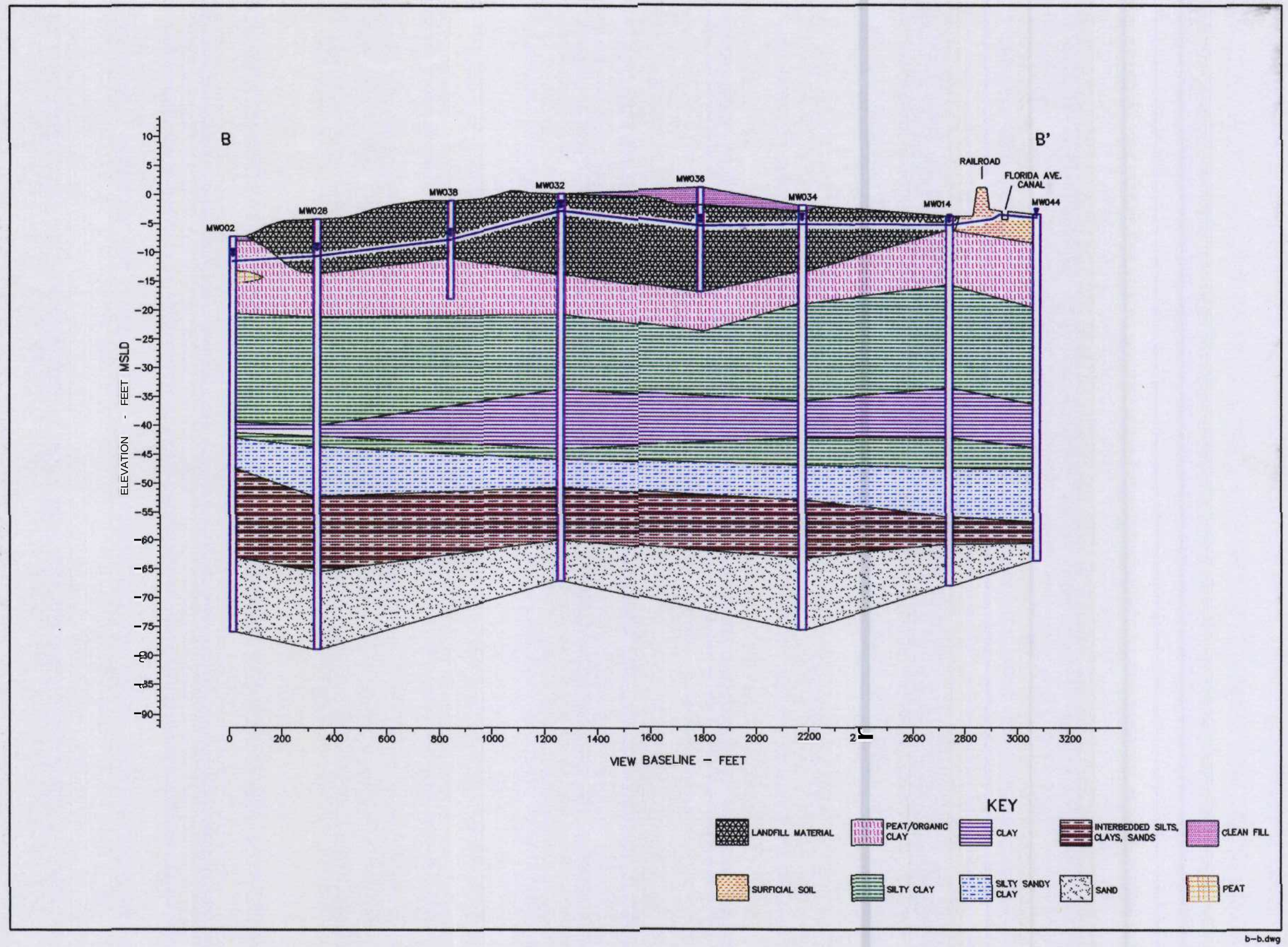

Figure 3-5
CROSS SECTION VIEW B-B'
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

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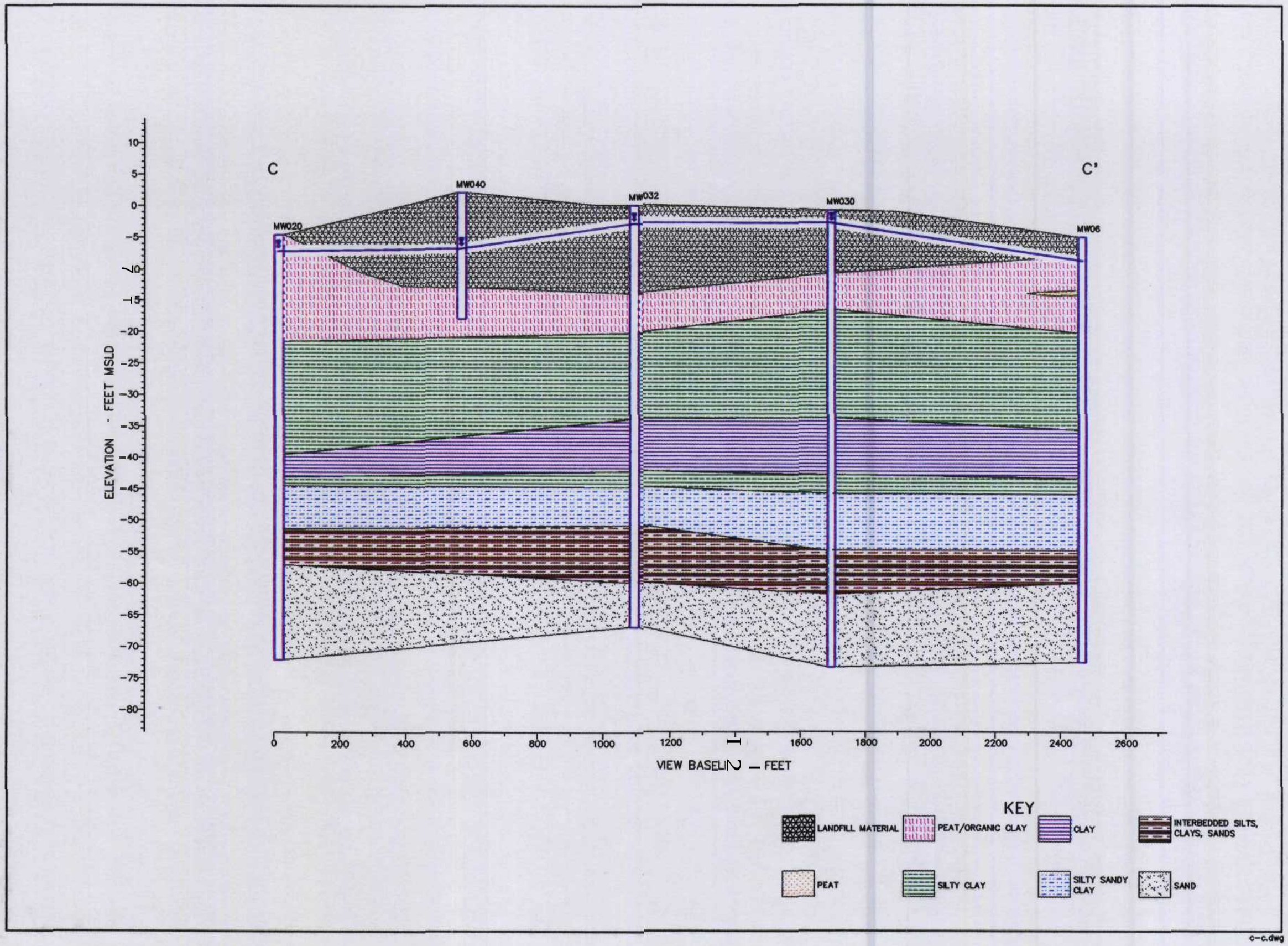


Figure 3-6
CROSS SECTION VIEW C-C'
AGRICULTURE STREET LANDFILL SITE
NEW ORLEANS, LOUISIANA

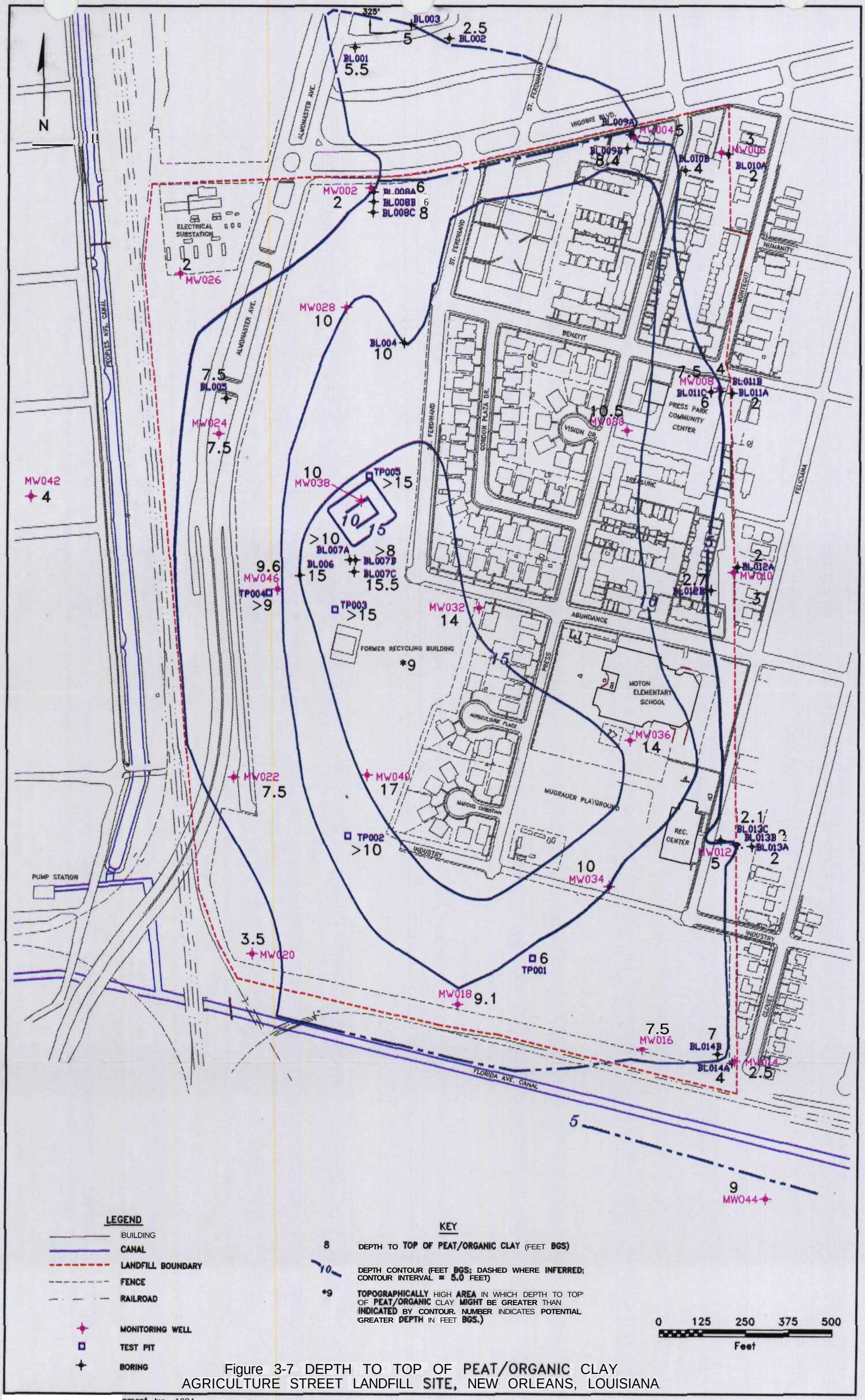


Figure 3-7 DEPTH TO TOP OF PEAT/ORGANIC CLAY
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.292

nment, Inc., 1934

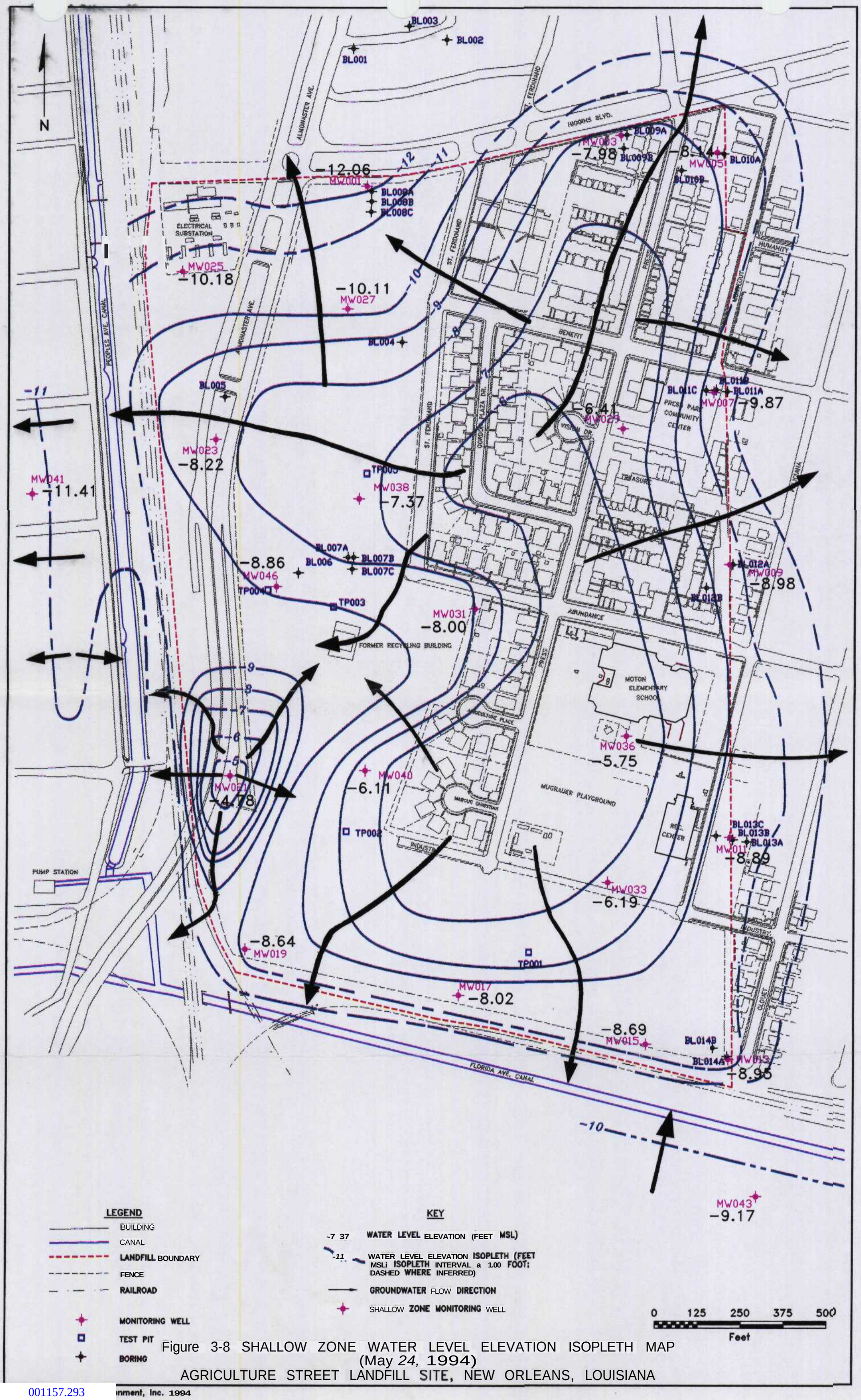


Figure 3-8 SHALLOW ZONE WATER LEVEL ELEVATION ISOPLETH MAP
(May 24, 1994)
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

nment, Inc. 1994

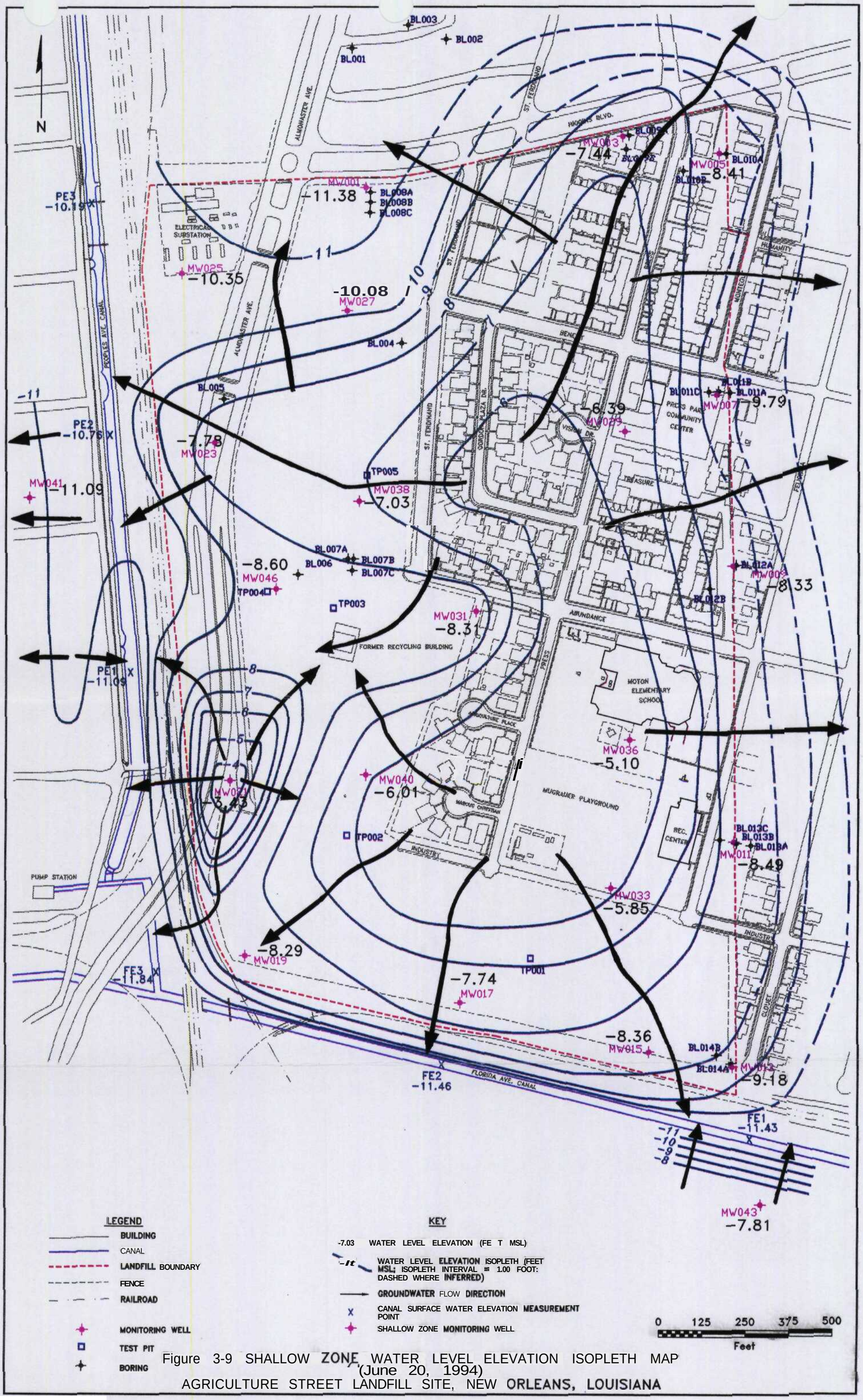
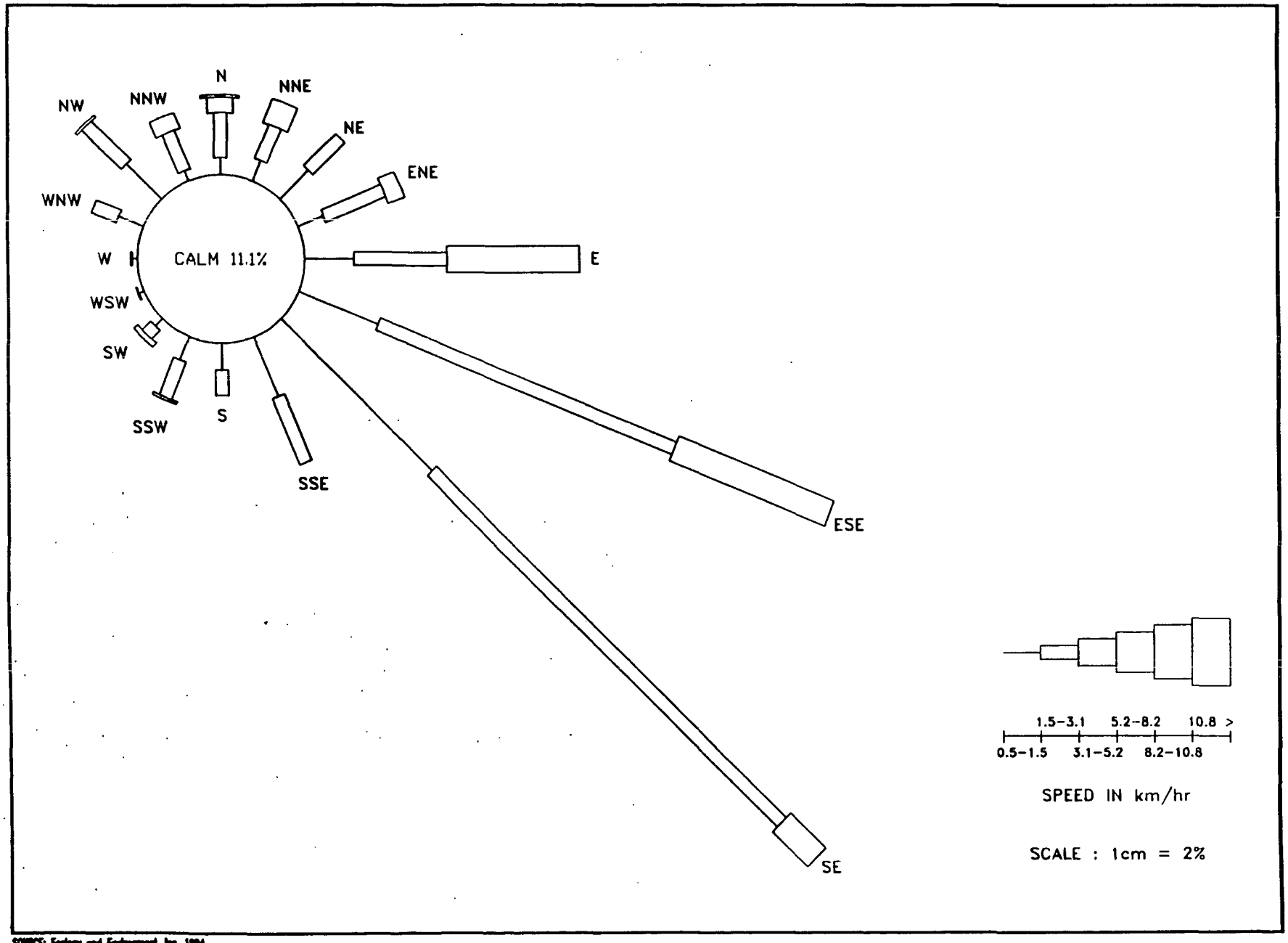


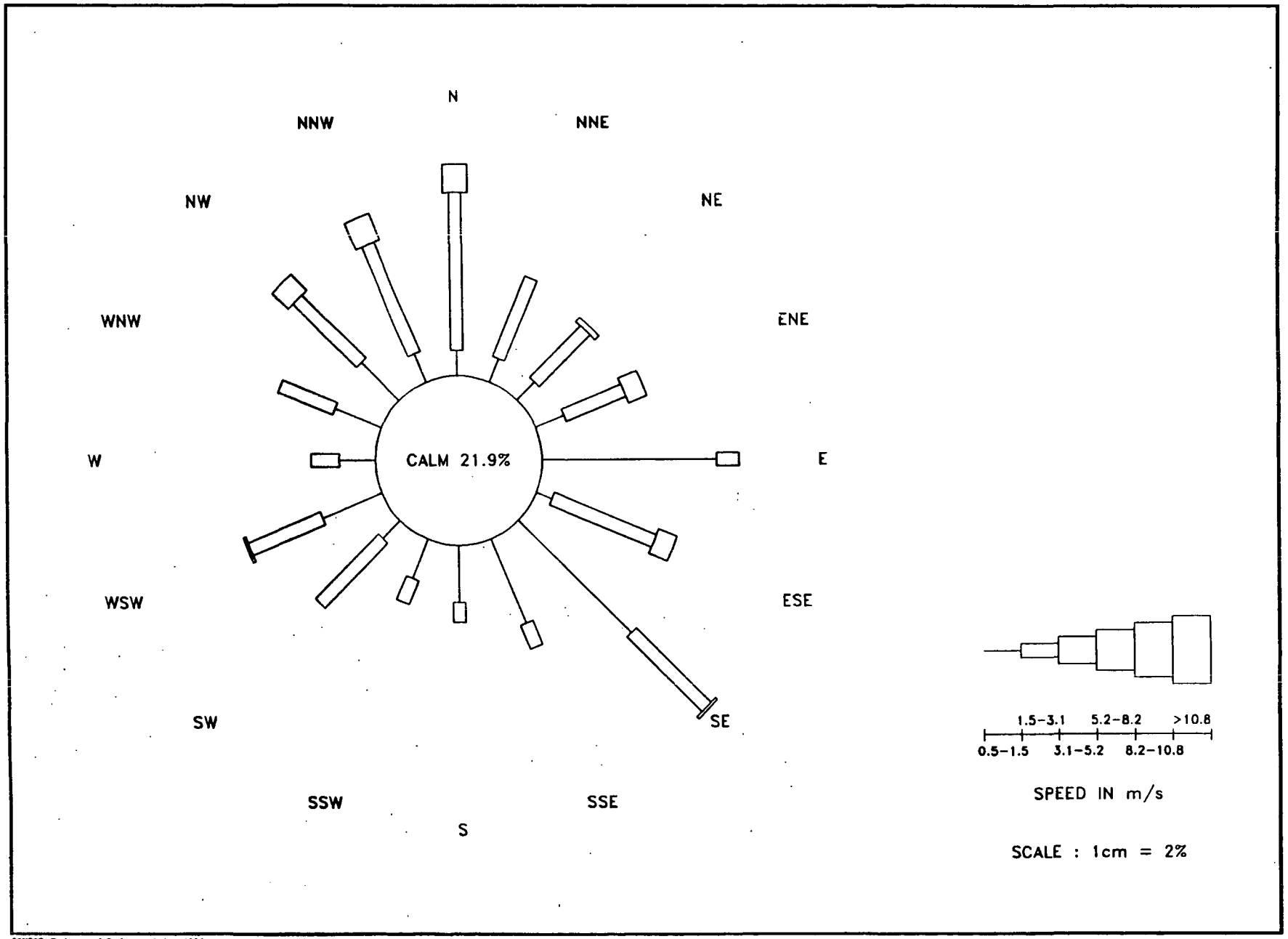
Figure 3-9 SHALLOW ZONE WATER LEVEL ELEVATION ISOPLETH MAP
(June 20, 1994)
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



SOURCE: Ecology and Environment, Inc. 1994

001157.295

igure 3–14 WINDROSE DIAGRAM AIR SAMPLING FIELD STUDY: APRIL 8–29, 1994
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



SOURCE: Ecology and Environment, Inc. 1994

Figure 3-15 WINDROSE DIAGRAM AIR FOR NEW ORLEANS, MAY 1 – MAY 16, 1994
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

001157.296

4. NATURE AND DISTRIBUTION OF CONTAMINANTS

Section 4 presents analytical results from multi-media sampling conducted during the ASL RRII. This section is divided into seven sections to present the following data:

- Section 4.1 presents results of surface soil sampling and analyses at various locations within the ASL study area.
- Section 4.2 presents results of subsurface soil sampling and analyses at different depth intervals at various locations.
- Section 4.3 presents results of groundwater sampling and analysis for two distinct groundwater layers and a Gonzales-New Orleans Aquifer supply well.
- Section 4.4 presents results of indoor and outdoor ambient air sampling and analyses and a VOC and methane intrusion survey.
- Section 4.5 presents analytical data from additional media (garden produce, tap water, indoor dust, and paint chips) collected from residential property and a school.
- Section 4.6 presents ecological sample results (canal surface water and sediment) and a summary of the ecological survey.
- Section 4.7 discusses QA/QC activities utilized to ensure analytical results met RRII DQOs.

A general summary of the nature (which analytes were detected) and distribution (where detected analytes were located) of analytes is included in each subsection. Data is summarized in Section 4 using text, tables, and figures to present and correlate results.

Section 4 generally discusses sample locations (i.e., residence RES-23) rather than specific sample numbers (i.e., AL-SG036-SB-03).

Inorganic and organic analytes detected in samples were evaluated based on source, frequency of occurrence, FOD over background concentrations, and FOE over regulatory levels. This information will be combined with results of the baseline HHRA that was conducted for the ASL site and utilized by EPA for remedial/removal integrated decision making to reduce and manage potential risks associated with the ASL site.

Numerous organic and inorganic analytes were detected at the ASL site and in background areas during the course of the ASL RRII investigation. The presence of any specific analyte (e.g., calcium) does not indicate contamination at the ASL site. For example, calcium was detected in all 260 on-site surface soil samples; however, it was also detected in all 30 background (areas not impacted by the site) surface soil samples. The concentrations of calcium measured in either on-site or background samples (1,340 to 123,000 mg/kg) were all within the range of calcium concentration (7,000 to 500,000 mg/kg) typically found in soils as published by the EPA (1987). Numerous naturally occurring analytes (i.e., calcium, iron, magnesium, manganese, potassium, and sodium) were detected both on-site and in background soil. People are routinely exposed to these naturally occurring analytes at the observed (and even higher) concentrations in locations and from activities which are not associated with the ASL site, such as ingestion of food additives and vitamins.

Similarly, due to the urban setting of the site (located in New Orleans), numerous anthropogenic (man-made) chemicals have been detected in both on-site and background samples. Many are nearly ubiquitous (occurring over a wide area) to urban areas across the United States and are not uniquely site related. For example, benzene, toluene, ethylbenzene, and xylene (BTEX) are major components of gasoline. They are routinely found in ambient air in cities, and were found in both background and on-site ambient air samples. The estimated average general urban concentration of benzene in the atmosphere is 20 parts per billion by volume (ppbv). The air surrounding service stations may contain up to 3,200 ppbv, and cigarette smoke may contain as much as 64,000 ppbv benzene (Howard 1990). While the presence of BTEX compounds at any concentration in air may not be desirable, the presence, concentration, and distribution of these compounds may not be the result of previous ASL site

activities. The RRII report does not dismiss or eliminate any detected organic analyte from further consideration unless it is identified as a laboratory contaminant.

The data tables in Section 4 include a comparison of analytes detected to background concentrations, ARAR values, and TBC levels. Comparison of sample data to ARAR values and TBC levels (initially discussed in Section 2.1.2) provides a starting point for identification of organic and inorganic analytes that may be present at concentrations exceeding PRGs. PRGs are media-specific chemical concentrations that will pose no unacceptable risk to human health and the environment. EPA determines whether site actions are warranted based on results of the RRII/FS, HHRA, and ERA. The HHRA utilized data generated from RRII field sampling activities to compute potential risks to ASL residents and other individuals under several scenarios. The potential risk is the cumulative risk from all analytes detected, regardless of the source (ASL site-derived, naturally occurring, or anthropogenic [man-made]). EPA uses the general 10^{-4} to 10^{-6} (one in 10,000 to one in 1,000,000) cumulative cancer risk range as a "target range" within which they strive to manage risk as part of a Superfund cleanup. Cumulative cancer risks less than 10^{-6} (one in 1,000,000) generally require no action. Cumulative cancer risks greater than 10^{-4} (one in 10,000) generally require some action, and cumulative cancer risks between 10^{-4} and 10^{-6} (the acceptable risk range) require evaluation but not always action by EPA. The TBC values presented on the data tables in Section 4 utilize EPA Region 6 Draft RBCs associated with a 10^{-6} cumulative cancer risk and hazard indices of one. These are the most conservative and protective numbers of the target range from 10^{-4} to 10^{-6} cumulative cancer risk in which EPA makes risk management decisions.

4.1 SURFACE SOIL SAMPLE RESULTS

Section 4.1 presents analytical results of the extensive surface soil sampling program conducted at the ASL study area during the RRII field activities and integrates these results with 1993 ESI data. The RRII surface soil study area includes the ASL site, adjacent areas located approximately 150 feet north and east of the ASL site boundaries, and background locations. Surface soil samples collected during the 1993 ESI investigation included on-site areas, areas up to 1,500 feet east and 500 feet north of the former landfill operational boundary, and ESI background locations. Section 4.1 is organized in seven sections to present the following data:

- Section 4.1.1 provides criteria and guidelines used to interpret surface soil data.
- Section 4.1.2 provides an overview of the sampling results.
- Section 4.1.3 presents results for surface soil samples collected at open land background locations and background residences. Criteria used to determine reference background concentrations for each analyte are also discussed.
- Section 4.1.4 presents results for surface soil samples collected from grid nodes on the undeveloped portion of the former landfill at the 0- to 3-inch and 0- to 24-inch depth intervals.
- Section 4.1.5 presents results for surface soil samples collected from the developed portion of the former landfill at the 0- to 3-inch and 0- to 12-inch depth intervals. Sample areas included surface soil grid nodes, study group residences, Moton School, and Press Park Community Center.
- Section 4.1.6 presents results for soil samples collected from adjacent off-site locations at the 0-to 3-inch and 0- to 24-inch depth interval.
- Section 4.1.7 discusses surface soil sample results as they are associated with the nature and distribution of contaminants. Results for RRII surface soil samples collected from the 0- to 3-inch depth interval are integrated with ESI sample results collected from the 0-

to 3-inch depth interval to provide an overall discussion of the nature of surface soil contamination on the ASL site and adjacent areas.

4.1.1 Use and Interpretation of Results Guidelines

RRII DQOs were established to meet the requirements of the FS and the CERCLA presumptive remedy for municipal landfills (EPA 1988a, 1991a, 1993a). Although DQOs did not required that the extent of contamination be measured, they did require that boundaries associated with the former landfill and the distribution of contaminants within those boundaries be defined. A limited discussion of the spatial extent of contamination was possible by combining RRII and ESI data to describe areas north and east of the site. Probability plots were created to display the statistical uncertainty associated with the extrapolation of measured point contaminant concentrations between sample locations.

RRII surface soil analyte concentrations are compared to both RRII background sample concentrations and TBC criteria identified in Section 2.1.2. TBC criteria for soil were based upon: *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities* (EPA 1994a); EPA Region 6 *Draft Risk-Based Concentrations Associated with 10^{-6} Cancer Risk and HI = 1 Table - Residential Land Use - Soil and Water* (Khoury 1994); EPA Region 3 Risk-Based Concentration Tables, where EPA Region 6 Draft RBCs have not been established (EPA 1994b); and other EPA guidance concentrations, where neither EPA Region 6 nor Region 3 RBCs have been established. Background and TBC criteria do not represent PRGs for the ASL site; they are presented as a reference against which detected concentrations can be compared and evaluated. Site-specific contaminants of concern (COCs) reported in the FS will be derived from ARARs, TBC levels, and the HHRA conducted for the site.

Background concentrations were defined for soil matrices by determining the median concentration of each analyte measured at background locations. To be consistent with risk

assessment protocol, undetected values denoted by the "U" qualifier were converted to one half of the reported detection limit before computing the median concentration (see Section 4.1.3.3).

All analytical data are presented with data validation qualifiers to reflect their reliability. Unless specifically discussed, data usability has not been impacted by qualification of results. Eleven common laboratory and/or field blank contaminants have been included in analytical results and statistical tables: acetone, methylene chloride, 2-butanone, carbon disulfide, toluene, bis(2-ethylhexyl)phthalate, diethylphthalate, dimethylphthalate, butylbenzylphthalate, di-n-butyl phthalate, and di-n-octyl phthalate. These contaminants have been reviewed on a sample/analyte specific basis and have only been further discussed if, based on professional judgement and knowledge of previous site operations and investigations, the contaminant is determined to be possibly attributable to the site and not to sampling and/or analyses. Dioxin results are presented as the sum of individual PCDD and PCDF congeners/homologs after conversion to equivalent concentrations of 2,3,7,8-TCDD, the most toxic dioxin isomer, using toxicity equivalency factors (TEFs) (EPA 1989b).

To better present surface soil results, tables and figures are presented at the end of Section 4.1. Two types of tables are presented for each sample group: statistical tables and results summary tables. Statistical analysis tables provide analyte-specific information for the sample group as a whole, including FOD, minimum and maximum detected values (Min Det and Max Det), minimum and maximum detection limits (Min DL and Max DL), mean and standard deviation concentrations, and FOE for background concentrations and TBC criteria. Results summary tables provide sample-by-sample analytical results for each analyte detected. Concentrations exceeding background are indicated by shading, and concentrations exceeding TBC criteria appear in bold face type.

Four types of figures are used to integrate and compare analytical results based on RRII and ESI data collected from areas within the former landfill boundary and off-site of the former landfill boundary (only available from ESI data): box plots, post plots, contour maps,

and probability plots. Box plots are used to compare different sample sets on a single figure (e.g., lead concentrations in front yards versus back yards, gardens, etc.) Post plots present color-coded sample points that correspond to a selected range of analyte concentrations. Contour maps have been prepared using database software to produce and display generalized distributions of a specific analyte. Finally, probability plots present the potential occurrence of an analyte at any particular location above a specified concentration.

Although not graphically presented, statistical analyses were performed using Spearman rank correlations and linear regressions to determine contaminant co-occurrence and concentration correlations. Based upon these analyses, a subset of contaminants or "indicator" analytes was detected in site surface soils. These indicator analytes exhibit similar physical and chemical behavior (e.g., soil pH, moisture, percent organic matter, etc.) under the conditions encountered in site surface soil, and their distribution represents the distribution of similar contaminants encountered at the ASL site. All indicator analytes are distributed across the site and occur at concentrations exceeding background. Using indicator analytes, an in-depth discussion of each detected analyte is not required to understand the nature, distribution, and extent of contaminants in surface soils. The contour maps presented in Section 4 are used to present the distribution of three indicator analytes for the ASL site: lead, arsenic, and benzo(a)pyrene.

4.1.2 Overview of Surface Soil Sample Results

Metals (e.g., arsenic, cobalt, and lead) and PAHs [e.g., benzo(a)pyrene] were the most common contaminants detected in surface soils based on their FOD, presence at concentrations exceeding background values, and presence at concentrations exceeding risk-based or regulatory levels. Pesticides (e.g., 4,4'-DDT) and dioxin were also frequently detected in surface soil, but neither exceeded background or risk-based concentrations at the same frequency as metals or PAHs. VOCs (e.g., benzene and tetrachloroethene) and PCBs

were detected at a much lower frequency than metals or PAHs. Soils were sieved, and lead was measured in the soil fraction less than 250 microns (fine grained sand) to determine the potential risk to children from lead exposure. The 250 micron soil fraction is the fraction that would stick to a child's hand and most probably be ingested.

Metals tended to co-occur and were evenly distributed across the undeveloped area, but at higher concentrations than in the developed portion. Moton School surface soil generally contained the lowest concentration of metals. PAHs also tended to co-occur, with higher concentrations found in discreet areas: on the undeveloped former landfill; around the Gordon Plaza Apartments and Subdivision; at the intersection of Press and Benefit streets; and east of the recreation center. The distribution of pesticides was less distinct, but soils from the undeveloped area, as a group, generally had higher concentrations than the developed area. Higher dioxin concentrations were found in the west-southwest section of the undeveloped former landfill. Lower concentrations of dioxin were found on the southern section of the undeveloped area and in Moton School surface soils. Most VOCs were found either along Almonaster Avenue, on the western side of the undeveloped area, or along Benefit Street, in the northern section of the developed area. No distributional pattern of PCB contamination was observed; however, the maximum concentrations of PCBs were found just west of the former recycling building and in the south-southwest area of the undeveloped portion of the former landfill.

4.1.3 Background Surface Soil Sample Results

Samples were collected from off-site areas to represent current, urban background conditions. Open land background samples were collected from open, vegetated areas at eight OPSB properties, property owned by the New Orleans Port Authority, and property owned by the New Orleans Sewer and Water Board. These properties are located in nearby areas that were not impacted (or expected to be impacted) by the ASL site (see Figure 2-4). Open land background surface soil (0- to 3-inch depth interval) sample results were compared against surface soil (0- to 3-inch depth interval) sample results for undeveloped former landfill

grid node locations. Five background residences, representing similarly developed neighborhoods, were also selected in areas that were sufficiently removed in distance from the ASL site that they were not impacted (or expected to be impacted) by the site (see Figure 2-4). Analytical results for surface soil (0- to 3-inch depth interval) sample results were compared against surface soil (0- to 3-inch depth interval) sample results for developed former landfill locations, including grid nodes, study group residences, Moton School, Press Park Community Center, and adjacent off-site areas.

Sections 4.1.3.1 and 4.1.3.2 summarize analytical results for open land and background residence surface soil samples. Section 4.1.3.3 discusses criteria used to determine reference background concentrations for each analyte.

4.1.3.1 Open Land

A surface soil grab sample was collected from each of ten open land locations. Each sample was analyzed for TAL and TCL constituents, dioxin, and lead in the less than 250-micron soil fraction (sieved lead). The 250 micron soil fraction is the fraction that would stick to a child's hand and most probably be ingested. Surface soil (0- to 3-inch depth interval) data from open land samples have been used for comparison with undeveloped former landfill grid node surface soil (0- to 3-inch depth interval) data to identify potential site-related contaminants. Analytical results for open land background surface soil samples (0- to 3-inch depth interval) are summarized in Tables 4.1-1 through 4.1-8 as noted below:

Table 4.1-1:	Statistical Analysis of Inorganic Results;
Table 4.1-2:	Statistical Analysis of Sieved Lead Results;
Table 4.1-3:	Statistical Analysis of Organic Results;
Table 4.1-4:	Statistical Analysis of Dioxin Results;
Table 4.1-5:	Summary of Inorganic Results;
Table 4.1-6:	Summary of Sieved Lead Results;
Table 4.1-7:	Summary of Organic Results; and
Table 4.1-8:	Summary of Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-4.

TAL Inorganics

As seen on Table 4.1-1, all inorganic analytes, with the exception of antimony, thallium, and cyanide, were detected in at least two of the ten samples collected from open land locations (OF001 through OF010; see Figure 2-4). Arsenic, beryllium, and cobalt were detected in all samples at concentrations exceeding TBC levels.

The maximum concentration of each metal (except cadmium and magnesium) fell within the concentration range of metals typically found in soils as published in *A Compendium of Superfund Field Operations Methods* (EPA 1987). Maximum magnesium and cadmium concentrations (6,090 mg/kg and 1.1 mg/kg) were only slightly above the high-end range typically found in soils (6,000 mg/kg and 0.7 mg/kg).

Sieved Lead

Lead was detected in all sieved soil samples. The percentage of soil particles less than 250 microns ranged from 3.73% to 81.3%. The lowest lead concentration (7.6 mg/kg) was detected in open land background location OF001, a sample in which 39.6% of soil was less than 250 microns. The highest lead concentration (219 mg/kg) was detected in OF005, a sample with 43.3% of soil less than 250 microns. There does not appear to be a correlation between percent soil particles less than 250 microns and sieved lead concentration. Statistical comparison of sieved lead results with the unsieved lead results showed a linear regression coefficient of 0.91. The highest and lowest lead concentrations, both sieved and unsieved, occurred in the same samples.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. Excluding three common laboratory contaminants (see Section 4.1.1), seven VOCs were found in the open land background surface soil samples; however, none exceeded

TBC levels. Tetrachloroethene, a common dry cleaning solvent, was the most frequently detected volatile (present in six of ten samples). Other chlorinated volatiles may be degradation products of tetrachloroethene. At least four VOCs were detected at two locations (OF001 and OF002).

BNAs. Excluding four common laboratory contaminants (see Section 4.1.1), at least one semivolatile organic compound was detected in nine of ten background locations. Eighteen semivolatile compounds (16 PAHs, and two similar, heterocyclic ringed compounds) were detected in open land background surface soil samples. Nine PAHs: benzo(a)-anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were detected at seven or more locations. The TBC levels were exceeded in at least one background sample for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenz(a,h)anthracene, with benzo(a)pyrene exceeding the TBC level in seven of the eight samples where this compound was detected.

Pesticides. Eighteen different pesticides were detected in open land background surface soil samples. The most prevalent were 4,4'-DDT, detected in nine of ten locations, and dieldrin, detected in seven of ten locations. Alpha-chlordane, gamma-chlordane, and endrin aldehyde were found at six locations. Dieldrin was detected at concentrations exceeding the TBC level at two locations, OF002 and OF005. Eighty percent of pesticide detections were at five locations.

PCBs. Aroclor 1260 was detected in one sample, OF010, at a concentration of 0.028 mg/kg. This concentration is significantly below the TBC level.

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Dioxin

Dioxin was detected in five of ten open land background surface soil samples. The five dioxin values reported in the open land surface soil samples ranged from 0.0027 to 0.0071 μg/kg, with an average concentration of 0.00232 μg/kg. The value of zero recorded on the data tables does not suggest that no dioxin congeners were found above detection limits, but when equivalency factors were introduced, the resulting dioxin concentrations were functionally zero. Dioxin concentrations at three locations (OF004, OF005, and OF008) exceeded the TBC level.

4.1.3.2 Background Residences

Twenty surface soil samples were collected from five background residences (see Figure 2-4). Samples were collected at the 0- to 3-inch depth interval from the following areas (as available): front yard, back yard, play area, and drip line. No garden areas were present at any of the background residences. Analytical results from one background residence (RES-36) were significantly higher than the other four; therefore, that location was considered an outlier. Results from RES-36 were included in data evaluations, but were not included in calculation of background (see Section 4.1.3.3). Each sample was analyzed for TAL and TCL constituents, dioxin, and lead in the less than 250-micron size soil fraction. The 250 micron soil fraction is the fraction that would stick to a child's hand and most probably be ingested.

Surface soil (0- to 3-inch depth interval) data for background residences have been used to identify site-related contaminants in surface soil (0- to 3-inch depth interval) samples at developed area grid node locations, study group residences, Moton School, Press Park Community Center, and adjacent off-site areas. Analytical results for background residence surface soil samples (0- to 3-inch depth interval) are summarized in Tables 4.1-9 through 4.1-16 as noted below:

Table 4.1-9:	Statistical Analysis of Inorganic Results;
Table 4.1-10:	Statistical Analysis of Sieved Lead Results;
Table 4.1-11:	Statistical Analysis of Organic Results;
Table 4.1-12:	Statistical Analysis of Dioxin Results;
Table 4.1-13:	Summary of Inorganic Results;
Table 4.1-14:	Summary of Sieved Lead Results;
Table 4.1-15:	Summary of Organic Results; and
Table 4.1-16:	Summary of Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-4.

TAL Inorganics

As seen for open land background samples, all inorganic analytes, with the exception of antimony and thallium, were detected in surface soil samples collected from background residences.

As seen in open land background samples, most metals were widely occurring in a high percentage of samples and were evenly distributed across background residences. Arsenic, beryllium, and cobalt exceeded TBC levels, as was the case for open land background samples. Cadmium, lead, and mercury exceeded typical soil maximum ranges by a factor of four or greater. Lead also exceeded its TBC in four out of 20 samples. A box plot of lead concentration versus sample location (e.g., back yard) for surface soil at background residences is presented in Figure 4.1-1. As noted in the figure, drip line lead values are significantly greater than at other locations.

Sieved Lead

Lead was detected in all background residence sieved soil samples. The percent of soil particles less than 250 microns ranged from approximately 2.76 to 93.9%. The lowest sieved lead concentration (5.1 mg/kg) was detected at RES-35 in a sample with 92.3% of soil less than 250 microns in size. The maximum sieved lead concentration (1,420 mg/kg) was

detected at RES-36 in a sample with 19.2% of soil less than 250 microns. There does not appear to be a strong statistical correlation between percent soil particles less than 250 microns and sieved lead concentrations; however, higher sieved lead values were generally associated with lower percent 250-micron soil fractions.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. Relative to open land background surface soils, fewer VOCs were found in background residence surface soil samples. VOCs were detected only in four samples (front yard, back yard, dripline, and play area) from one residence (RES-26). Excluding common laboratory contaminants (methlene chloride and toluene), only four volatiles were detected (1,2-dichloroethene, ethylbenzene, tetrachloroethene, and xylene). Tetrachloroethene was again the most commonly detected VOC. None exceeded TBC levels.

BNAs. At least six semivolatile organic compounds were detected at all five background residences. Excluding six common laboratory contaminants (see Section 4.1.1), nineteen semivolatile compounds (17 PAHs and two heterocyclics) were detected in background samples. Benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene all exceeded their respective TBC levels in only one of 20 samples (RES-36). Benzo(a)pyrene exceeded its TBC level in four of 20 samples. The range of PAH concentrations fell within the typical concentrations for PAHs as published by ATSDR for background soils in urban areas (ATSDR 1993g).

Pesticides. Twenty-one pesticides, the 18 found in open land background samples, plus beta-BHC, endosulfan I, and toxaphene were detected in background residence surface soils. Ten of the pesticides were found at more than half of the residences. Alpha-chlordane, gamma-chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, and heptachlor epoxide were found in 75 to 100% of the 20 sample locations. No TBC levels were exceeded at RES-35. TBC levels for aldrin, alpha-chlordane, gamma-chlordane, 4,4'-DDE, 4,4'-DDT, dieldrin,

heptachlor, heptachlor epoxide, and/or toxaphene were exceeded a combined total of 31 times at the four remaining background residences.

Dioxin

Twenty samples were collected from background residences and submitted for dioxin analysis. Dioxin was detected in 15 samples collected from four residences at concentrations ranging from 0.0003 (RES-26) to 0.0174 μg/kg (RES-38), with an average concentration of 0.00283 μg/kg. This is roughly the same concentration as was found in the open land background samples.

4.1.3.3 Calculation of Background Concentrations

On a parameter-specific basis, background surface soil concentrations reported in the preceding two sections can generally be placed in the following categories (cited examples for each category are from background residence 0- to 3-inch depth interval soil data, but the same trends occur in open land background soil data):

1. High detection frequency, moderate variability, no outliers; for example, cobalt detected in all 20 samples at concentrations from 3.7 to 8.4 mg/kg;

2. High detection frequency, moderate variability, with outlier(s); for example, lead detected in 20 of 20 samples, lead concentration less than 200 mg/kg in all but one sample which contained 1,274 mg/kg;

3. High detection frequency, substantial variability; for example, 4,4'-DDT detected at concentrations of greater than 1,000 μg/kg in 5 of 20 samples, between 100 and 1,000 μg/kg in six of 20 samples, and less than 100 μg/kg in the remaining nine of 20 samples;

4. Low detection frequency, moderate variability (between detected concentrations and detection limits), no outliers; for example, beryllium detected in seven of 20 samples at concentrations between 0.16 and 0.92 mg/kg; for the remaining 13 non-detect samples, detection limits ranged from 0.17 to 0.91 mg/kg;

5. Low detection frequency, moderate variability (between detected concentrations and detection limits), with outlier(s); for example, benzo(a)pyrene detected in seven of 20 samples at concentrations of 30 to 470 μg/kg in six out of seven samples but 4,900 μg/kg was detected in the eighth. Detection limits were between 350 and 480 μg/kg in 12 of 13 non-detect samples, and 1,500 μg/kg in the remaining sample;

6. Low detection frequency, substantial variability; for example, delta-BHC detected in seven of 20 samples at concentrations between 0.22 and 25.1 μg/kg. Detection limits were between 1.9 and 22 μg/kg in the 13 non-detect samples; and

7. Analyte not detected, with low to substantial variability and outliers in detection limits; for example, many of the TCL volatile and semivolatile organics.

Concentration distributions for TAL inorganics in background surface soil samples generally fall into categories one, two, or four, where as TCL organics (and dioxin) distributions generally fall into categories three, five, or six (as described above). However, all seven categories often, or at least occasionally, exhibit sufficient variability in concentration distribution to make selection of background concentrations difficult.

For the RRII, background concentrations are a measure of widespread natural or ambient (anthropogenic [man-made]) analyte occurrence. For example, most metals detected in samples from the ASL site occur naturally to a varying extent in soils. Analogously, widespread organic contamination of surface soils can be associated with such anthropogenic sources as automobile exhaust in areas of heavy vehicular traffic. However, in extensively developed areas such as the ASL site vicinity, localized releases associated with normal commercial and residential activities (e.g., spills during automobile oil changes, application of organic solvent/pesticide formulations on lawns, etc.) can result in limited areas of high analyte concentrations. Consequently, background samples collected in developed areas can exhibit a wide range of analyte concentrations which reflect both widespread natural/ambient occurrences and localized sources.

Background concentrations are typically calculated based the maximum, mean, or median concentration of the data set, with or without prior elimination of outliers. Maximum

or mean concentrations will usually be most representative for data sets with outliers that can be clearly identified for elimination and with little variability among remaining samples. The median concentration potentially becomes more representative as the detected range of concentrations increases. However, in all cases, use of the maximum concentration as the background concentration will limit the number of analytes potentially identified incorrectly as site-related, while increasing the potential for incorrectly deciding that an analyte is not site-related. The opposite is true for mean and median concentrations used as background concentration. It is, of course, possible to use different background calculation criteria on an analyte-by-analyte basis, but this rapidly becomes subject to great inconsistency when large, variable data sets, such as that experienced for the ASL site, are involved.

Based on the above criteria, and as approved by EPA, the following protocol was used in calculation of background surface soil concentrations from open land and background residence sample sets:

- Elimination of RES-36 data from determination of the background concentration for the background residence surface soil sample data set due to the high frequency of occurrence of clearly identified outliers (see Tables 4.1-13 through 4.1-16);
- Use of half the detection limit as the "concentration" for samples where the analyte was not detected; and
- Use of the median value as the background concentration given the substantial variability within and between the various data sets.

4.1.4 Undeveloped Former Landfill Area Surface Soil Sample Results

This section presents results for surface soil samples collected on the undeveloped portion of the former landfill. Surface soil samples (0- to 3-inch depth interval) were collected at the nodes of a grid that utilized 200-foot spacing (see Figure 2-2). This 104-node grid established 52 points on the undeveloped portion of the former landfill. Surface soil samples were collected from each grid node and analyzed for TAL and TCL constituents. Samples from 25 selected grid nodes were also analyzed for dioxin (see Figure 2-2). In

addition, a sample from each grid node was collected for XRF field screening in the on-site mobile laboratory. XRF field screening results were used to identify the five undeveloped former landfill grid node locations with the highest metal concentrations. An additional sample was collected from each of these five locations and analyzed for RCRA characteristics.

Eighteen surface soil samples were also collected at a 0- to 24-inch depth interval from a subset of undeveloped former landfill grid nodes (see Figure 2-2). Samples were collected at grid nodes along the east-west trending grid line S1 and the north-south trending grid line W4. The 0- to 24-inch depth interval samples were analyzed for TAL and TCL constituents, dioxin, and physicochemical parameters. Physicochemical parameters included: grain size, cation-exchange capacity, alkalinity, pH, percent moisture, TOC, fluoride, sulfate, nitrate, and phosphate. Redox potential was measured in the field using a portable instrument.

4.1.4.1 Grid Node Samples (Depth Interval - 0 to 3 Inches)

Results for surface soil samples (0- to 3-inch depth interval) collected at grid nodes in the undeveloped area of the site are discussed in this section. Analytical results for surface soil samples (0- to 3-inch depth interval) collected from grid nodes on the undeveloped former landfill are summarized in Tables 4.1-17 through 4.1-23:

Table 4.1-17:	Statistical Analysis of Inorganic Results;
Table 4.1-18:	Statistical Analysis of Organic Results;
Table 4.1-19:	Statistical Analysis of Dioxin Results;
Table 4.1-20:	Summary of Inorganic Results;
Table 4.1-21:	Summary of Organic Results;
Table 4.1-22:	Summary of Dioxin Results; and
Table 4.1-23:	Summary of RCRA Characteristic Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-2.

TAL Inorganics

All 23 TAL metals and cyanide were detected in samples from the undeveloped former landfill grid node locations. Except for antimony, beryllium, selenium, silver, thallium, and cyanide, all analytes were found in more than 85% of the samples.

Good statistical correlations (Spearman rank correlation coefficients generally above 0.6, and often above 0.8) were found between metal co-occurrence and concentrations in undeveloped former landfill surface soil. Correlations were strong except when the number of positive results was small (e.g., thallium, with only two positive values) and for analytes found over a narrow concentration range and near the detection limit (e.g., selenium). Similarly, good correlations were observed between metals detected in soil samples collected from the developed area grid node locations. This correlation between the co-occurrence and concentrations of metals has been utilized to select indicator analytes (metals) whose distribution represents other metals in site surface soil. Arsenic, cobalt, and lead have been identified as indicators for all metals because their Spearman rank correlation coefficients demonstrated the best overall correlation to the majority of metals routinely found in ASL surface soil. All metals were detected above background and more than 50% of all samples exceeded background for 17 analytes. Only aluminum, beryllium, magnesium, potassium, selenium, thallium, and vanadium had a FOE over background of less than 50%. TBC levels were exceeded twenty or more times for arsenic, beryllium, cobalt, and lead. Arsenic exceeded the TBC level at all grid node locations and cobalt exceeded its TBC level 51 out of 52 times. Key statistics for indicator analytes are as follows:

Indicator Analyte	Measured Concentrations (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	1.7	70.7	25.3	6.2	0.37
Cobalt	2.7	38.5	13.1	6.55	2.7
Lead	37.6	28,300	1,900	60.5	400

Only one lead result (28,307 mg/kg at GL009) collected from a surface soil sample in the southeastern portion of the undeveloped former landfill exceeded 4,000 mg/kg. The remainder of the samples showed a fairly even distribution, with concentrations from 37.6 mg/kg to 3,965 mg/kg. XRF data correlated well with analytical results for indicator analytes and are described in detail in Appendix Q.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. Excluding four common laboratory contaminants (see Section 4.1.1), eight different volatile compounds were found in surface soil samples collected at undeveloped former landfill grid node locations. Seven of these VOCs were detected at location GL038 on the west-central section of the undeveloped area, immediately adjacent to Almonaster Avenue. Only two VOCs were found in more than 6% of the samples: 1,1,1-trichloroethane (30.7%) and 1,1-dichloroethene (13.4%). The majority of VOCs detected were found on the west side of the western portion of the undeveloped former landfill, along Almonaster Avenue. None of these compounds were detected at concentrations which exceeded their respective TBC levels. Only 1,2-dichloroethene (GL080) exceeded background concentrations.

BNAs. Twenty-five semivolatile organic compounds (17 PAHs and two heterocyclics, five phenols, and 1,4-dichlorobenzene) were detected in undeveloped former landfill surface soils (excluding five common laboratory contaminants). No phenol was detected in more than 4% of the samples. 1,4-Dichlorobenzene was found in only one sample. Except for dibenz(a,h)anthracene, all PAHs were found in more than 40% of the samples. Neither the phenols nor 1,4-dichlorobenzene exceeded background concentrations. Sixteen of 17 PAHs exceeded background at least once. Nine PAHs were detected above background in more than 65% of the samples. Seven PAHs exceeded TBC levels. Benzo(a)-anthracene and benzo(b)fluoranthene both exceeded TBC levels in more than 38% of the samples. Benzo(a)pyrene exceeded the TBC level in more than 90% of the samples.

The occurrence and concentration correlation of PAHs, which represent the majority of semivolatile organic compounds found in ASL surface soils, allowed identification of indicators analytes. As was seen with metals, distributions of these organic indicators represents the spatial concentration variability of nearly all semivolatile organics in both undeveloped and developed area (see Section 4.1.5.1) surface soils. Benzo(a)pyrene, benzo(a)anthracene, and benzo(b)fluoranthene have been identified as indicators for all semivolatile organics because their Spearman rank correlation coefficients demonstrated the best overall correlation (generally from 0.6 to greater than 0.9) to the majority of semivolatiles routinely found in ASL surface soils. The correlation coefficients for these indicators with lead were all approximately 0.7. Key statistics for these indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Benzo(a)anthracene	0.033	21	1.49	0.245	0.9
Benzo(b)fluoranthene	0.026	30	1.79	0.36	0.9
Benzo(a)pyrene	0.03	20	1.43	0.28	0.09

Pesticides. Twenty different pesticides were detected in undeveloped former landfill surface soils. Pesticides are widely, and somewhat evenly, distributed across the entire undeveloped area. All twenty pesticides exceeded background in at least one sample. Alpha-chlordane, gamma-chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, endrin, and endrin aldehyde were found at more than two-thirds of all sample locations. The seven pesticides listed above also exceeded background concentrations in more than two-thirds of all samples. 4,4'-DDD exceeded its TBC level at one location (GL047), alpha-chlordane at one location (GL040) and dieldrin at three locations (GL021, GL040, and GL045). No other pesticides were found at concentrations exceeding TBC levels.

PCBs. Three PCBs were detected in undeveloped landfill surface soils at limited locations: Aroclor 1248 (one location); Aroclor 1254 (six locations); and Aroclor 1260 (nine locations). All detections were above background concentrations and TBC levels except for one Aroclor 1254 detection (only above background). The highest concentration of PCBs (2.6 mg/kg) was found at location GL038 (near Almonaster Avenue). PCBs were found primarily near the location of the former recycling building and on an east-west trending line through the southern section of the undeveloped former landfill.

Dioxin

Samples were collected for dioxin analysis from 24 selected grid nodes on the undeveloped portion of the ASL site. Fourteen (58.3%) of the 24 grid node surface soil dioxin values from the undeveloped area were above the maximum open land dioxin TEF value of 0.0071 μg/kg. Twenty (83%) dioxin values were above the open land surface soil dioxin background concentration.

Highest dioxin concentrations were found at: GL013 (0.309 μg/kg), in the south-western part of the undeveloped former landfill; and GL045 (0.2176 μg/kg), in the central part of the undeveloped former landfill, near the former recycling building. The spatial distribution of dioxin does not show any discernable pattern.

Resource Conservation and Recovery Act Characteristics

Soil samples collected from the five biased grid nodes on the undeveloped former landfill with the highest XRF lead readings (GL010, GL012, GL013, GL021 [in the south-southwest portion of the undeveloped area], and GL070 [in the north-central portion of the undeveloped area]) were submitted for RCRA characteristics analysis (i.e., TCLP [organics and inorganics], ignitability, reactivity, and corrosivity). Since none of the samples exceeded established limits, ASL site soils at this depth interval are not classified as a RCRA hazardous waste; however, these soils are subject to the provisions of Superfund.

4.1.4.2 Grid Node Samples (Depth Interval - 0 to 24 Inches)

Undeveloped former landfill 0- to 24-inch depth interval surface soil samples collected at the 18 point grid node subset (see Figure 2-2) are discussed in this section. Samples were collected over the entire depth interval, except the volatile organic aliquot which was collected at a depth of one foot to prevent loss during sampling activities. Analytical results for 0- to 24-inch surface soil samples collected from undeveloped former landfill grid node locations are summarized in Tables 4.1-24 through 4.1-32:

Table 4.1-24:	Statistical Analysis of Inorganic Results;
Table 4.1-25:	Statistical Analysis of Organic Results;
Table 4.1-26:	Statistical Analysis of Dioxin Results;
Table 4.1-27:	Statistical Analysis of Physicochemical Results;
Table 4.1-28:	Summary of Inorganic Results;
Table 4.1-29:	Summary of Organic Results;
Table 4.1-30:	Summary of Dioxin Results;
Table 4.1-31:	Summary of Physicochemical Results; and
Table 4.1-32:	Summary of Cation-Exchange Capacity and Grain Size Results.

Sample designations and location data for all results discussed in this section are included in Appendix G and Figure 2-2.

The collocated 0- to 3-inch depth interval undeveloped area grid node surface soil samples have been compared to 0- to 3-inch depth interval open land background surface soil samples (see Section 4.1.4.1). Since this comparison has already been made for shallow surface soils and the 0- to 24-inch depth interval includes a portion of subsurface soils, these results are compared against open land background subsurface soil (1.5- to 2.5-foot depth interval) sample results (see Section 4.2.3).

TAL Inorganics

All 23 TAL metals and cyanide were detected in surface soil samples from the undeveloped former landfill. Only beryllium was not detected above background in at least

one sample. Seven metals (aluminum, beryllium, magnesium, potassium, selenium, thallium, and vanadium) plus cyanide had a less than 50% FOE above background. These are the same metals found at less than 50% FOE above background in corresponding 0- to 3-inch depth interval samples. Arsenic, beryllium, cobalt, copper (only one location), thallium (only one location), and lead exceeded TBC levels. Key statistics for indicator analytes are as follows:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	4.6	110	36.5	6.2	0.37
Cobalt	4.19	37.1	18.5	8.6	2.7
Lead	41.9	4,460	1,930	28	400

Lead was detected in all samples, and 15 of the 18 results exceeded the 400 mg/kg TBC level. The highest value for arsenic, cobalt, and lead were detected at GL079, GL010, and GL079. In general, contaminant range and distribution in collocated 0- to 3-inch and 0- to 24-inch depth interval samples are similar.

Lead concentration versus sample depth for 0- to 3-inch and 0- to 24-inch surface soil samples from grid node locations on the undeveloped former landfill is presented in Figure 4.1-2. Deeper surface samples are marginally higher in lead concentrations than the more shallow surface soil.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. Excluding methylene chloride and toluene (two common laboratory contaminants), six different VOCs were found in surface soil samples collected from undeveloped former landfill grid node locations. Four VOCs were detected at location GL023 on the southwestern section of the undeveloped former landfill, immediately adjacent to Almonaster Avenue. Only two VOCs were found in more than 6% of the samples: 1,1,1-trichloroethane

(11.1%) and xylene (22.2%). No VOCs were found at concentrations exceeding TBC levels. All VOCs were found on the western site of the undeveloped former landfill.

BNAs. Excluding three common laboratory contaminants (see Section 4.1.1), nineteen semivolatile organics (17 PAHs and two heterocyclics) were detected in undeveloped area surface soils. Fourteen of the 19 compounds exceeded background concentrations in at least one sample. Nine PAHs were detected above background in at least 61% of the samples. TBC levels for six PAHs were exceeded in three or more samples: benzo(a)anthracene (33.3%), benzo(a)pyrene (77.8%), benzo(b)fluoranthene (33.3%), benzo(k)fluoranthene (16.7%), dibenz(a,h)anthracene (27.8%), and indeno(1,2,3-cd)pyrene (16.7%). The highest concentrations of all PAHs were found at GL012 and GL013 in the southwestern portion of the undeveloped former landfill. PAHs were found in all samples; however, the western portion of the undeveloped former landfill was more contaminated than the southern undeveloped area. In general, concentration ranges and contaminant distribution in collocated 0- to 3-inch and 0- to 24-inch depth interval undeveloped former landfill surface soil samples are similar. Key statistics for these indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Benzo(a)anthracene	0.024	2.9	0.874	0.21	0.9
Benzo(b)fluoranthene	0.028	3	0.88	0.245	0.9
Benzo(a)pyrene	0.022	2.1	0.728	0.2125	0.09

Benzo(a)pyrene concentration versus sample depth for 0- to 3-inch and 0- to 24-inch depth interval undeveloped landfill grid surface soil samples is presented in Figure 4.1-3. Shallow surface soils contain higher concentrations of benzo(a)pyrene than deeper surface soils.

Pesticides. Nineteen different pesticides were detected in surface soil samples collected from the undeveloped former landfill. At least one pesticide was found at every sample location. Alpha-chlordane, gamma-chlordane, dieldrin, endrin aldehyde, 4,4'-DDT, 4,4'-DDE, and 4,4'-DDD were detected in at least 50% of the samples. When detected, concentrations of these pesticides were above background. None of the pesticides exceeded TBC levels. Of the seven most frequently detected pesticides, the highest concentrations co-occurred spatially: four at location GL023; two at GL030; and one at GL079. All were on the western portion of the undeveloped former landfill. In general, chlordane isomers (alpha- and gamma-) and the 4,4'-DDT degradation series (4,4'-DDD and 4,4'-DDE) were the most prevalent as well as the most highly concentrated pesticides found.

4,4'-DDT concentration versus sample depth for 0- to 3-inch and 0- to 24-inch undeveloped landfill grid node surface soil samples is presented in Figure 4.1-4. Shallow surface soils contain higher concentrations of 4,4'-DDT than deeper surface soils.

PCBs. PCBs were detected at only four locations: Aroclor 1254, at GL046 just west of the former recycling building; and Aroclor 1260, at GL013, GL014, and GL011 in the south-southwest portion of the undeveloped former landfill. The maximum concentration of Aroclor 1254 (1.9 mg/kg) and Aroclor 1260 (0.35 mg/kg) exceeded both background and TBC levels.

Dioxin

Dioxin samples were collected from surface soils at 18 grid node locations on the undeveloped former landfill. Dioxin was not detected at GL007, GL008, GL009, GL010 on the eastern end of east-west trending grid line S1, and grid location GL046 in the center of the undeveloped former landfill.

The maximum dioxin value was reported at GL070 (0.3304 μg/kg) in the northwestern part of the undeveloped former landfill. Two grid node locations (GL014 and GL013) situated in the southwestern part of the undeveloped former landfill had the next highest

values. Grid node GL013 also had the highest reported dioxin value for undeveloped area surface soil samples at a 0- to 3-inch depth interval.

At 11 sample locations from the 0- to 24-inch depth interval, dioxin concentrations were above the open land background maximum value for 0- to 3-inch depth interval surface soils (see Section 4.1.3.1).

Dioxin concentration versus sample depth for 0- to 3-inch and 0- to 24-inch undeveloped landfill grid node surface soil samples is presented in Figure 4.1-5. Deeper surface soil samples are marginally higher in dioxin concentrations than the more shallow surface soils.

Physicochemical Parameters, Cation-Exchange Capacity, and Grain Size

Sand formed the major component of all soils except for the most southeastern sample (GL007) and the most northwestern sample (GL096) on the undeveloped former landfill. No distinct trends in other parameters were observed, except that the maximum cation-exchange capacity, sulfate, and alkalinity values were found in GL096 while the maximum TOC value was found at GL007. The lowest cation-exchange capacity, fluoride, nitrate, and sulfate values were found at GL030 on the southwestern section of the former landfill by Almonaster Avenue.

4.1.5 Developed Former Landfill Area Surface Soil Sample Results

This section presents results for surface soil samples collected on the developed portion of the former landfill (see Figures 2-2 and 2-3). Samples were collected from: grid node locations within the developed portion of the former landfill, study group residences, Moton School, and Press Park Community Center.

4.1.5.1 Grid Node Samples (Depth Interval - 0 to 3 Inches)

The 104-node grid (utilizing 200-foot spacing) established 52 grid points on the developed former landfill. A surface soil sample (0- to 3-inch depth interval) was collected at each of these grid nodes. Samples were analyzed for TAL and TCL constituents. An additional sample was also collected for XRF field screening for metals using the on-site mobile laboratory. Results for grid node samples (0- to 3-inch depth interval) collected on the developed former landfill are discussed in this section. Analytical results are summarized in Tables 4.1-33 through 4.1-36 as follows:

Table 4.1-33:	Statistical Analysis of Inorganic Results;
Table 4.1-34:	Statistical Analysis of Organic Results;
Table 4.1-35:	Summary of Inorganic Results; and
Table 4.1-36:	Summary of Organic Results.

Sample designations and location data for all results discussed in this section are included in Appendix G and Figure 2-2.

TAL Inorganics

All 23 TAL metals and cyanide were detected in at least two samples from grid nodes on the developed portion of the former landfill. Except for antimony, beryllium, cadmium, selenium, silver, sodium, thallium, and cyanide, all analytes were found in greater than 84% of the samples.

All metals and cyanide were detected above background in at least two samples, and 13 metals exceeded background concentrations in over 53% of the grid points. As was the case for undeveloped former landfill soils, only arsenic, beryllium, cobalt, and lead exceeded TBC levels in over 28% of the samples. Key statistics for indicator analytes are as follows:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	1.2	37	9.35	3.15	0.37
Cobalt	2.5	11.5	6.47	6.25	2.7
Lead	11.5	1,970	314	36.95	400

Lead concentrations exceeded the 400 μg/kg TBC level in 15 of 52 sample locations. The maximum concentrations of arsenic, barium, cadmium, calcium, cobalt, iron, lead, manganese, nickel, potassium, and zinc at the developed area grid nodes were found at GL017 (along Industry Street, south of Mugrauer Playground, and near the undeveloped area). XRF screening data correlated well with CLP analytical results and are described in detail in Appendices Q and J.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. More volatile compounds were detected in developed area surface soil samples than in undeveloped area surface soil samples. Excluding five common laboratory contaminants (see Section 4.1.1), twelve different volatile compounds were found in surface soil samples collected at developed former landfill grid locations compared to six VOCs found on the undeveloped former landfill area. Individual VOCs were detected from one to 14 times out of the 52 samples analyzed. More than 37% of those detections were found along or adjacent to Benefit Street. Ten different VOCs were detected at GL085 on Benefit Street.

Only five VOCs were found in more than 5% of the samples: 1,1-dichloroethene (21.1%), 1,2-dichloroethene (17.3%), tetrachloroethene (9.6%), 1,1,1-trichloroethane (26.9%), and xylene (7.6%). 1,1-Dichloroethene (two samples), 1,2-dichloroethene (one sample), and 1,1,1-trichloroethane (two samples) exceeded background concentrations. No VOCs were found at concentrations above TBC levels.

BNAs. Excluding five common laboratory contaminants (see Section 4.1.1), nineteen semivolatile compounds, 17 PAHs and two heterocyclics, were detected in developed area surface soils. Sixteen of the 19 compounds exceeded background concentrations at least once. Where nine PAHs were detected above background in more than 65% of all samples from the undeveloped area, only benzo(b)fluoranthene and fluoranthene were found above background in the 0- to 3-inch depth interval in more than 65% of developed area samples. Six PAHs exceeded TBC levels. Benzo(a)pyrene exceeded its TBC level in 76.9% of the sample locations; however, the remaining seven PAHs did not exceed TBC levels at more than 7.7% of the locations. PAH concentrations on the developed area are almost consistently lower than on the undeveloped area. Pockets of relatively elevated concentrations of PAHs were found east of the recreation center on Industry Street, near the corner of Benefit and Press streets, and at the Gordon Plaza Apartments. Key statistics for indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Benzo(a)anthracene	0.041	4.6	0.311	0.19	0.9
Benzo(b)fluoranthene	0.02	4.8	0.416	0.1875	0.9
Benzo(a)pyrene	0.023	5.2	0.336	0.19	0.09

Pesticides. The same twenty pesticides detected on the undeveloped area were detected in surface soil samples collected from developed area grid node locations. However, the FOD was generally below that of the undeveloped former landfill. Only alpha-chlordane, gamma-chlordane, 4,4'-DDT, and endrin aldehyde were found in at least two-thirds of all samples. Again, all twenty pesticides detected exceeded background values in at least one sample. Only endrin and endrin aldehyde exceeded background concentrations in 50% or

more of the samples. Alpha-chlordane (three samples), gamma-chlordane (three samples), dieldrin (two samples), and heptachlor epoxide (five samples) exceeded TBC levels.

PCBs. Arochlor 1260 was detected at GL018 (0.086 mg/kg), GL059 (0.12 mg/kg), and GL067 (0.18 mg/kg). Concentrations detected were above background values and exceeded TBC levels. No other PCBs were detected.

4.1.5.2 Study Group Residences

Surface soils samples were collected from 33 study group residences on the developed former landfill (see Figure 2-3). A maximum of five surface soil samples were to be collected from each study group residence and included the following areas: front yard, back yard, play area, garden, and drip line. All shallow surface soil samples were collected from the 0- to 3-inch depth interval except for garden soil (0- to 12-inch depth interval). At some of the study group residences, one or more of these areas did not exist. A total of 112 surface soil samples were collected from the study group residences. Samples were analyzed for TAL inorganics and lead in the less than 250-micron soil fraction. The 250 micron soil fraction is the fraction that would stick to a child's hand and most probably be ingested. Analytical results for surface soil samples from study group residences are summarized in Tables 4.1-37 through 4.1-40 as follows:

Table 4.1-37: Statistical Analysis of Inorganic Results;
Table 4.1-38: Statistical Analysis of Sieved Lead Results;
Table 4.1-39: Summary of Inorganic Results; and
Table 4.1-40: Summary of Sieved Lead Results.

Sample designations and location data for all results discussed in this section are included in Appendix G and Figure 2-3.

TAL Inorganics

All 23 TAL metals and cyanide were detected in surface soils at study group residences. The FOD of analytes was greater than approximately 90% except for: antimony (26.1%), beryllium (52.6%), cadmium (68.4%), cyanide (31.5%), mercury (76.7%), potassium (89.2%), selenium (21.4%), silver (55.3%), and thallium (5.5%). Sixteen metals and cyanide were detected above background in greater than 50% of the samples. TBC levels were exceeded at the following rates: arsenic (100%), beryllium (52.7%), cobalt (99.1%), and lead (40.2%). Key statistics for indicator analytes are listed below:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	2.38	62.3	11.7	3.15	0.37
Cobalt	1.65	23.2	8.85	6.25	2.7
Lead	12	2,860	515	36.95	400

Lead was detected in all 112 surface soil samples collected from study group residences, and 45 of the 112 reported concentrations were above the 400 mg/kg TBC level. The highest concentrations of arsenic, cobalt, and lead were detected at RES-24, RES-33, and RES-33, respectively.

Lead, arsenic, cobalt, and cadmium concentrations versus sample location (e.g., back yard) for surface soils at study group residences are presented in Figures 4.1-6, 4.1-7, 4.1-8, and 4.1-9, respectively. Drip line lead, arsenic, and cobalt values are significantly higher than for other locations. All metals except cadmium follow this trend. Cadmium concentrations are highest in play area samples. This finding cannot be explained; however, it is consistent with the findings for cadmium in garden produce samples discussed in Section 4.5.1.

Sieved Lead

Lead was detected in all study group residence sieved surface soil samples. The percentage of soil particles less than 250 microns ranged from 11.9 to 89.2%. Lead concentrations in the sieved portion ranged from 21.4 to 1,500 mg/kg, roughly equivalent to the range found in unsieved soils.

No discernable pattern of lead concentration versus percent soil less than 250 microns was observed. Considerable variability in sieved lead concentrations was observed between individual residences. Sieved and unsieved lead concentrations were statistically compared for all study group residences. The calculated linear regression coefficient was 0.85, indicating a strong correlation between lead in both matrices. Therefore, sieved lead, as well as other sieved metals, would be expected to follow the same general location trend as unsieved soil (e.g., maximum in the drip line).

4.1.5.3 Moton School

Nine surface soil samples were collected from the 0- to 3-inch depth interval in playground areas on the west and south sides of Moton School. Samples were analyzed for TAL inorganics, lead in the less than 250-micron soil fraction, and dioxin. The 250 micron soil fraction is the soil fraction that would stick to a child's hand and most probably be ingested. Analytical results for surface soil samples (0- to 3-inch depth interval) from Moton School are summarized in Tables 4.1-41 through 4.1-46 as follows:

Table 4.1-41:	Statistical Analysis of Inorganic Results;
Table 4.1-42:	Statistical Analysis of Sieved Lead Results;
Table 4.1-43:	Statistical Analysis of Dioxin Results;
Table 4.1-44:	Summary of Inorganic Results;
Table 4.1-45:	Summary Sieved Lead Results; and
Table 4.1-46:	Summary Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-3.

TAL Inorganics

All TAL analytes, with the exception of cadmium, silver, and mercury, were detected in 0- to 3-inch depth interval surface soil samples collected from the school. Seventeen of 21 analytes were found at concentrations greater than background in at least one sample. However, only the maximum calcium and maximum cyanide values exceeded the maximums measured in the surrounding study group residences. Similarly, only calcium, cyanide, and magnesium mean values exceeded the mean analyte concentrations detected at study group residences. Outside fill was reportedly brought to the school area during construction. However, as previously noted in study group residences, and in both developed and undeveloped area grid node samples, arsenic, beryllium, and cobalt exceeded their TBC levels, and in this case, in more than 66% of all samples. Arsenic and cobalt exceeded TBC levels in nine and eight samples, respectively. Beryllium was detected in six of the nine samples, and all six values were above the TBC level. Key statistics for indicator analytes are listed below:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	1.6	7.7	3.64	3.15	0.37
Cobalt	2.7	8.2	5.22	6.25	2.7
Lead	7.3	21	11.2	36.95	400

Lead was detected in all nine samples; however, the maximum lead concentration was 21 mg/kg, a value below the background concentration.

Sieved Lead

Lead was detected in all Moton School sieved surface soil samples. The percentage of soil particles less than 250 microns ranged from 4.05 to 87.9%. Lead results ranged from

5.1 to 13.6 mg/kg. The maximum sieved lead value was more than two orders of magnitude below the study group residences sieved lead maximum.

The lowest lead concentration (5.1 mg/kg) was detected in two samples (MS008 and MS004), with 19.6 and 65.5% soil particles less than 250 microns in size, respectively. The highest lead concentration was detected in the sample with 75.1% of soil particles less than 250 microns. There does not appear to be a correlation between percent soil particles less than 250 microns and lead concentration for school surface soil samples. The range of lead concentrations for both sieved and unsieved soil was very nearly equal.

Dioxin

Dioxin was found in six of nine surface soil samples collected at Moton School. Dioxin concentrations detected in Moton School surface soil samples ranged from 0.0002 to 0.0003 μg/kg, with an average concentration of 0.000178 μg/kg. All dioxin concentrations were less than the maximum values reported for background residence surface soil samples and both developed and undeveloped area grid node samples.

4.1.5.4 Press Park Community Center

Five 0- to 3-inch depth interval surface soil samples were collected from the children's play area at Press Park Community Center (see Figure 2-3). Samples were analyzed for TAL inorganics, lead in the less than 250-micron soil fraction, and dioxin. The 250 micron soil fraction is the fraction that would stick to a child's hand and most probably be ingested. Analytical results for surface soil samples (0- to 3-inch depth interval) from Press Park Community Center are summarized in Tables 4.1-47 through 4.1-52 as follows:

Table 4.1-47:	Statistical Analysis of Inorganic Results;
Table 4.1-48:	Statistical Analysis Sieved Lead Results;
Table 4.1-49:	Statistical Analysis of Dioxin Results;
Table 4.1-50:	Summary of Inorganic Results;
Table 4.1-51:	Summary of Sieved Lead Results; and
Table 4.1-52:	Summary of Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-3.

TAL Inorganics

With the exception of antimony and selenium, all TAL metals and cyanide were detected in at least one surface soil sample from Press Park Community Center. Arsenic, beryllium, cobalt, and lead exceeded their respective TBC levels in at least four of the five samples. Only thallium and cyanide were detected in less than 60% of all samples. Key statistics for the indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	5.95	37.1	19.7	3.15	0.37
Cobalt	5.84	14.5	9.65	6.25	2.7
Lead	92.7	3,090	1,170	36.95	400

Lead was detected in all five samples. Four of the five results exceeded the TBC criteria of 400 mg/kg. Arsenic and cobalt were detected in all five samples at concentrations which exceeded the TBC value.

Sieved Lead

Lead was detected in all Press Park Community Center sieved surface soil samples. The percent of soil particles less than 250 microns ranged from 31.2 to 66.9%. Lead results for sieved soils ranged from 75 to 3,280 mg/kg.

The lowest lead concentration (75 mg/kg) was detected in the sample with 53.3% of soil particles less than 250 microns. The highest lead concentration (3,280 mg/kg) was detected in the sample with 31.2% of the soil particles less than 250 microns. There does not appear to be a trend between the percentage of soil particles less than 250 microns and lead

concentration. Three of the five sieved lead results were above the 400 mg/kg TBC level. The range of lead concentration for both sieved and unsieved soil was very nearly equal.

Dioxin

Dioxin was found in all five surface soil samples collected from the Press Park Community Center. Dioxin concentrations ranged from 0.0058 to 0.0866 μg/kg, with an average concentration of 0.0425 μg/kg. Three of five Press Park Community Center surface soil dioxin results were above the background residence maximum value of 0.0174 mg/kg.

4.1.6 Adjacent Off-Site Surface Soil Sample Results

Surface soil samples collected from six adjacent off-site locations (see Figure 2-2) are discussed in this section. Five of these locations were east of perimeter wells established along the eastern former landfill boundaries (identified during fieldwork), and one was north of perimeter well pair MW005 and MW006 in the median of Higgins Boulevard.

4.1.6.1 Depth Interval - 0 to 3 Inches

Surface soil samples were collected from the 0- to 3-inch depth interval at all six adjacent off-site locations and were analyzed for TAL and TCL constituents and dioxin. Analytical results for surface soil samples (0- to 3-inch depth interval) from adjacent off-site areas are summarized in Tables 4.1-53 through 4.1-58 as follows:

Table 4.1-53:	Statistical Analysis of Inorganic Results;
Table 4.1-54:	Statistical Analysis of Organic Results;
Table 4.1-55:	Statistical Analysis of Dioxin Results;
Table 4.1-56:	Summary of Inorganic Results;
Table 4.1-57:	Summary of Organic Results; and
Table 4.1-58:	Summary of Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-2.

TAL Inorganics

With the exception of selenium and thallium, all remaining TAL analytes were detected in at least one adjacent off-site surface soil sample. Except for antimony and silver, all detected analytes were present in at least 50% of the samples. All detected analytes were above background concentrations in at least one sample. As seen in almost all other surface soil samples, arsenic, beryllium, cobalt, and lead exceeded TBC levels. Key statistics for indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	2.5	46.9	15.2	3.15	0.37
Cobalt	6.1	13.7	9.85	6.25	2.7
Lead	15.7	1,020	435	36.95	400

Lead was detected in five of the six samples, with two of the five reported lead values above the 400 mg/kg TBC level. The highest lead value was detected at GL202. The highest arsenic and cobalt concentrations were detected at GL206 and GL202, respectively. Soils from GL202 and GL205 generally contained the largest number of analytes above background, as compared to the other adjacent off-site surface soil samples.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. Only toluene (a common laboratory contaminant) was detected in any of the six adjacent off-site surface soil samples. It was found at a concentration of 0.002 mg/kg (just west of the northwest corner of the developed former landfill) which is below both the background concentration of 0.7 mg/kg and the TBC level (55,000 mg/kg).

BNAs. Excluding four common laboratory contaminants (see Section 4.1.1), nineteen semivolatile organic compounds (16 PAHs, two heterocyclics, and N-nitrosodiphenyl-amine)

were found in these samples. N-nitrosodiphenylamine was detected in only one sample and was the only reported detection of the compound in all surface soil samples. All detected PAHs and heterocyclics except acenaphthylene were found above background concentrations in at least one sample. Seven PAHs were detected above background values in more than 65% of the samples. Five PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] exceeded TBC levels. Benzo(a)pyrene exceeded its TBC level in 66.7% of the samples. Key statistics for indicator analytes are as follows:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Benzo(a)anthracene	0.044	6.7	1.62	0.19	0.9
Benzo(b)fluoranthene	0.053	8.4	1.75	0.1875	0.9
Benzo(a)pyrene	0.036	5	1.2	0.19	0.09

Pesticides. At least one of seventeen different pesticides were detected at four of six locations (GL202, GL203, GL204, and GL205) in adjacent off-site surface soil samples. Sixteen pesticides were above background concentrations in at least one sample. Alpha-chlordane, gamma-chlordane, dieldrin, heptachlor, and heptachlor epoxide exceeded their respective TBC levels in at least one sample. In all, there were 26 total detections of pesticides. Of these, ten were at location GL202, just east of the recreation center in the southeast corner of the developed former landfill, and ten were at GL205 just east of the northeast corner of the developed former landfill. None of the pesticides were found at more than three locations.

PCBs. No PCBs were detected in samples collected from the six adjacent off-site surface soil samples.

Dioxin

Dioxin values of zero are reported for samples collected from the surface soils at the six adjacent off-site locations.

4.1.6.2 Depth Interval - 0 to 24 Inches

One surface soil sample was collected from the 0- to 24-inch depth interval at each of the six adjacent off-site locations, collocated with the 0- to 3-inch depth sample. Samples were collected from the entire depth interval, except for the volatile organic aliquot which was collected as a grab sample at a depth of 1 foot (as representative of the interval). The samples were analyzed for TAL and TCL constituents and dioxin. Analytical results for surface soil samples (0- to 24-inch depth interval) from adjacent off-site areas are summarized in Tables 4.1-59 through 4.1-64 as follows:

Table 4.1-59:	Statistical Analysis of Inorganic Results;
Table 4.1-60:	Statistical Analysis of Organic Results;
Table 4.1-61:	Statistical Analysis of Dioxin Results;
Table 4.1-62:	Summary Analysis Inorganic Results;
Table 4.1-63:	Summary Organic Results; and
Table 4.1-64:	Summary Dioxin Results.

Sample designation and location data for all results described in this section are included in Appendix G and Figure 2-2.

The collocated 0- to 3-inch depth interval adjacent on-site surface soil samples have been compared to 0- to 3-inch depth interval background residence surface soil samples (see Section 4.1.6.1). Since this comparison has already been made for shallow surface soils and the 0- to 24-inch depth interval includes a portion of subsurface soils, these results are compared against background residence subsurface soil (1.5- to 2.5-foot depth interval) sample results (see Section 4.2.3).

TAL Inorganics

With the exception of antimony, silver, and thallium, all TAL analytes were detected in at least one adjacent off-site surface soil sample. Except for selenium, sodium, and cyanide, all detected analytes were present in at least 50% of the samples. All analytes were detected above background in at least one sample. The same analytes were found above TBC levels in at least one sample (arsenic, beryllium, cobalt, and lead) that were found above TBC levels in the 0- to 3-inch depth interval samples. Key statistics for indicator analytes are as follows:

Indicator Analyte	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Arsenic	5.5	18.1	8.95	7.15	0.37
Cobalt	6.5	12.2	9.72	8.35	2.7
Lead	13.5	724	250	21.3	400

Lead was detected in all six samples with two sample locations, GL202 and GL204, above the 400 mg/kg TBC level. The highest arsenic and cobalt concentrations were found at grid nodes GL204 and GL206. Surface soils samples from GL201, GL202, GL204, and GL205 were found to have the largest numbers of analytes above background in the adjacent off-site areas.

Lead, arsenic, benzo(a)pyrene, and 4,4'-DDT concentrations versus samples depth for 0- to 3-inch and 0- to 24-inch depth interval adjacent off-site surface soil samples are presented in Figures 4.1-10, 4.1-11, 4.1-12, and 4.1-13, respectively. Shallow surface soils from the adjacent off-site locations contain higher concentrations of lead, arsenic, and benzo(a)pyrene than deeper surface soil. Shallow soils contain lower concentrations of 4,4'-DDT than deeper surface soil.

TCL Organics (VOCs, BNAs, Pesticides, and PCBs)

VOCs. As in the 0- to 3-inch depth interval, toluene (a common laboratory contaminant) was the only volatile compound found in these samples. It was detected in two samples (GL203 and GL204). Concentrations were similar to those found in the 0- to 3-inch depth interval sample and did not exceed background concentrations or the TBC level.

BNAs. Excluding three common laboratory contaminants (see Section 4.1.1), sixteen semivolatile organic compounds (14 PAHs and 2 heterocyclics) were detected in surface soil samples. Ten PAHs were found in concentrations above background in at least one sample. Six of the seven PAHs detected above background in more than 65% of the 0- to 3-inch depth interval samples, were found above background in at least 50% of the 0- to 24-inch depth interval samples. The same five PAHs found above TBC levels in the 0- to 3-inch depth interval samples were also above TBC levels in the 0- to 24-inch depth interval samples. Benzo(a)pyrene exceeded its TBC level in 83.3% of all samples collected and had a maximum concentration of 1.4 mg/kg (in GL204). Key statistics for indicator analytes are as follows:

Indicator Analytes	Measured Concentration (mg/kg)			Background (mg/kg)	TBC (mg/kg)
	Minimum	Maximum	Mean		
Benzo(a)anthracene	0.16	1.5	0.556	0.265	0.9
Benzo(b)fluoranthene	0.24	3	0.95	0.265	0.9
Benzo(a)pyrene	0.11	1.4	0.44	0.265	0.09

Pesticides. Fourteen different pesticides were detected in at least one sample in the adjacent off-site soil samples collected from the 0- to 24-inch depth interval. GL206 was the only location, out of six tested, where pesticides were not detected. All pesticides were detected at concentrations exceeding background in at least one sample. Alpha-chlordane,

gamma-chlordane, dieldrin, heptachlor, and heptachlor epoxide exceeded TBC levels in one sample each. Twenty-seven of 31 reported detections of pesticides were found at locations GL201, GL204, and GL205. The detection of pesticides appears to be more wide spread in deeper surface soils than in shallow surface soils.

PCBs. No PCBs were detected in any adjacent off-site deeper surface soil samples.

Dioxin

Dioxin analysis was found in one surface soil sample from adjacent off-site locations. Dioxin (0.010 μg/kg) was only detected at location GL204 on the northeast corner of Press Park Community Center.

4.1.7 Nature and Distribution of Contaminants in Surface Soils

Analytical results obtained during the EPA Region 6 ESI investigation (Jaynes 1993b) have been integrated with RRII data for discussion of the nature and distribution of contaminants in surface soils on the ASL site, and to a limited extent and primarily based on ESI data, areas north and east of the site.

Metals (e.g., arsenic, cobalt, and lead) and PAHs [e.g., benzo(a)pyrene] were the most common contaminants detected in surface soils (in terms of FOD, presence at concentrations above background values, and presence at concentrations above risk-based or other regulatory levels). Pesticides (e.g., 4,4'-DDT) and dioxin were also frequently detected in surface soil, but neither exceeded background or risk-based concentrations at the same frequency as metals or PAHs. VOCs (e.g., benzene and tetrachloroethane) and PCBs were detected at a relatively much lower frequency than metals and PAHs. Soils were sieved and lead was measured in the less than 250 micron soil fraction (fine grained sand) to provide data for determination of potential risk to children from lead exposure.

Statistical evaluation of RRII data (analyte co-occurrence and concentration correlation) indicated the following:

- Moderate to high degrees of correlation between the 17 metals (antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, sodium, silver, thallium, and zinc) that were consistently detected in on-site samples at concentrations above background concentrations (i.e., higher concentrations of these metals usually occurred in the same samples);
- Very high degrees of correlation between the PAHs; and
- Moderate to high degrees of correlation between metal and PAH co-occurrence and concentrations.

As an example of the first observation, undeveloped area grid node 0- to 3-inch depth interval surface soil samples exhibited Spearman rank correlation coefficients with lead, ranging from 0.476 for antimony to 0.953 for barium, with ten metals having correlation coefficients greater than 0.800. As an example of the second observation for developed former landfill grid node samples, Spearman rank correlation coefficients greater than 0.700 (and in most cases in the 0.800 to 0.900 range) were observed between the following: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)flouranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.

The distribution of site-related contaminants is therefore well represented by the distribution of a limited number of analytes. Arsenic, cobalt, and lead represent metals. Benzo(a)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene represent semivolatile organic compounds. For the representative contaminants, location specific concentration plots and contour plots have been prepared and are presented in Figures 4.1-14 through 4.1-31.

4.1.7.1 Nature of Surface Soil Contamination

Background soils reflect the urban environment in which they were collected. Maximum background concentrations of cadmium, lead, magnesium, mercury, and zinc exceeded the maximum concentration range of metals typically found in soils as published by EPA (1987). Mean concentrations for all background surface soils were above the typical maximum range for cadmium and mercury. Urban surface soils in the New Orleans, Louisiana, area that were utilized as background for the ASL RRII contained several metals at concentrations exceeding TBC levels. The metals and their frequency of TBC level exceedence are: arsenic (100%), beryllium (100%), and cobalt (100%) for open land background surface soils; and arsenic (100%), beryllium (35%), cobalt (100%), and lead (20%) for background residence surface soils.

Mean concentrations of every PAH detected in background surface soil, for which there is a published background agricultural soil concentration (ATSDR 1993g), exceeded the published value. ASL site background maximum PAH concentrations were near the upper limit of the published range for PAHs in urban soil, with benzo(a)pyrene median and maximum concentrations above the published urban soil value. Urban surface soils utilized as background for the ASL site contained several PAHs at concentrations exceeding TBC levels. The PAHs and their frequency of TBC level exceedence are: benzo(a)anthracene (10%), benzo(a)pyrene (70%), benzo(b)fluoranthene (20%), benzo(k)fluoranthene (20%), and dibenz(a,h)anthracene (20%) for open land background surface soils; and benzo(a)anthracene (5%), benzo(a)pyrene (20%), benzo(b)fluoranthene (5%), dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene (5%) for background residence surface soils.

Pesticides are also nearly universally present in urban soil. Total chlordane values in urban soils range from 0.3 to 1.59 mg/kg (Howard 1991). Maximum concentrations for alpha-chlordane and gamma-chlordane in background residence surface soils were each above the maximum published total chlordane range.

Mean concentrations of all 23 TAL metals and cyanide in on-site surface soil samples (approximately 260 samples) exceeded mean values for all background soil samples (approxi-

mately 30 samples). Eighteen of 24 on-site surface soil maximum inorganic compound concentrations exceeded maximum background concentrations. Thirteen of 24 on-site surface soil mean inorganic compound concentrations exceeded their maximum background values.

Fourteen of 24 on-site surface soil analytes were found at concentrations above background in more than 65% of all samples. Four metals (arsenic, beryllium, cobalt, and lead) exceeded TBC levels in more than 45% of all samples. Of the inorganic analytes evaluated, arsenic, beryllium, cobalt, and lead are the metals most attributable to, and of most regulatory concern, at the ASL site.

Excluding common laboratory contaminants from further evaluation (see Section 4.1.1), the only VOCs found in more than 5% of all surface soil samples were 1,1-dichloroethene, 1,2-dichloroethene, 1,1,1-trichloroethane, tetrachloroethene, and xylene. VOCs found in less than 5% of all samples are not considered statistically relevant, especially since none exceeded TBC levels. No VOCs were found in more than one-third of all samples. Only four VOCs, detected in more than 5% of all samples, were found above background values. However, the maximum concentrations of 1,1-dichloroethene and 1,2-dichloroethene were both only 16% higher than the background value. The maximum 1,1,1-trichloroethane value was less than three times above its background value. In summary, VOC concentrations found in on-site surface soil are not significantly different from background.

Excluding common laboratory contaminants from further evaluation (see Section 4.1.1), twenty-six semivolatile organic compounds were detected in on-site surface soils. Seven (five phenols, 1,2-dichlorobenzene, and N-nitrosodiphenylamine) were only found on site, were present in less than 2% of all samples, and are not considered statistically relevant; especially since none exceeded TBC levels. Seventeen of the remaining compounds are true PAHs. Carbazole and dibenzofuran are similarly structured heterocyclic ring compounds generally found together with PAHs in the environment and therefore are included in this discussion. All PAHs were found on site at approximately twice the frequency detected in background samples. Both the mean and maximum on-site concentrations for all PAHs were

greater than their respective background concentrations. Mean on-site concentrations for benzo(k)fluoranthene, dibenz(a,h)anthracene, dibenzofuran, 2-methylnaphthalene, and naphthalene exceeded maximum background concentrations for these PAHs. Six of 19 PAHs found on-site [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene], exceeded background concentrations in more than 60% of all samples. Of the seven PAHs that exceeded TBC levels [benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene], only benzo(a)pyrene exceeded its TBC level in more than 25% of all samples. Like metals, PAHs are generally attributable to the former landfill.

Of the 20 pesticides detected on-site, only toxaphene was not detected off-site. All others were found in background surface soil samples at approximately the same frequencies as in on-site samples. Mean on-site concentrations exceeded background for 60% of all pesticide data, but only 40% of the on-site maximum concentrations were above background values. Mean on-site concentrations for alpha-BHC and gamma-BHC exceeded off-site maximums; however, this is probably artifact due to the limited number of detections. The concentration difference between on-site pesticides over background concentrations was not significant. For example, the maximum background gamma-chlordane value was 5.3 mg/kg as compared to the maximum on-site value of 5.7 mg/kg. Pesticides found on-site are not significantly different in type and concentration than those found in the background.

PCBs were found in one background sample, and less than 20% of all on-site samples. The maximum reported on-site PCB concentration was 2.6 mg/kg. Ninety percent of all detected PCB values were above TBC levels, but all PCB concentrations are below the 10 mg/kg Toxic Substances Control Act (TSCA) regulated level for PCBs in residential soils (40 CFR 761.125).

Dioxin was found in 20 of 30 background locations (open land and background residence) at a maximum concentration of 0.0174 μg/kg (RES-38). Seven of these 30 values exceeded the TBC level. The maximum concentration of dioxin found on site was 0.3304 μg/kg in a surface soil sample collected from the undeveloped former landfill. The

mean dioxin concentrations in surface soil from the undeveloped former landfill and Press Park Community Center exceeded the maximum background value. Dioxin was found in adjacent off-site and Moton School soils but at concentrations below both the mean and maximum for background. The TBC level for dioxin was exceeded in 33 of 57 on-site surface soil samples. Dioxins, therefore, are also attributable to the former landfill.

Five surface soil samples collected from the 0-to 3-inch depth interval were analyzed for RCRA characteristics. None of the soil samples exceeded established limits and are therefore, not classified as RCRA hazardous waste; however, these soils are subject to the provisions of Superfund.

4.1.7.2 Distribution of Surface Soil Contamination

Figures 4.1-14 through 4.1-31 were developed using both RRII and ESI data to present the distribution of site related contaminants as amplified by representative (chemically and physically similar) analytes (indicator analytes). In addition, post plots have been prepared for 4,4'-DDT, chlordane, and dioxin (RRII data only) in surface soil. Finally, a probability plot showing the statistical probability of lead exceeding the 400 mg/kg TBC level in surface soil at any particular location was prepared. This probability plot evaluates the uncertainty associated with the spatial distribution and quantitative variability of all lead data to provide an estimate of the probability of lead exceeding 400 mg/kg. For example, the 0.6 isoline represents a 60% probability that lead from any point within the circumscribed area will exceed 400 mg/kg. Additional Figures included in this section are as follows:

4.1-32: 4,4'-DDT Concentrations: Surface Soil, 0- to 3-Inch Interval, RRII and ESI Sample Locations;

4.1-33: 4,4'-DDT Concentrations: Surface Soil 0- to 3-Inch Interval, Expanded Off-Site View, RRII and ESI Sample Locations (Excluding Background);

4.1-34: Total Chlordane Concentrations: Surface Soil, 0- to 3-Inch Interval, RRII and ESI Sample Locations;

4.1-35: Total Chlordane Concentrations: Surface Soil, 0- to 3-Inch Interval, Expanded Off-Site View, RRII and ESI Sample Locations (Excluding Background);

4.1-36: Dioxin Concentrations: Surface Soil, 0- to 3-Inch Interval, RRII Sample Locations; and

4.1-37: Probability Plot for Lead: Surface Soil, 0- to 3-Inch Interval, RRII and ESI Sample Locations.

As seen on Figures 4.1-14 through 4.1-16, lead is present at concentrations above 400 mg/kg over most of the ASL site, and in most undeveloped area locations above 1,000 mg/kg. The highest lead concentration (an order of magnitude higher than all other lead concentrations) was found at grid location GL009 in the southeast corner of the site. Lead concentrations in the Moton School area appear below the 100 mg/kg range. This is consistent with importation of fill material prior to construction of the school. The remainder of the developed former landfill shows the majority of the area to be in the 100 to 400 mg/kg range with "pockets" of high lead concentrations (greater than 1,000 mg/kg) at Press Park Community Center, the Gordon Plaza Apartments, and the northern portion of the Gordon Plaza Subdivision. As seen in Figures 4.4-17 through 4.1-19, and 4.1-20 through 4.1-22, which present the distribution of arsenic and cobalt, a similar pattern is repeated in the distribution of other metals.

The undeveloped former landfill exhibits a wider range and generally higher PAH concentrations than the developed area. The undeveloped former landfill has three distinct areas of higher PAH concentration. The first area is located in the southwest corner of the site. This area exhibited the highest concentrations of most detected PAHs. The second area of higher PAH concentration occurs in the west-central portion of the undeveloped area. The third area occurs in the northeast corner of the undeveloped former landfill and extends into Gordon Plaza Apartments. Three "hot spots" were identified on the developed area. One area is centered around the intersection of Benefit and Press Streets in the northeast portion of the site. The second is located in the Gordon Plaza Apartments. The third area is located north of Industry Street and east of Feliciana Street. Moton School and Mugrauer Playground

generally displayed the lowest concentrations. This pattern may be seen by reviewing Figures 4.1-23 through 4.1-31, which display the distributions of benzo(a)pyrene, benzo(a)anthracene, and benzo(b)fluoranthene.

The distribution of pesticides is presented in Figures 4.1-32 and 4.1-33 for 4,4'-DDT, and 4.1-34 and 4.1-35 for total (alpha- plus gamma-) chlordane. The distribution is somewhat random throughout the site with a tendency towards higher concentrations on the western side of the undeveloped former landfill than other areas of the site.

PCBs were detected primarily near the location of the former recycling building and on an east-west trending line through the southern section of the undeveloped former landfill. The majority of VOCs were found on the west side of the western portion of the undeveloped area along Almonaster Avenue, and along or adjacent to Benefit Street on the developed area. The highest and most consistent concentrations of VOCs, pesticides, and PCBs occurred along Almonaster Avenue. This is most likely associated with cultural uses of these compounds (e.g., spraying of pesticides along roads or volatile emissions associated with automobile exhaust).

The focus of the dioxin surface soil investigation was the undeveloped landfill, where the highest concentrations of dioxin found were in the southwest and west central portions. (see Figure 4.1-36). The spatial distribution of data points for dioxin prevents presentation of a contour map.

The probability plot (see Figure 4.1-37) for lead greater than the 400 mg/kg TBC level shows the potential for lead maxima on an areal basis. Other metals and PAHs are expected to show a similar distribution. Overall, the undeveloped landfill shows the highest (greater than 80%) potential for lead in surface soil to exceed 400 mg/kg. The areas of lowest potential lead contamination include Moton School and the northeast corner of the developed area (both less than 10%).

Table 4.1-1

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
Aluminum	10/10	100	--	--	2320	16000	8790	4450	8790	4450	8998	NA	79000 (c)	0/10
Arsenic	10/10	100	--	--	2.2	18.9	8.13	5.17	8.13	5.17	6.2	NA	0.37 (c)	10/10
Barium	10/10	100	--	--	41.6	362	202	99.6	202	99.6	215	NA	14000 (c)	0/10
Beryllium	10/10	100	--	--	0.17	0.99	0.498	0.253	0.498	0.253	0.485	NA	0.15 (c)	10/10
Cadmium	2/10	20	0.84	1	1	1.1	1.05	0.0707	0.585	0.247	0.48	NA	140 (c)	0/10
Calcium	10/10	100	--	--	3970	23200	10900	6420	10900	6420	9533	NA	NA	NA
Chromium	10/10	100	--	--	6.4	22	14.9	5.29	14.9	5.29	16	NA	1400 (c)	0/10
Cobalt	10/10	100	--	--	3.4	10.2	6.6	2.18	6.6	2.18	6.55	NA	2.7 (c)	10/10
Copper	10/10	100	--	--	5.8	41.3	21	11.8	21	11.8	19.95	NA	10000 (c)	0/10
Iron	10/10	100	--	--	5680	22300	12600	5100	12600	5100	12506.5	NA	NA	NA
Lead	10/10	100	--	--	9.2	186	74.4	58.5	74.4	58.5	60.5	NA	400 (c)	0/10
Magnesium	10/10	100	--	--	2120	6090	3770	1150	3770	1150	3600.5	NA	NA	NA
Manganese	10/10	100	--	--	112	544	311	138	311	138	323.5	NA	27000 (c)	0/10
Mercury	2/8	25	0.11	0.13	0.16	0.18	0.17	0.0141	0.0869	0.0517	0.06	NA	82 (c)	0/8
Nickel	10/10	100	--	--	9.5	29.5	16.4	5.8	16.4	5.8	15.9	NA	5500 (c)	0/10
Potassium	10/10	100	--	--	387	3470	1560	885	1560	885	1476	NA	NA	NA
Selenium	5/10	50	0.19	1.5	0.24	0.64	0.386	0.163	0.368	0.21	0.3575	NA	820 (c)	0/10
Silver	5/10	50	0.65	0.86	0.74	1.7	1.1	0.375	0.733	0.459	0.585	NA	820 (c)	0/10
Sodium	10/10	100	--	--	63.1	174	111	35.3	111	35.3	117.5	NA	NA	NA
Vanadium	10/10	100	--	--	7.8	40.5	23	10.2	23	10.2	23.5	NA	1800 (c)	0/10
Zinc	10/10	100	--	--	46.5	340	139	89.1	139	89.1	126.5	NA	55000 (c)	0/10

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

001157.348

Table 4.1-2

STATISTICAL ANALYSIS OF SIEVED LEAD RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Lead	10/10	100	--	--	7.6	219	65.9	64.4	65.9	64.4	41.5	NA	400 (c)	0/10
Percent <250 microns	10/10	100	--	--	3.73	81.3	32.1	22.9	32.1	22.9	27.1	NA	--	NA

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.350

Table 4.1-3

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	1/10	10	0.011	0.038	0.01	0.01	0.01	--	0.0077	0.00418	0.006	NA	79000 (c)	0/10
Carbon Tetrachloride	1/10	10	0.011	0.013	0.002	0.002	0.002	--	0.00559	0.0013	0.006	NA	4.9 (c)	0/10
Chloroform	2/10	20	0.011	0.013	0.002	0.004	0.003	0.00141	0.00539	0.00139	0.006	NA	110 (c)	0/10
1,1-Dichloroethene	1/10	10	0.011	0.013	0.002	0.002	0.002	--	0.00559	0.0013	0.006	NA	1.1 (c)	0/10
1,2-Dichloroethene	1/10	10	0.011	0.013	0.004	0.004	0.004	--	0.00579	0.000715	0.006	NA	2700 (c)	0/10
Methylene Chloride	4/9	44.4	0.012	0.03	0.004	0.11	0.0492	0.0475	0.0267	0.0362	0.0085	NA	85 (c)	0/9
Tetrachloroethene	6/10	60	0.011	0.013	0.001	0.062	0.0152	0.0233	0.0115	0.018	0.006	NA	13 (c)	0/10
Toluene	3/10	30	0.011	0.013	0.001	0.021	0.00866	0.0108	0.00674	0.00526	0.006	NA	55000 (c)	0/10
Trichloroethene	1/10	10	0.011	0.013	0.003	0.003	0.003	--	0.00569	0.001	0.006	NA	58 (c)	0/10
Xylene	1/10	10	0.011	0.013	0.064	0.064	0.064	--	0.0118	0.0183	0.006	NA	550000 (c)	0/10
Semivolatile Organic Compounds														
Acenaphthene	4/10	40	0.38	0.42	0.058	0.076	0.064	0.00816	0.146	0.0707	0.1925	NA	16000 (c)	0/10
Acenaphthylene	3/10	30	0.35	0.42	0.027	0.059	0.043	0.016	0.149	0.0743	0.185	NA	27000 (c)	0/10
Anthracene	5/10	50	0.38	0.42	0.029	0.2	0.122	0.0641	0.161	0.0601	0.1925	NA	82000 (c)	0/10
Benzo(a)anthracene	8/10	80	0.42	0.42	0.076	1.2	0.502	0.403	0.444	0.376	0.245	NA	0.9 (c)	1/10
Benzo(a)pyrene	8/10	80	0.42	0.42	0.054	1.1	0.453	0.345	0.404	0.321	0.28	NA	0.09 (c)	7/10
Benzo(b)fluoranthene	8/10	80	0.42	0.42	0.097	1.6	0.716	0.572	0.615	0.548	0.36	NA	0.9 (c)	2/10
Benzo(g,h,i)perylene	7/10	70	0.38	0.42	0.12	0.9	0.344	0.269	0.302	0.23	0.21	NA	1100 (c)	0/10
Benzo(k)fluoranthene	5/10	50	0.36	0.42	0.11	01	0.512	0.45	0.355	0.343	0.205	NA	0.9 (c)	2/10
Bis(2-ethylhexyl)phthalate	4/8	50	0.33	0.42	0.076	4.7	1.53	2.16	0.867	1.59	0.2025	NA	46 (c)	0/8
Butylbenzylphthalate	4/10	40	0.35	0.42	0.027	0.066	0.0512	0.0169	0.137	0.0749	0.1825	NA	55000 (c)	0/10
Carbazole	4/10	40	0.38	0.42	0.097	0.2	0.124	0.0505	0.17	0.0492	0.195	NA	32 (d)	0/10
Chrysene	8/10	80	0.42	0.42	0.071	1.3	0.546	0.42	0.479	0.397	0.3	NA	9 (c)	0/10
Dibenz(a,h)anthracene	2/10	20	0.36	0.42	0.098	0.1	0.099	0.00141	0.178	0.0425	0.195	NA	0.09 (c)	2/10
Dibenzofuran	3/10	30	0.35	0.42	0.022	0.044	0.0317	0.0112	0.147	0.0804	0.1925	NA	--	NA
di-n-Butyl Phthalate	2/10	20	0.35	0.42	0.02	0.025	0.0225	0.00353	0.16	0.0733	0.1925	NA	7800 (d)	0/10
di-n-Octyl Phthalate	1/10	10	0.35	0.42	0.17	0.17	0.17	--	0.194	0.0131	0.195	NA	1600 (d)	0/10
Fluoranthene	8/10	80	0.42	0.42	0.13	2.2	0.906	0.78	0.767	0.748	0.345	NA	11000 (c)	0/10
Fluorene	4/10	40	0.38	0.42	0.042	0.094	0.0607	0.0238	0.144	0.0735	0.1925	NA	11000 (c)	0/10
Indeno(1,2,3-cd)pyrene	7/10	70	0.38	0.42	0.097	0.9	0.341	0.271	0.3	0.231	0.21	NA	0.9 (c)	0/10
Naphthalene	2/10	20	0.36	0.42	0.027	0.058	0.0425	0.0219	0.166	0.0661	0.195	NA	1100 (c)	0/10
Phenanthrene	8/10	80	0.42	0.42	0.045	1.2	0.451	0.447	0.403	0.407	0.21	NA	7900 (c)	0/10

Key at end of table.

Table 4.1-3

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Pyrene	8/10	80	0.42	0.42	0.091	1.7	0.751	0.623	0.643	0.595	0.355	NA	8200 (c)	0/10
Pesticides/PCBs														
Aldrin	3/10	30	0.0018	0.0022	0.00027	0.0165	0.00638	0.00882	0.00262	0.0049	0.001025	NA	0.038 (d)	0/10
Aroclor 1260	1/10	10	0.036	0.043	0.028	0.028	0.028	--	0.0206	0.00277	0.01975	NA	0.083 (d)	0/10
alpha-BHC	1/10	10	0.0018	0.0022	0.00004	0.00004	0.00004	--	0.000904	0.00031	0.001	NA	0.1 (d)	0/10
delta-BHC	3/10	30	0.0018	0.0022	0.00014	0.00787	0.00274	0.00443	0.00153	0.00225	0.001	NA	--	NA
gamma-BHC	1/10	10	0.0018	0.0022	0.00029	0.00029	0.00029	--	0.000929	0.000233	0.001	NA	0.49 (d)	0/10
alpha-Chlordane	6/10	60	0.002	0.0022	0.00052	0.13	0.0305	0.05	0.0187	0.0402	0.00181	NA	0.49 (d)	0/10
gamma-Chlordane	6/10	60	0.002	0.0022	0.00058	0.14	0.0384	0.0536	0.0235	0.0444	0.001575	NA	0.49 (d)	0/10
4,4'-DDD	2/10	20	0.0035	0.0043	0.0004	0.0055	0.00294	0.0036	0.00214	0.00127	0.00195	NA	2.7 (d)	0/10
4,4'-DDE	5/10	50	0.0039	0.0043	0.00019	0.033	0.0186	0.0127	0.0103	0.0122	0.002075	NA	1.9 (d)	0/10
4,4'-DDT	9/10	90	0.004	0.004	0.0011	0.048	0.0174	0.0172	0.0158	0.0169	0.008225	NA	1.9 (d)	0/10
Dieldrin	7/10	70	0.0039	0.0043	0.0007	0.8	0.14	0.293	0.0987	0.248	0.01225	NA	0.04 (d)	2/10
Endosulfan II	4/10	40	0.0035	0.0043	0.00042	0.0154	0.00625	0.0064	0.00367	0.00431	0.001975	NA	470 (d)	0/10
Endosulfan Sulfate	4/10	40	0.0035	0.0043	0.00052	0.0134	0.00498	0.00602	0.00317	0.00381	0.00195	NA	--	NA
Endrin	4/10	40	0.0035	0.0043	0.0027	0.0343	0.0153	0.0138	0.00729	0.0105	0.002075	NA	23 (d)	0/10
Endrin Aldehyde	6/10	60	0.0038	0.0042	0.0012	0.0478	0.0161	0.0168	0.0105	0.0144	0.005135	NA	--	NA
Endrin Ketone	2/10	20	0.0035	0.0043	0.00966	0.0152	0.0124	0.00391	0.00406	0.0046	0.001975	NA	--	NA
Heptachlor	3/10	30	0.0018	0.0022	0.00033	0.0027	0.00125	0.00126	0.00108	0.000611	0.001	NA	0.14 (d)	0/10
Heptachlor Epoxide	4/10	40	0.002	0.0022	0.00024	0.0056	0.00206	0.00249	0.00144	0.00153	0.001025	NA	0.07 (d)	0/10
Methoxychlor	2/10	20	0.018	0.022	0.0026	0.0027	0.00265	0.0000707	0.00852	0.00316	0.01	NA	390 (d)	0/10

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-4

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-5

SUMMARY OF INORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF001-SS-01	AL-OF002-SS-01	AL-OF003-SS-01	AL-OF004-SS-01	AL-OF005-SS-01
Aluminum	8998	79000 (c)	4184	11643	7024	11357 J	4843 J
Arsenic	6.2	0.37 (c)	**5.1 J**	**18.9 J**	**2.9 J**	**6.1 JH**	**6.3**
Barium	215	14000 (c)	85.8 J	214 J	98.6 J	216	286
Beryllium	0.485	0.15 (c)	**0.31**	**0.56**	**0.34**	**0.54**	**0.23**
Cadmium	0.48	140 (c)	0.93 U	1	0.91 U	0.95 U	0.84 U
Calcium	9533	NA	7977	14869	3970	4908	23222
Chromium	16	1400 (c)	7.9	16.3 J	11 J	18.2	20.6
Cobalt	6.55	2.7 (c)	**5.3**	**8.2**	**5.4**	**8.6**	**3.4**
Copper	19.95	10000 (c)	11	27.1	13.2	23.5	18.8
Iron	12506.5	NA	8964 J	15893	9905	15482 J	6929 J
Lead	60.5	400 (c)	9.2 J	68 J	29.2 J	75.3 J	186 J
Magnesium	3600.5	NA	3569	4608	3063	3632 J	2664 J
Manganese	323.5	27000 (c)	295	352	204	409 J	140 J
Mercury	0.06	82 (c)	0.12 UJ	0.12 U	0.12 U	R	0.18 JL
Nickel	15.9	5500 (c)	11.6	17.4	13.2	18.1	9.5
Potassium	1476	NA	772	2312	1329	1913	936
Selenium	0.3575	820 (c)	0.22 UJ	0.44 J	0.24 J	0.26	0.19 UJ
Silver	0.585	820 (c)	0.91	0.93999	0.65 U	0.68 U	0.74
Sodium	117.5	NA	72.4	113	63.1	122	72.3
Vanadium	23.5	1800 (c)	12.8	28.2	19.3	29.1	13.9
Zinc	126.5	55000 (c)	46.5	114	58.2	218 J	340 J

Key at end of table.

Table 4.1-5

SUMMARY OF INORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF006-SS-01	AL-OF007-SS-01	AL-OF008-SS-01	AL-OF009-SS-01	AL-OF010-SS-01
Aluminum	8998	79000 (c)	16037	10972 J	13141	6385	2320
Arsenic	6.2	0.37 (c)	**13.8**	**9.4**	**5.9 J**	**10.7 J**	**2.2 J**
Barium	215	14000 (c)	362	244	204	270	41.6
Beryllium	0.485	0.15 (c)	**0.99**	**0.68999**	**0.72**	**0.43**	**0.17**
Cadmium	0.48	140 (c)	0.99 U	0.91 U	1.1 J	1 UJ	0.97 UJ
Calcium	9533	NA	14126	5305	11089	5749	17456
Chromium	16	1400 (c)	22	15.7	18.5	12.5	6.4
Cobalt	6.55	2.7 (c)	**10.2**	**7.7**	**7.7**	**5.3**	**4.2**
Copper	19.95	10000 (c)	37.7	41.3	21.1	10.3	5.8
Iron	12506.5	NA	22268 J	14958 J	15535	10055	5684
Lead	60.5	400 (c)	142 J	126 J	53	31.7	24
Magnesium	3600.5	NA	6086 J	3709 J	4841	3378	2119
Manganese	323.5	27000 (c)	544 J	390 J	427	236	112
Mercury	0.06	82 (c)	0.16 JL	R	0.13 U	0.11 U	0.11 U
Nickel	15.9	5500 (c)	29.5	17.2	20.9	14.6	11.7
Potassium	1476	NA	3468	1623	1789	1090	387
Selenium	0.3575	820 (c)	0.64 J	0.35 J	0.86 UJ	1.5 UJ	0.73 UJ
Silver	0.585	820 (c)	1.7	1.2	0.86 U	0.77 U	0.73 U
Sodium	117.5	NA	130	92.3	128	174	140
Vanadium	23.5	1800 (c)	40.5	27.7	32.6	18.4	7.8
Zinc	126.5	55000 (c)	169 J	139 J	152	71.6	79.5

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-6

SUMMARY OF SIEVED LEAD RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF001-SS-01	AL-OF002-SS-01	AL-OF003-SS-01	AL-OF004-SS-01	AL-OF005-SS-01
Lead	41.5	400 (c)	7.6	30	29	96.7	219
Percent <250 microns	27.1	--	39.6	14.5	51	25.2	43.3

Key at end of table.

Table 4.1-6

SUMMARY OF SIEVED LEAD RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF006-SS-01	AL-OF007-SS-01	AL-OF008-SS-01	AL-OF009-SS-01	AL-OF010-SS-01
Lead	41.5	400 (c)	114	69.9	53	27.4	12.3
Percent <250 microns	27.1	--	3.73	24	9.16	28.9	81.3

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-7

SUMMARY OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF001-SS-01	AL-OF002-SS-01	AL-OF003-SS-01	AL-OF004-SS-01	AL-OF005-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 UJ	0.012 U	0.012 U	0.038 UJ	0.011 U
Carbon Tetrachloride	0.006	4.9 (c)	0.002 J	0.012 U	0.012 U	0.012 U	0.011 U
Chloroform	0.006	110 (c)	0.004 J	0.002 J	0.012 U	0.012 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.002 J	0.012 U	0.012 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.004 J	0.012 U	0.012 U	0.011 U
Methylene Chloride	0.0085	85 (c)	0.012 U	0.004 J	0.012 U	0.11	0.025 B
Tetrachloroethene	0.006	13 (c)	0.062 J	0.011 J	0.001 J	0.01 J	0.005 J
Toluene	0.006	55000 (c)	0.021 J	0.012 UJL	0.012 U	0.001 J	0.011 U
Trichloroethene	0.006	58 (c)	0.003 J	0.012 U	0.012 U	0.012 U	0.011 U
Xylene	0.006	550000 (c)	0.064 J	0.012 UJL	0.012 U	0.012 U	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.4 U	0.058 J	0.062 J	0.39 U	0.06 J
Acenaphthylene	0.185	27000 (c)	0.4 U	0.059 J	0.027 J	0.39 U	0.36 U
Anthracene	0.1925	82000 (c)	0.4 U	0.16 J	0.11 J	0.39 U	0.2 J
Benzo(a)anthracene	0.245	0.9 (c)	0.17 J	**1.2**	0.63	0.13 J	0.85
Benzo(a)pyrene	0.28	0.09 (c)	**0.23 J**	**1.1**	**0.55**	**0.13 J**	**0.73**
Benzo(b)fluoranthene	0.36	0.9 (c)	0.4 JH	**1.4**	0.9	0.13 J	**1.6**
Benzo(g,h,i)perylene	0.21	1100 (c)	0.23 J	0.9	0.36 J	0.12 J	0.44
Benzo(k)fluoranthene	0.205	0.9 (c)	0.4 U	**1**	0.39 U	0.12 J	0.36 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.19 JB	0.4 U	0.48 B	0.33 U	4.7 J
Butylbenzylphthalate	0.1825	55000 (c)	0.027 J	0.4 U	0.057 J	0.39 U	0.066 J
Carbazole	0.195	32 (d)	0.4 U	0.2 J	0.097 J	0.39 U	0.1 J
Chrysene	0.3	9 (c)	0.26 J	1.3	0.66	0.15 J	0.9
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.4 U	0.4 U	0.39 U	0.39 U	0.36 U
Dibenzofuran	0.1925	--	0.4 U	0.029 J	0.022 J	0.39 U	0.044 J
di-n-Butyl Phthalate	0.1925	7800 (d)	0.4 U	0.025 J	0.02 J	0.39 U	0.36 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.4 U	0.4 U	0.39 U	0.39 U	0.17 J
Fluoranthene	0.345	11000 (c)	0.32 J	2.2	1.2	0.23 J	1.8

Key at end of table.

Table 4.1-7

SUMMARY OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF001-SS-01	AL-OF002-SS-01	AL-OF003-SS-01	AL-OF004-SS-01	AL-OF005-SS-01
Fluorene	0.1925	11000 (c)	0.4 U	0.062 J	0.042 J	0.39 U	0.094 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.2 J	0.9	0.34 J	0.097 J	0.44
Naphthalene	0.195	1100 (c)	0.4 U	0.027 J	0.39 U	0.39 U	0.36 U
Phenanthrene	0.21	7900 (c)	0.07 J	0.96	0.55	0.12 J	1.2
Pyrene	0.355	8200 (c)	0.26 J	1.7	0.9 J	0.2 J	1.6
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0021 U	0.0165 J	0.002 U	0.002 U	0.00238 J
Aroclor 1260	0.01975	0.083 (d)	0.04 U	0.04 U	0.039 U	0.039 U	0.036 U
alpha-BHC	0.001	0.1 (c)	0.0021 U	0.0021 U	0.002 U	0.002 U	0.0018 U
delta-BHC	0.001	--	0.0021 U	0.00787 JT	0.002 U	0.002 U	0.0018 U
gamma-BHC	0.001	0.49 (c)	0.0021 U	0.0021 U	0.002 U	0.002 U	0.0018 U
alpha-Chlordane	0.00181	0.49 (c)	0.0021 U	0.13 J	0.002 U	0.002 U	0.0285 J
gamma-Chlordane	0.001575	0.49 (c)	0.0021 U	0.14	0.002 U	0.00205 J	0.042 J
4,4'-DDD	0.00195	2.7 (d)	0.004 U	0.004 U	0.0039 U	0.0039 U	0.0036 U
4,4'-DDE	0.002075	1.9 (d)	0.004 U	0.024 J	0.0039 U	0.0039 U	0.0241
4,4'-DDT	0.008225	1.9 (d)	0.004 U	0.0395 J	0.00401 J	0.00875	0.048 J
Dieldrin	0.01225	0.04 (d)	0.004 U	**0.1**	0.0039 U	0.0115	**0.8 J**
Endosulfan II	0.001975	470 (d)	0.004 U	0.0154 J	0.0039 U	0.0039 U	0.00444 J
Endosulfan Sulfate	0.00195	--	0.004 U	0.0134 J	0.0039 U	0.0039 U	0.00528 J
Endrin	0.002075	23 (d)	0.004 U	0.0343 J	0.0039 U	0.0039 U	0.016 J
Endrin Aldehyde	0.005135	--	0.004 U	0.004 U	0.00904 JT	0.00961 J	0.0478 J
Endrin Ketone	0.001975	--	0.004 U	0.0152 J	0.0039 U	0.0039 U	0.00966 J
Heptachlor	0.001	0.14 (d)	0.0021 U	0.0021 U	0.002 U	0.002 U	0.0018 U
Heptachlor Epoxide	0.001025	0.07 (c)	0.0021 U	0.0021 U	0.002 U	0.002 U	0.00204 J
Methoxychlor	0.01	390 (d)	0.021 U	0.021 U	0.02 U	0.02 U	0.018 U

Key at end of table.

Table 4.1-7

SUMMARY OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF006-SS-01	AL-OF007-SS-01	AL-OF008-SS-01	AL-OF009-SS-01	AL-OF010-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.01 J	0.012 U	0.014 UJ	0.012 UJ	0.011 UJ
Carbon Tetrachloride	0.006	4.9 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
Chloroform	0.006	110 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
Methylene Chloride	0.0085	85 (c)	0.063	0.02	0.017 UJ	0.015 UJ	0.03 UJ
Tetrachloroethene	0.006	13 (c)	0.002 J	0.012 U	0.013 U	0.012 U	0.011 U
Toluene	0.006	55000 (c)	0.004 J	0.012 U	0.013 U	0.012 U	0.011 U
Trichloroethene	0.006	58 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
Xylene	0.006	550000 (c)	0.013 U	0.012 U	0.013 U	0.012 U	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.42 U	0.39 U	0.42 U	0.38 U	0.076 J
Acenaphthylene	0.185	27000 (c)	0.42 U	0.043 J	0.42 U	0.38 U	0.35 U
Anthracene	0.1925	82000 (c)	0.42 U	0.029 J	0.42 U	0.38 U	0.11 J
Benzo(a)anthracene	0.245	0.9 (c)	0.42 U	0.28 J	0.42 U	0.076 J	0.68
Benzo(a)pyrene	0.28	0.09 (c)	0.42 U	**0.33 J**	0.42 U	0.054 J	**0.5**
Benzo(b)fluoranthene	0.36	0.9 (c)	0.42 U	0.32 J	0.42 U	0.097 J	0.88 J
Benzo(g,h,i)perylene	0.21	1100 (c)	0.42 U	0.17 J	0.42 U	0.38 U	0.19 J
Benzo(k)fluoranthene	0.205	0.9 (c)	0.42 U	0.34 J	0.42 U	0.11 J	**0.99 J**
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.42 U	0.41 U	0.18 J	1.2	0.076 J
Butylbenzylphthalate	0.1825	55000 (c)	0.055 J	0.39 U	0.42 U	0.38 U	0.35 U
Carbazole	0.195	32 (d)	0.42 U	0.39 U	0.42 U	0.38 U	0.1 J
Chrysene	0.3	9 (c)	0.42 U	0.34 J	0.42 U	0.071 J	0.69
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.42 U	**0.098 J**	0.42 U	0.38 U	**0.1 J**
Dibenzofuran	0.1925	--	0.42 U	0.39 U	0.42 U	0.38 U	0.35 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.42 U	0.39 U	0.42 U	0.38 U	0.35 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.42 U	0.39 U	0.42 U	0.38 U	0.35 U
Fluoranthene	0.345	11000 (c)	0.42 U	0.37 J	0.42 U	0.13 J	1

Key at end of table.

Table 4.1-7

SUMMARY OF ORGANIC RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-OF006-SS-01	AL-OF007-SS-01	AL-OF008-SS-01	AL-OF009-SS-01	AL-OF010-SS-01
Fluorene	0.1925	11000 (c)	0.42 U	0.39 U	0.42 U	0.38 U	0.045 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.42 U	0.17 J	0.42 U	0.38 U	0.24 J
Naphthalene	0.195	1100 (c)	0.42 U	0.39 U	0.42 U	0.38 U	0.058 J
Phenanthrene	0.21	7900 (c)	0.42 U	0.083 J	0.42 U	0.045 J	0.58
Pyrene	0.355	8200 (c)	0.42 U	0.45	0.42 U	0.091 J	0.81
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0022 U	0.002 U	0.0021 U	0.00027 J	0.0018 U
Aroclor 1260	0.01975	0.083 (d)	0.043 U	0.039 U	0.042 U	0.038 U	0.028 J
alpha-BHC	0.001	0.1 (c)	0.0022 U	0.002 U	0.00004 J	0.002 U	0.0018 U
delta-BHC	0.001	--	0.0022 U	0.002 U	0.0021 U	0.00023 J	0.00014 J
gamma-BHC	0.001	0.49 (c)	0.0022 U	0.002 U	0.00029 J	0.002 U	0.0018 U
alpha-Chlordane	0.00181	0.49 (c)	0.0022 U	0.00252 J	0.0032 J	0.018	0.00052 J
gamma-Chlordane	0.001575	0.49 (c)	0.0022 U	0.002 U	0.0031 J	0.043	0.00058 J
4,4'-DDD	0.00195	2.7 (d)	0.0043 U	0.0039 U	0.0004 J	0.0055 J	0.0035 U
4,4'-DDE	0.002075	1.9 (d)	0.0043 U	0.0039 U	0.012	0.033	0.00019 J
4,4'-DDT	0.008225	1.9 (d)	0.011 J	0.00627 J	0.0077 J	0.03 J	0.0011 JN
Dieldrin	0.01225	0.04 (d)	0.0043 U	0.0243 J	0.013	0.031 J	0.0007 J
Endosulfan II	0.001975	470 (d)	0.0043 U	0.00476 J	0.00042 J	0.0038 U	0.0035 U
Endosulfan Sulfate	0.00195	--	0.0043 U	0.0039 U	0.00052 J	0.00075 J	0.0035 U
Endrin	0.002075	23 (d)	0.0043 U	0.00828 J	0.0027 J	0.0038 U	0.0035 U
Endrin Aldehyde	0.005135	--	0.0208 J	0.00817 J	0.0042 U	0.0038 U	0.0012 JN
Endrin Ketone	0.001975	--	0.0043 U	0.0039 U	0.0042 U	0.0038 U	0.0035 U
Heptachlor	0.001	0.14 (d)	0.0022 U	0.002 U	0.00033 J	0.0027	0.00074 J
Heptachlor Epoxide	0.001025	0.07 (c)	0.0022 U	0.002 U	0.00036 J	0.0056	0.00024 J
Methoxychlor	0.01	390 (d)	0.022 U	0.02 U	0.0027 J	0.0026 J	0.018 U

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-8

SUMMARY OF DIOXIN RESULTS FOR OPEN LAND BACKGROUND SURFACE SOIL - 0 TO 3 INCHES REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA APRIL - MAY 1994 (µg/kg)

Sample Number	Concentration
AL-OF001-SS-01	0
AL-OF002-SS-01	0
AL-OF003-SS-01	0
AL-OF004-SS-01	0.0071
AL-OF005-SS-01	0.0049
AL-OF006-SS-01	0.0027
AL-OF007-SS-01	0.003
AL-OF008-SS-01	0.0055
AL-OF009-SS-01	0
AL-OF010-SS-01	0

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-9

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	20/20	100	--	--	2340	17800	7760	4560	7760	4560	5352.5	NA	79000 (c)	0/20
Arsenic	20/20	100	--	--	1.5	16	5.37	4.03	5.37	4.03	3.15	NA	0.37 (c)	20/20
Barium	20/20	100	--	--	60	709	279	199	279	199	145	NA	14000 (c)	0/20
Beryllium	7/20	35	0.17	0.91	0.16	0.92	0.493	0.33	0.369	0.23	0.3075	NA	0.15 (c)	7/20
Cadmium	5/20	25	0.99	1.3	1.2	3.2	2.06	0.865	0.935	0.777	0.55	NA	140 (c)	0/20
Calcium	20/20	100	--	--	2320	22500	7280	5680	7280	5680	4958.5	NA	NA	NA
Chromium	20/20	100	--	--	5.6	25.9	15	6.77	15	6.77	11.15	NA	1400 (c)	0/20
Cobalt	20/20	100	--	--	3.7	8.4	6.24	1.57	6.24	1.57	6.25	NA	2.7 (c)	20/20
Copper	18/20	90	2.4	2.6	3	66.1	23	19.1	20.8	19.3	10.05	NA	10000 (c)	0/20
Cyanide	2/20	10	0.55	0.71	0.75	2	1.38	0.884	0.415	0.387	0.305	NA	5500 (c)	0/20
Iron	20/20	100	--	--	5430	25200	12300	6070	12300	6070	9581.5	NA	NA	NA
Lead	20/20	100	--	--	4.7	1270	243	400	243	400	36.9495	NA	400 (c)	4/20
Magnesium	20/20	100	--	--	1280	4180	2830	890	2830	890	2821	NA	NA	NA
Manganese	20/20	100	--	--	81	473	252	117	252	117	216	NA	27000 (c)	0/20
Mercury	5/18	27.7	0.11	0.14	0.36	1.1	0.584	0.302	0.206	0.283	0.06	NA	82 (c)	0/18
Nickel	17/20	85	8.9	9.8	8.1	22.8	14.3	4.7	12.8	5.57	10.75	NA	5500 (c)	0/20
Potassium	18/20	90	531	556	405	2780	1480	678	1360	742	1300.5	NA	NA	NA
Selenium	4/20	20	0.75	0.96	0.44	0.76	0.61	0.174	0.451	0.11	0.415	NA	820 (c)	0/20
Silver	2/20	10	0.75	1.7	1.3	1.4	1.35	0.0707	0.705	0.272	0.7	NA	820 (c)	0/20
Sodium	19/20	95	61.6	61.6	64.5	204	116	39.1	112	42.6	97.4	NA	NA	NA
Vanadium	20/20	100	--	--	7.9	41.2	20.1	9.81	20.1	9.81	15.3	NA	1800 (c)	0/20
Zinc	20/20	100	--	--	26.1	1270	266	332	266	332	111	NA	55000 (c)	0/20

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-10

STATISTICAL ANALYSIS OF SIEVED LEAD RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Lead	20/20	100	--	--	5.1	1420	226	386	226	386	40.7	NA	400 (c)	4/20
Percent <250 microns	20/20	100	--	--	2.76	93.9	45.2	30.9	45.2	30.9	58.35	NA	--	NA

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-11

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
1,2-Dichloroethene	1/20	5	0.011	0.015	0.002	0.002	0.002	--	0.0059	0.00111	0.006	NA	2700 (c)	0/20
Ethylbenzene	2/20	10	0.011	0.014	0.005	0.005	0.005	--	0.00593	0.000613	0.00575	NA	27000 (c)	0/20
Methylene Chloride	2/20	10	0.011	0.044	0.002	0.009	0.0055	0.00495	0.0111	0.00494	0.00925	NA	85 (c)	0/20
Tetrachloroethene	4/20	20	0.011	0.014	0.008	0.028	0.0193	0.00877	0.00858	0.0065	0.006	NA	13 (c)	0/20
Toluene	2/20	10	0.011	0.014	0.008	0.014	0.011	0.00424	0.00653	0.00189	0.006	NA	55000 (c)	0/20
Xylene	2/20	10	0.011	0.014	0.031	0.038	0.0345	0.00495	0.00888	0.00885	0.006	NA	550000 (c)	0/20
Semivolatile Organic Compounds														
Acenaphthene	1/20	5	0.35	1.5	0.19	0.19	0.19	--	0.229	0.124	0.1975	NA	16000 (c)	0/20
Acenaphthylene	2/20	10	0.35	1.5	0.049	0.39	0.22	0.241	0.231	0.135	0.1975	NA	27000 (c)	0/20
Anthracene	4/20	20	0.35	1.5	0.048	0.76	0.241	0.346	0.238	0.184	0.1975	NA	82000 (c)	0/20
Benzo(a)anthracene	8/20	40	0.37	1.5	0.045	5.2	0.838	1.77	0.485	1.12	0.19	NA	0.9 (c)	1/20
Benzo(a)pyrene	7/20	35	0.35	1.5	0.028	4.9	0.867	1.79	0.459	1.06	0.19	NA	0.09 (c)	4/20
Benzo(b)fluoranthene	11/20	55	0.37	1.5	0.042	10	1.12	2.96	0.735	2.19	0.1875	NA	0.9 (c)	1/20
Benzo(g,h,i)perylene	6/20	30	0.35	1.5	0.024	1	0.247	0.374	0.241	0.228	0.1925	NA	1100 (c)	0/20
Benzo(k)fluoranthene	9/20	45	0.37	1.5	0.025	0.89	0.255	0.311	0.267	0.238	0.1875	NA	0.9 (c)	0/20
Bis(2-ethylhexyl)phthalate	11/20	55	0.35	2.3	0.049	7.8	0.85	2.31	0.613	1.71	0.1875	NA	46 (c)	0/20
Butylbenzylphthalate	5/20	25	0.35	1.5	0.1	0.38	0.182	0.116	0.224	0.136	0.195	NA	55000 (c)	0/20
Carbazole	3/20	15	0.35	1.5	0.051	0.13	0.0793	0.044	0.211	0.136	0.1975	NA	32 (d)	0/20
Chrysene	9/20	45	0.37	1.5	0.038	4.4	0.658	1.42	0.436	0.949	0.19	NA	9 (c)	0/20
Dibenz(a,h)anthracene	2/20	10	0.35	1.5	0.044	0.41	0.227	0.259	0.232	0.137	0.1975	NA	0.09 (c)	1/20
Dibenzofuran	1/20	5	0.35	1.5	0.092	0.092	0.092	--	0.224	0.127	0.1975	NA	--	NA
Diethylphthalate	1/20	5	0.35	1.5	0.2	0.2	0.2	--	0.23	0.124	0.1975	NA	220000 (c)	0/20
Dimethylphthalate	1/20	5	0.35	1.5	0.055	0.055	0.055	--	0.222	0.13	0.1975	NA	780000 (d)	0/20
di-n-Butyl Phthalate	1/20	5	0.35	1.5	0.41	0.41	0.41	--	0.251	0.136	0.1975	NA	7800 (d)	0/20
di-n-Octyl Phthalate	1/20	5	0.35	1.5	0.049	0.049	0.049	--	0.222	0.13	0.1975	NA	1600 (d)	0/20
Fluoranthene	12/20	60	0.37	1.5	0.041	12	1.21	3.41	0.834	2.64	0.1825	NA	11000 (c)	0/20
Fluorene	1/20	5	0.35	1.5	0.31	0.31	0.31	--	0.235	0.125	0.1975	NA	11000 (c)	0/20
Indeno(1,2,3-cd)pyrene	5/20	25	0.35	1.5	0.023	1	0.309	0.395	0.256	0.221	0.195	NA	0.9 (c)	1/20
2-Methylnaphthalene	3/20	15	0.35	1.5	0.063	0.077	0.0693	0.00709	0.21	0.137	0.1975	NA	--	NA
Naphthalene	3/20	15	0.35	1.5	0.046	0.082	0.0647	0.018	0.209	0.138	0.1975	NA	1100 (c)	0/20
Phenanthrene	6/20	30	0.37	1.5	0.038	4.1	0.88	1.58	0.434	0.875	0.195	NA	7900 (c)	0/20
Pyrene	12/20	60	0.37	1.5	0.04	11	1.09	3.13	0.762	2.42	0.185	NA	8200 (c)	0/20

Key at end of table.

Table 4.1-11

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Pesticides/PCBs														
Aldrin	7/20	35	0.0019	0.2	0.00013	0.223	0.0377	0.0829	0.0205	0.0529	0.001225	NA	0.038 (d)	2/20
alpha-BHC	5/20	25	0.0019	0.2	0.000048	0.00069	0.000219	0.000266	0.00858	0.022	0.001175	NA	0.1 (d)	0/20
beta-BHC	2/20	10	0.0019	0.2	0.00043	0.00953	0.00498	0.00643	0.00869	0.0219	0.001225	NA	0.35 (d)	0/20
delta-BHC	7/20	35	0.0019	0.2	0.00022	0.0251	0.00496	0.00908	0.00958	0.0222	0.001225	NA	--	NA
gamma-BHC	8/20	40	0.0019	0.2	0.00014	0.0033	0.000906	0.0011	0.00797	0.022	0.0011	NA	0.49 (d)	0/20
alpha-Chlordane	20/20	100	--	--	0.001	3.6	0.586	1.13	0.586	1.13	0.0195	NA	0.49 (d)	4/20
gamma-Chlordane	20/20	100	--	--	0.00044	5.3	0.689	1.5	0.689	1.5	0.01058	NA	0.49 (d)	4/20
4,4'-DDD	15/20	75	0.0037	0.014	0.0014	0.45	0.112	0.166	0.0851	0.151	0.0064	NA	2.7 (d)	0/20
4,4'-DDE	19/20	95	0.0046	0.0046	0.0058	4.4	0.545	0.999	0.518	0.98	0.115	NA	1.9 (d)	1/20
4,4'-DDT	20/20	100	--	--	0.005	10	1.2	2.52	1.2	2.52	0.119	NA	1.9 (d)	3/20
Dieldrin	19/20	95	0.0078	0.0078	0.00033	4.3	0.393	1.03	0.373	1.01	0.024	NA	0.04 (d)	9/20
Endosulfan I	1/20	5	0.0018	0.2	0.0532	0.0532	0.0532	--	0.0109	0.024	0.001225	NA	470 (d)	0/20
Endosulfan II	3/20	15	0.0035	0.38	0.000059	0.0011	0.000536	0.000526	0.0166	0.0417	0.002375	NA	470 (d)	0/20
Endosulfan Sulfate	7/20	35	0.0035	0.38	0.00017	0.0096	0.00249	0.00356	0.0166	0.0417	0.002275	NA	--	NA
Endrin	10/20	50	0.0037	0.042	0.00043	0.32	0.0791	0.109	0.0436	0.0834	0.003975	NA	23 (d)	0/20
Endrin Aldehyde	9/18	50	0.0035	0.041	0.000081	0.051	0.0147	0.0193	0.011	0.0147	0.00621	NA	--	NA
Endrin Ketone	11/20	55	0.0035	0.38	0.000099	0.034	0.00942	0.0108	0.0176	0.0417	0.002375	NA	--	NA
Heptachlor	10/20	50	0.002	0.2	0.0002	0.376	0.0687	0.133	0.041	0.0978	0.001225	NA	0.14 (d)	2/20
Heptachlor Epoxide	16/20	80	0.002	0.0078	0.00018	1.1	0.12	0.292	0.0961	0.264	0.002025	NA	0.07 (d)	3/20
Methoxychlor	7/19	36.8	0.019	2	0.00022	0.025	0.00881	0.0101	0.0756	0.226	0.012	NA	390 (d)	0/19
Toxaphene	3/20	15	0.18	48	0.7	10	4.57	4.84	3.22	7.13	0.165	NA	0.58 (d)	3/20

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-12

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4 1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX TEF	=	Maximum detected toxicity equivalency factor.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF	=	Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN TEF	=	Minimum detected toxicity equivalency factor.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which dioxin was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF	=	Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_dioxin_STATS-03/08/95-D1

Table 4.1-13

SUMMARY OF INORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG026-SS-01	AL-SG026-SS-02	AL-SG026-SS-03	AL-SG026-SS-04	AL-SG035-SS-01
Aluminum	5352.5	79000 (c)	15585	4882	13799 J	17754 J	2767 J
Arsenic	3.15	0.37 (c)	**4.1 J**	**1.8 JH**	**3.4**	**4**	**1.5 J**
Barium	145	14000 (c)	397 J	379 J	270	271	80.6 J
Beryllium	0.3075	0.15 (c)	**0.92**	**0.47**	**0.7**	**0.84**	0.34 UC
Cadmium	0.55	140 (c)	1.1 U	1.1 U	1.2	1.2	1.1 UJ
Calcium	4958.5	NA	5834 J	5179 J	5586	5084	11916 J
Chromium	11.15	1400 (c)	20.3 J	7.6 J	17.9	21.4	5.6 J
Cobalt	6.25	2.7 (c)	**7.6**	**4.1**	**7.9**	**8.2**	**4**
Copper	10.05	10000 (c)	25.8 J	20.5 J	20.1	20.6	2.4 U
Cyanide	0.305	5500 (c)	0.68999 U	0.68999 U	0.68999 U	0.65 U	0.57 U
Iron	9581.5	NA	17006	7824	15638 J	17383 J	5577
Lead	36.9495	400 (c)	77.6 J	73.3 J	49.2 J	66.2 J	6.5 J
Magnesium	2821	NA	3818	1683	3863 J	4182 J	2338
Manganese	216	27000 (c)	473 J	221 J	426 J	426 J	110 J
Mercury	0.06	82 (c)	0.14 U	0.14 U	R	R	0.11 U
Nickel	10.75	5500 (c)	22.8	10.1 JL	19.5	20.4	8.9 U
Potassium	1300.5	NA	2050	859	2147	2783	531 U
Selenium	0.415	820 (c)	0.76 J	0.76 J	0.44 J	0.48 J	0.78 U
Silver	0.7	820 (c)	0.77 U	0.77 U	1.4	1.3	1.4 U
Sodium	97.4	NA	164	89.9	140	151	61.6 U
Vanadium	15.3	1800 (c)	35.5	14.3	29.9	41.2	8.2
Zinc	111	55000 (c)	184	133	121 J	125 J	26.1

Key at end of table.

Table 4.1-13

SUMMARY OF INORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG035-SS-02	AL-SG035-SS-03	AL-SG035-SS-04	AL-SG036-SS-01	AL-SG036-SS-02
Aluminum	5352.5	79000 (c)	2696	2339	2481	9610	13304
Arsenic	3.15	0.37 (c)	**1.9 J**	**6.7 J**	**2.3 J**	**9.2**	**9.5**
Barium	145	14000 (c)	76.8	709	97.3	353	401
Beryllium	0.3075	0.15 (c)	**0.18**	**0.16**	**0.18**	0.91 UC	0.87 UC
Cadmium	0.55	140 (c)	1 UJ	0.99 UJ	1 UJ	1.2 U	3.2
Calcium	4958.5	NA	4044	2461	5334	22479	21546
Chromium	11.15	1400 (c)	7.7	6.8	8.2	22	24
Cobalt	6.25	2.7 (c)	**4.2**	**4.1**	**3.7**	**8.4**	**7.9**
Copper	10.05	10000 (c)	3	7.2	3	51.2	52.9
Cyanide	0.305	5500 (c)	0.56 U	0.55 U	0.56 U	0.63 U	0.63 U
Iron	9581.5	NA	5926	5432	5468	25160	23911
Lead	36.9495	400 (c)	4.7	25.2	8.8	**780 J**	**767 J**
Magnesium	2821	NA	2364	1283	2349	3970	4119
Manganese	216	27000 (c)	81	113	91.3	328	343
Mercury	0.06	82 (c)	0.11 U	0.11 U	0.11 U	0.5	0.36
Nickel	10.75	5500 (c)	9	8.1	8.9	15.2	17.3
Potassium	1300.5	NA	466	405	507	1961	2154
Selenium	0.415	820 (c)	0.76 UJ	0.75 UJ	0.76 UJ	0.86 U	0.86 U
Silver	0.7	820 (c)	0.76 U	0.75 U	0.76 U	1.5 U	1.5 U
Sodium	97.4	NA	67.8	102	104	150	163
Vanadium	15.3	1800 (c)	9.6	7.9	8.7	27.6	34.1
Zinc	111	55000 (c)	29.2	121	31.8	419	410

Key at end of table.

Table 4.1-13

SUMMARY OF INORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG036-SS-03	AL-SG036-SS-04	AL-SG037-SS-01	AL-SG037-SS-02	AL-SG037-SS-03
Aluminum	5352.5	79000 (c)	8758	9850	4827	3325	8180
Arsenic	3.15	0.37 (c)	**5.4**	**13 J**	**2.2**	**2.9**	**16**
Barium	145	14000 (c)	548	667	118	60	167
Beryllium	0.3075	0.15 (c)	0.87 UC	0.53 UC	0.18 UC	0.17 U	0.56 UC
Cadmium	0.55	140 (c)	2.2	2.5	1.1 U	1.1 U	1.2 U
Calcium	4958.5	NA	8324	11773	2465	2321	4833
Chromium	11.15	1400 (c)	21.8	25.9	9.3	9	18.1
Cobalt	6.25	2.7 (c)	**6.6**	**7.1**	**6**	**4.7**	**6.8**
Copper	10.05	10000 (c)	49.7	66.1	6.2	2.6 U	19.3
Cyanide	0.305	5500 (c)	0.75	2	0.56 U	0.6 U	0.63 U
Iron	9581.5	NA	18496	18233	8271	6526	10925
Lead	36.9495	400 (c)	**1141 J**	**1274**	29.6	27.3	195 J
Magnesium	2821	NA	2301	2936	1841	1410	2600
Manganese	216	27000 (c)	296	281	191	115	179
Mercury	0.06	82 (c)	0.58	1.1 J	0.11 U	0.12 U	0.13 U
Nickel	10.75	5500 (c)	12.6	16.6	11.4	9.3 U	9.8 U
Potassium	1300.5	NA	2118	1863	811	556 U	1407
Selenium	0.415	820 (c)	0.86 UJ	0.87 U	0.77 U	0.82 U	0.86 UJ
Silver	0.7	820 (c)	1.5 U	1.5 U	1.3 U	1.4 U	1.5 U
Sodium	97.4	NA	98.6	204	77.5	64.5	77.6
Vanadium	15.3	1800 (c)	21.5	23.9	13.5	9.8	20.7
Zinc	111	55000 (c)	860	1267	58.6	81.7	328

Key at end of table.

Table 4.1-13

SUMMARY OF INORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG037-SS-04	AL-SG038-SS-01	AL-SG038-SS-02	AL-SG038-SS-03	AL-SG038-SS-04
Aluminum	5352.5	79000 (c)	8121	5246 J	7076 J	5459 J	9048
Arsenic	3.15	0.37 (c)	**9.1**	**2.9**	**3.9**	**2.4**	**5.2 J**
Barium	145	14000 (c)	148	130	137	142	434
Beryllium	0.3075	0.15 (c)	0.74 UC	0.63 UC	0.67 UC	0.6 UC	0.8 UC
Cadmium	0.55	140 (c)	1.2 U	1.1 U	1.1 U	1.2 U	1.3 U
Calcium	4958.5	NA	5978	4311	3701	4777	7652
Chromium	11.15	1400 (c)	16.2	10.5	12.5	11.8	23.5
Cobalt	6.25	2.7 (c)	**7.6**	**6.2**	7	**6.5**	**6.3**
Copper	10.05	10000 (c)	15.1	9.4	10.5	9.6	23.6
Cyanide	0.305	5500 (c)	0.62 U	0.58 U	0.57 U	0.63 U	0.71 U
Iron	9581.5	NA	12179	9619	11165	9544	12681
Lead	36.9495	400 (c)	32.7	34.399	39.5	44.2	176
Magnesium	2821	NA	3151	3145	3042	3245	3047
Manganese	216	27000 (c)	340	242 J	275 J	211 J	297
Mercury	0.06	82 (c)	0.12 U	0.12 U	0.11 U	0.13 U	0.38 J
Nickel	10.75	5500 (c)	16.6	9.8	11.8	11.9	20.6
Potassium	1300.5	NA	1723	1314	1463	1287	1343
Selenium	0.415	820 (c)	0.84 UJ	0.79 U	0.77 UJ	0.85 U	0.96 U
Silver	0.7	820 (c)	1.5 U	1.4 U	1.3 U	1.5 U	1.7 U
Sodium	97.4	NA	96.1	109	98.7	93.5	159
Vanadium	15.3	1800 (c)	22	15	19	15.6	24
Zinc	111	55000 (c)	113	75.9	79	109	750

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-14

SUMMARY OF SIEVED LEAD RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG026-SS-01	AL-SG026-SS-02	AL-SG026-SS-03	AL-SG026-SS-04	AL-SG035-SS-01
Lead	40.7	400 (c)	113	65.3	66.7	58.7	8.5
Percent <250 microns	58.35	--	2.76	9.05	4.09	56.8	81.4

Key at end of table.

Table 4.1-14

SUMMARY OF SIEVED LEAD RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG035-SS-02	AL-SG035-SS-03	AL-SG035-SS-04	AL-SG036-SS-01	AL-SG036-SS-02
Lead	40.7	400 (c)	5.6	22.9	5.1	**749**	**699**
Percent <250 microns	58.35	--	93.9	72.5	92.3	9.51	16.1

Key at end of table.

Table 4.1-14

SUMMARY OF SIEVED LEAD RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG036-SS-03	AL-SG036-SS-04	AL-SG037-SS-01	AL-SG037-SS-02	AL-SG037-SS-03
Lead	40.7	400 (c)	**848**	**1420**	28.6	23.1	83
Percent <250 microns	58.35	--	18	19.2	59.9	85.5	48.4

4.1-93

Key at end of table.

Table 4.1-14

SUMMARY OF SIEVED LEAD RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG037-SS-04	AL-SG038-SS-01	AL-SG038-SS-02	AL-SG038-SS-03	AL-SG038-SS-04
Lead	40.7	400 (c)	25.9	43.6	42.2	39.2	178
Percent <250 microns	58.35	--	21.6	60.6	49.9	61.9	39.6

4.1-94

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG026-SS-01	AL-SG026-SS-02	AL-SG026-SS-03	AL-SG026-SS-04	AL-SG035-SS-01
Volatile Organic Compounds							
1,2-Dichloroethene	0.006	2700 (c)	0.014 U	0.014 U	0.015 U	0.002 J	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.014 U	0.005 J	0.005 J	0.014 U	0.011 U
Methylene Chloride	0.00925	85 (c)	0.014 U	0.002 J	0.009 J	0.014 U	0.029 UJ
Tetrachloroethene	0.006	13 (c)	0.024	0.028	0.017	0.008 J	0.011 U
Toluene	0.006	55000 (c)	0.014 U	0.008 J	0.014 J	0.014 U	0.011 U
Xylene	0.006	550000 (c)	0.014 U	0.038	0.031	0.014 U	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Acenaphthylene	0.1975	27000 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Anthracene	0.1975	82000 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Benzo(a)anthracene	0.19	0.9 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Benzo(a)pyrene	0.19	0.09 (c)	0.03 J	0.44 U	0.48 U	0.028 J	0.38 U
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.042 J	0.44 U	0.48 U	0.46 U	0.38 U
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.028 J	0.44 U	0.48 U	0.024 J	0.38 U
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.025 J	0.44 U	0.48 U	0.46 U	0.38 U
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.45 U	0.44 U	0.48 U	0.56 U	0.38 U
Butylbenzylphthalate	0.195	55000 (c)	0.12 J	0.44 U	0.48 U	0.46 U	0.38 U
Carbazole	0.1975	32 (d)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Chrysene	0.19	9 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Dibenzofuran	0.1975	--	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Diethylphthalate	0.1975	220000 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Dimethylphthalate	0.1975	780000 (d)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Fluoranthene	0.1825	11000 (c)	0.052 J	0.44 U	0.48 U	0.46 U	0.041 J
Fluorene	0.1975	11000 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.023 J	0.44 U	0.48 U	0.46 U	0.38 U
2-Methylnaphthalene	0.1975	--	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG026-SS-01	AL-SG026-SS-02	AL-SG026-SS-03	AL-SG026-SS-04	AL-SG035-SS-01
Naphthalene	0.1975	1100 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Phenanthrene	0.195	7900 (c)	0.45 U	0.44 U	0.48 U	0.46 U	0.38 U
Pyrene	0.185	8200 (c)	0.052 J	0.44 U	0.04 J	0.46 U	0.38 U
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	**0.223 J**	0.0023 U	0.0025 U	0.0024 U	0.00066 J
alpha-BHC	0.001175	0.1 (d)	0.023 U	0.0023 U	0.0025 U	0.0024 U	0.00016 J
beta-BHC	0.001225	0.35 (d)	0.00953 J	0.0023 U	0.0025 U	0.0024 U	0.002 U
delta-BHC	0.001225	--	0.0251 J	0.0023 U	0.0025 U	0.0024 U	0.00024 J
gamma-BHC	0.0011	0.49 (d)	0.0033 J	0.0023 U	0.0025 U	0.0024 U	0.00014 J
alpha-Chlordane	0.0195	0.49 (d)	**3.6 J**	0.00887 J	0.023 JL	0.018 J	0.0014 J
gamma-Chlordane	0.01058	0.49 (d)	**5.3 J**	0.00816 J	0.014 JL	0.0068 J	0.00044 J
4,4'-DDD	0.0064	2.7 (d)	0.0556 J	0.0045 U	0.0049 U	0.0046 U	0.0058
4,4'-DDE	0.115	1.9 (d)	0.55 J	0.0151	0.0095 J	0.0046 U	0.03
4,4'-DDT	0.119	1.9 (d)	0.33 J	0.0189	0.011 JH	0.018 JL	0.014
Dieldrin	0.024	0.04 (d)	**4.3 J**	**0.0492 J**	0.0065 JH	0.023	0.02
Endosulfan I	0.001225	470 (d)	0.023 U	0.0023 U	0.0025 U	0.0024 U	0.002 U
Endosulfan II	0.002375	470 (d)	0.045 U	0.0045 U	0.0049 U	0.0046 U	0.0038 U
Endosulfan Sulfate	0.002275	--	0.045 U	0.0045 U	0.0049 U	0.0046 U	0.00035 J
Endrin	0.003975	23 (d)	0.32 J	0.014 J	0.0049 U	0.0046 U	0.00091 J
Endrin Aldehyde	0.00621	--	0.0444 J	0.00842	0.012 J	0.0046 U	0.0038 U
Endrin Ketone	0.002375	--	0.034 J	0.0045 U	0.0049 U	0.0046 U	0.00052 J
Heptachlor	0.001225	0.14 (d)	**0.245**	0.0023 U	0.0025 U	0.0024 U	0.002 U
Heptachlor Epoxide	0.002025	0.07 (d)	**0.45 J**	0.0028	0.0025 U	0.0024 U	0.002 U
Methoxychlor	0.012	390 (d)	0.025 J	0.023 U	0.025 U	0.024 U	0.00022 J
Toxaphene	0.165	0.58 (d)	2.3 U	0.23 U	0.25 U	0.24 U	0.2 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG035-SS-02	AL-SG035-SS-03	AL-SG035-SS-04	AL-SG036-SS-01	AL-SG036-SS-02
Volatile Organic Compounds							
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Methylene Chloride	0.00925	85 (c)	0.036 UJ	0.02 UJ	0.011 UJ	0.044 UJ	0.027 UJ
Tetrachloroethene	0.006	13 (c)	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Toluene	0.006	55000 (c)	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Xylene	0.006	550000 (c)	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Acenaphthylene	0.1975	27000 (c)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Anthracene	0.1975	82000 (c)	0.37 U	0.35 U	0.37 U	0.082 J	0.048 J
Benzo(a)anthracene	0.19	0.9 (c)	0.37 U	0.046 J	0.37 U	0.38 J	0.3 J
Benzo(a)pyrene	0.19	0.09 (c)	0.37 U	0.35 U	0.37 U	**0.31 J**	**0.24 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.37 U	0.089 JH	0.37 U	0.52 J	0.41 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.37 U	0.35 U	0.37 U	0.15 J	0.11 J
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.37 U	0.12 JH	0.37 U	0.58 J	0.45 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.37 U	0.35 U	0.049 J	0.25 J	0.53
Butylbenzylphthalate	0.195	55000 (c)	0.37 U	0.35 U	0.37 U	0.12 J	0.19 J
Carbazole	0.1975	32 (d)	0.37 U	0.35 U	0.37 U	0.057 J	0.38 U
Chrysene	0.19	9 (c)	0.37 U	0.052 J	0.37 U	0.38 J	0.28 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.37 U	0.35 U	0.37 U	0.044 J	0.38 U
Dibenzofuran	0.1975	--	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Diethylphthalate	0.1975	220000 (c)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Dimethylphthalate	0.1975	780000 (d)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Fluoranthene	0.1825	11000 (c)	0.37 U	0.068 J	0.37 U	0.63	0.45
Fluorene	0.1975	11000 (c)	0.37 U	0.35 U	0.37 U	0.39 U	0.38 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.37 U	0.35 U	0.37 U	0.16 J	0.11 J
2-Methylnaphthalene	0.1975	--	0.37 U	0.35 U	0.37 U	0.068 J	0.38 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG035-SS-02	AL-SG035-SS-03	AL-SG035-SS-04	AL-SG036-SS-01	AL-SG036-SS-02
Naphthalene	0.1975	1100 (c)	0.37 U	0.35 U	0.37 U	0.066 J	0.38 U
Phenanthrene	0.195	7900 (c)	0.37 U	0.038 J	0.37 U	0.4	0.25 J
Pyrene	0.185	8200 (c)	0.37 U	0.066 J	0.37 U	0.47 J	0.36 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0014 J	0.00045 J	0.00013 J	0.004 U	0.002 U
alpha-BHC	0.001175	0.1 (d)	0.000098 J	0.00068999 J	0.000048 J	0.004 U	0.002 U
beta-BHC	0.001225	0.35 (d)	0.0019 U	0.00043 J	0.0019 U	0.004 U	0.002 U
delta-BHC	0.001225	--	0.00041 J	0.00047 J	0.0019 U	0.004 U	0.002 U
gamma-BHC	0.0011	0.49 (d)	0.00043 J	0.00066 J	0.00021 J	0.004 U	0.002 U
alpha-Chlordane	0.0195	0.49 (d)	0.0019 J	0.0065	0.001 J	0.022 J	0.13
gamma-Chlordane	0.01058	0.49 (d)	0.0017 J	0.0045	0.00044 J	0.013	0.11
4,4'-DDD	0.0064	2.7 (d)	0.0099 J	0.0035 J	0.0014 J	0.024 J	0.016
4,4'-DDE	0.115	1.9 (d)	0.017	0.017 J	0.0058	1	0.026
4,4'-DDT	0.119	1.9 (d)	0.078	0.047	0.005	0.79 JH	0.064 JH
Dieldrin	0.024	0.04 (d)	0.02	0.017	0.004	0.0078 U	0.0076 J
Endosulfan I	0.001225	470 (d)	0.0019 U	0.0018 U	0.0019 U	0.004 U	0.002 U
Endosulfan II	0.002375	470 (d)	0.00045 J	0.0035 U	0.000059 J	0.0011 J	0.0038 U
Endosulfan Sulfate	0.002275	--	0.00017 J	0.0035 U	0.0038 U	0.0078 U	0.00076 J
Endrin	0.003975	23 (d)	0.0012 J	0.0017 J	0.00043 J	0.0078 U	0.0038 U
Endrin Aldehyde	0.00621	--	0.000089 J	0.0035 U	0.000081 J	0.0029 J	0.0023 J
Endrin Ketone	0.002375	--	0.000099 J	0.0035 U	0.0038 U	0.016	0.0036 J
Heptachlor	0.001225	0.14 (d)	0.00034 J	0.00043 J	0.0002 J	0.00038 J	0.0007 J
Heptachlor Epoxide	0.002025	0.07 (d)	0.00026 J	0.0005 J	0.00018 J	0.0015 J	0.0015 J
Methoxychlor	0.012	390 (d)	0.0004 J	0.00052 J	0.019 U	0.0035 J	0.02 U
Toxaphene	0.165	0.58 (d)	0.19 U	0.18 U	0.19 U	0.4 U	0.2 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG036-SS-03	AL-SG036-SS-04	AL-SG037-SS-01	AL-SG037-SS-02	AL-SG037-SS-03
Volatile Organic Compounds							
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.013 U	0.012 U	0.011 U	0.012 U
Ethylbenzene	0.00575	27000 (c)	0.012 U	0.013 UJ	0.012 U	0.011 U	0.012 U
Methylene Chloride	0.00925	85 (c)	0.023 UJ	0.036 U	0.019 UJ	0.018 UJ	0.019 UJ
Tetrachloroethene	0.006	13 (c)	0.012 U	0.013 UJ	0.012 U	0.011 U	0.012 U
Toluene	0.006	55000 (c)	0.012 U	0.013 UJ	0.012 U	0.011 U	0.012 U
Xylene	0.006	550000 (c)	0.012 U	0.013 UJ	0.012 U	0.011 U	0.012 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.41 U	0.19 J	0.39 U	1.5 U	0.4 U
Acenaphthylene	0.1975	27000 (c)	0.049 J	0.39 J	0.39 U	1.5 U	0.4 U
Anthracene	0.1975	82000 (c)	0.073 J	0.76 J	0.39 U	1.5 U	0.4 U
Benzo(a)anthracene	0.19	0.9 (c)	0.59	**5.2**	0.39 U	1.5 U	0.051 J
Benzo(a)pyrene	0.19	0.09 (c)	**0.47**	**4.9**	0.39 U	1.5 U	0.4 U
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.8 J	**10**	0.39 U	1.5 U	0.063 JH
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.17 J	1	0.39 U	1.5 U	0.4 U
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.89 J	0.86 U	0.39 U	1.5 U	0.07 JH
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.1 J	2.3 U	0.098 J	7.8	0.24 J
Butylbenzylphthalate	0.195	55000 (c)	0.1 J	0.38 J	0.39 U	1.5 U	0.4 U
Carbazole	0.1975	32 (d)	0.051 J	0.13 J	0.39 U	1.5 U	0.4 U
Chrysene	0.19	9 (c)	0.57	4.4	0.39 U	1.5 U	0.041 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.41 U	**0.41 J**	0.39 U	1.5 U	0.4 U
Dibenzofuran	0.1975	--	0.41 U	0.092 J	0.39 U	1.5 U	0.4 U
Diethylphthalate	0.1975	220000 (c)	0.41 U	0.2 J	0.39 U	1.5 U	0.4 U
Dimethylphthalate	0.1975	780000 (d)	0.41 U	0.055 J	0.39 U	1.5 U	0.4 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.41 J	0.86 U	0.39 U	1.5 U	0.4 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.41 U	0.049 J	0.39 U	1.5 U	0.4 U
Fluoranthene	0.1825	11000 (c)	0.77	12	0.39 U	1.5 U	0.072 J
Fluorene	0.1975	11000 (c)	0.41 U	0.31 J	0.39 U	1.5 U	0.4 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.25 J	**1**	0.39 U	1.5 U	0.4 U
2-Methylnaphthalene	0.1975	--	0.077 J	0.063 J	0.39 U	1.5 U	0.4 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG036-SS-03	AL-SG036-SS-04	AL-SG037-SS-01	AL-SG037-SS-02	AL-SG037-SS-03
Naphthalene	0.1975	1100 (c)	0.082 J	0.046 J	0.39 U	1.5 U	0.4 U
Phenanthrene	0.195	7900 (c)	0.4 J	4.1	0.39 U	1.5 U	0.4 U
Pyrene	0.185	8200 (c)	0.66	11	0.39 U	1.5 U	0.055 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.021 U	0.022 U	0.02 U	0.0019 U	0.0041 U
alpha-BHC	0.001175	0.1 (d)	0.021 U	0.022 U	0.02 U	0.0019 U	0.0041 U
beta-BHC	0.001225	0.35 (d)	0.021 U	0.022 U	0.02 U	0.0019 U	0.0041 U
delta-BHC	0.001225	--	0.021 U	0.022 U	0.02 U	0.0019 U	0.0051 J
gamma-BHC	0.0011	0.49 (d)	0.021 U	0.022 U	0.02 U	0.0019 U	0.0018 J
alpha-Chlordane	0.0195	0.49 (d)	0.29	**2.6**	**1.2**	0.013	0.43
gamma-Chlordane	0.01058	0.49 (d)	0.17	**2.8**	**1**	0.007	0.34
4,4'-DDD	0.0064	2.7 (d)	0.28	0.357 J	0.4	0.0037 U	0.015 J
4,4'-DDE	0.115	1.9 (d)	1.2 J	**4.4**	0.34	0.019	0.52 J
4,4'-DDT	0.119	1.9 (d)	**2.1**	**6.4**	1.1 J	0.026	1.2
Dieldrin	0.024	0.04 (d)	**0.18 J**	**1.8 J**	**0.059**	0.011 J	**0.28 J**
Endosulfan I	0.001225	470 (d)	0.021 U	0.0532 J	0.02 U	0.0019 U	0.0041 U
Endosulfan II	0.002375	470 (d)	0.041 U	0.043 U	0.039 U	0.0037 U	0.008 U
Endosulfan Sulfate	0.002275	--	0.041 U	0.043 U	0.039 U	0.00026 J	0.0013 J
Endrin	0.003975	23 (d)	0.041 U	0.142 J	0.039 U	0.0037 U	0.008 U
Endrin Aldehyde	0.00621	--	0.041 U	R	0.039 U	0.0037 U	0.008 U
Endrin Ketone	0.002375	--	0.016 J	0.043 U	0.0058 J	0.0005 J	0.008 U
Heptachlor	0.001225	0.14 (d)	0.021 U	0.0617	0.02 U	0.00038 J	0.0018 J
Heptachlor Epoxide	0.002025	0.07 (d)	0.0092 J	**1.1**	0.0045 J	0.00079 J	0.023
Methoxychlor	0.012	390 (d)	0.017 J	0.22 U	0.015 J	0.019 U	0.014 JB
Toxaphene	0.165	0.58 (d)	2.1 U	44 U	2 U	0.19 U	0.41 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG037-SS-04	AL-SG038-SS-01	AL-SG038-SS-02	AL-SG038-SS-03	AL-SG038-SS-04
Volatile Organic Compounds							
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U
Ethylbenzene	0.00575	27000 (c)	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U
Methylene Chloride	0.00925	85 (c)	0.022 UJ	0.02 UJ	0.014 UJ	0.018 UJ	0.036 U
Tetrachloroethene	0.006	13 (c)	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U
Toluene	0.006	55000 (c)	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U
Xylene	0.006	550000 (c)	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Acenaphthylene	0.1975	27000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Anthracene	0.1975	82000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Benzo(a)anthracene	0.19	0.9 (c)	0.39 U	0.38 U	0.37 U	0.045 J	0.095 J
Benzo(a)pyrene	0.19	0.09 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.089 J
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.39 U	0.043 JH	0.044 JH	0.055 JH	0.25 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 UJ
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.39 U	0.048 JH	0.05 JH	0.058 JH	0.46 UJ
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.054 J	0.1 J	0.073 J	0.061 J	0.46 UJ
Butylbenzylphthalate	0.195	55000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Carbazole	0.1975	32 (d)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Chrysene	0.19	9 (c)	0.39 U	0.38 U	0.038 J	0.043 J	0.12 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 UJ
Dibenzofuran	0.1975	--	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Diethylphthalate	0.1975	220000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Dimethylphthalate	0.1975	780000 (d)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 UJ
Fluoranthene	0.1825	11000 (c)	0.39 U	0.074 J	0.066 J	0.081 J	0.18 J
Fluorene	0.1975	11000 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 UJ
2-Methylnaphthalene	0.1975	--	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U

Key at end of table.

Table 4.1-15

SUMMARY OF ORGANIC RESULTS FOR BACKGROUND RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG037-SS-04	AL-SG038-SS-01	AL-SG038-SS-02	AL-SG038-SS-03	AL-SG038-SS-04
Naphthalene	0.1975	1100 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.46 U
Phenanthrene	0.195	7900 (c)	0.39 U	0.38 U	0.37 U	0.41 U	0.093 J
Pyrene	0.185	8200 (c)	0.39 U	0.058 J	0.046 J	0.051 J	0.23 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.00025 J	0.2 U	0.0096 U	0.0021 U	**0.0381 J**
alpha-BHC	0.001175	0.1 (d)	0.000097 J	0.2 U	0.0096 U	0.0021 U	0.024 U
beta-BHC	0.001225	0.35 (d)	0.0041 U	0.2 U	0.0096 U	0.0021 U	0.024 U
delta-BHC	0.001225	--	0.00022 J	0.2 U	0.0096 U	0.0032 J	0.024 U
gamma-BHC	0.0011	0.49 (d)	0.0005 J	0.2 U	0.00021 J	0.0021 U	0.024 U
alpha-Chlordane	0.0195	0.49 (d)	0.021 J	0.17 J	0.0056 J	0.073	**3.1**
gamma-Chlordane	0.01058	0.49 (d)	0.013 J	0.068 J	0.0052 J	0.026 J	**3.9**
4,4'-DDD	0.0064	2.7 (d)	0.0015 J	0.45 J	0.009 J	0.014 UJN	0.0569 J
4,4'-DDE	0.115	1.9 (d)	0.56	0.64	0.29	0.2	0.524
4,4'-DDT	0.119	1.9 (d)	0.67	**10**	0.16	0.25 JH	0.705 J
Dieldrin	0.024	0.04 (d)	0.00033 J	**0.32 J**	0.025 J	**0.12**	**0.22 J**
Endosulfan I	0.001225	470 (d)	0.0041 U	0.2 U	0.0096 U	0.0021 U	0.024 U
Endosulfan II	0.002375	470 (d)	0.0079 U	0.38 U	0.019 U	0.0041 U	0.046 U
Endosulfan Sulfate	0.002275	--	0.005 J	0.38 U	0.0096 J	0.0041 U	0.046 U
Endrin	0.003975	23 (d)	0.0079 U	0.17 J	0.01 J	0.042 UJN	0.131 J
Endrin Aldehyde	0.00621	--	0.0079 U	0.051 J	0.019 U	0.011 J	R
Endrin Ketone	0.002375	--	0.0005 J	0.38 U	0.0076 J	0.019 J	0.046 U
Heptachlor	0.001225	0.14 (d)	0.0041 U	0.2 U	0.0096 U	0.0021 U	**0.376**
Heptachlor Epoxide	0.002025	0.07 (d)	0.0048 J	0.0052 J	0.00079 J	0.0078 UJN	0.31
Methoxychlor	0.012	390 (d)	0.041 U	2 U	0.096 U	0.021 U	0.24 U
Toxaphene	0.165	0.58 (d)	0.41 U	**10 J**	**0.7 J**	**3 J**	48 U

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-16

SUMMARY OF DIOXIN RESULTS FOR BACKGROUND
RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Sample Number	Concentration
AL-SG026-SS-01	0.0026
AL-SG026-SS-02	0.0005
AL-SG026-SS-03	0.0003
AL-SG026-SS-04	0.00059
AL-SG035-SS-01	0
AL-SG035-SS-02	0
AL-SG035-SS-03	0
AL-SG035-SS-04	0
AL-SG036-SS-01	0.0023
AL-SG036-SS-02	0.0073
AL-SG036-SS-03	0.0025
AL-SG036-SS-04	0.01
AL-SG037-SS-01	0.0016
AL-SG037-SS-02	0.0003
AL-SG037-SS-03	0.001
AL-SG037-SS-04	0.0008
AL-SG038-SS-01	0.0022
AL-SG038-SS-02	0.0073
AL-SG038-SS-03	0.0174
AL-SG038-SS-04	0

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-17

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	52/52	100	--	--	1690	18900	8500	3690	8500	3690	8998	19/52	79000 (c)	0/52
Antimony	25/49	51	3.05	14.4	5.2	87.5	22.9	19.4	13.7	16.8	2.95	25/49	110 (c)	0/49
Arsenic	52/52	100	--	--	1.7	70.7	25.3	18	25.3	18	6.2	47/52	0.37 (c)	52/52
Barium	52/52	100	--	--	71.1	1520	685	433	685	433	215	45/52	14000 (c)	0/52
Beryllium	21/52	40.3	0.14	0.44	0.12	1.3	0.54	0.33	0.28	0.3	0.485	10/52	0.15 (c)	20/52
Cadmium	47/52	90.3	0.72	0.83	0.67	23.9	8.15	6.68	7.41	6.75	0.48	47/52	140 (c)	0/52
Calcium	52/52	100	--	--	3750	66400	26300	13200	26300	13200	9533	47/52	NA	NA
Chromium	52/52	100	--	--	6.08	213	54.2	44	54.2	44	16	45/52	1400 (c)	0/52
Cobalt	52/52	100	--	--	2.7	38.5	13.1	8.52	13.1	8.52	6.55	41/52	2.7 (c)	51/52
Copper	52/52	100	--	--	12.2	5270	623	850	623	850	19.95	51/52	10000 (c)	0/52
Cyanide	36/52	69.2	0.18	1.38	0.19	5.1	1.6	1.3	1.24	1.2	0.295	29/52	5500 (c)	0/52
Iron	52/52	100	--	--	3910	253000	88300	74500	88300	74500	12506.5	46/52	NA	NA
Lead	52/52	100	--	--	37.6	28300	1900	3930	1900	3930	60.5	51/52	400 (c)	34/52
Magnesium	52/52	100	--	--	1030	5070	2690	823	2690	823	3600.5	4/52	NA	NA
Manganese	52/52	100	--	--	88.8	2920	704	526	704	526	323.5	42/52	27000 (c)	0/52
Mercury	45/52	86.5	0.05	0.138	0.15	5.2	1.13	1.17	0.98	1.15	0.06	45/52	82 (c)	0/52
Nickel	51/52	98	14.7	14.7	7	191	59	39.3	58	39.5	15.9	47/52	5500 (c)	0/52
Potassium	52/52	100	--	--	324	4740	1560	943	1560	943	1476	20/52	NA	NA
Selenium	24/52	46.1	0.21	1.28	0.21	2	0.74	0.43	0.51	0.39	0.3575	20/52	820 (c)	0/52
Silver	33/52	63.4	0.29	2.49	0.34	56.7	8.33	10.3	5.54	8.94	0.585	31/52	820 (c)	0/52
Sodium	52/52	100	--	--	42.4	1570	371	320	371	320	117.5	45/52	NA	NA
Thallium	2/44	4.5	0.42	1.8	2.05	2.8	2.42	0.52	0.5	0.48	0.1775	2/44	19 (c)	0/44
Vanadium	52/52	100	--	--	2.23	46.1	22.3	11	22.3	11	23.5	20/52	1800 (c)	0/52
Zinc	52/52	100	--	--	103	7740	1870	1560	1870	1560	126.5	51/52	55000 (c)	0/52

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

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Table 4.1-18

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	3/52	5.7	0.011	0.052	0.009	0.014	0.0113	0.00251	0.00777	0.00366	0.006	3/52	79000 (c)	0/52
Bromomethane	1/52	1.9	0.01	0.018	0.005	0.005	0.005	--	0.00626	0.000795	0.006	0/52	380 (c)	0/52
Carbon Disulfide	1/52	1.9	0.01	0.018	0.006	0.006	0.006	--	0.00626	0.00077	0.006	0/52	27000 (c)	0/52
Chloroform	1/52	1.9	0.01	0.018	0.001	0.001	0.001	--	0.00619	0.00106	0.006	0/52	110 (c)	0/52
1,1-Dichloroethene	7/52	13.4	0.01	0.018	0.001	0.005	0.00257	0.00139	0.00576	0.00153	0.006	0/52	1.1 (c)	0/52
1,2-Dichloroethene	3/52	5.7	0.01	0.018	0.002	0.007	0.00466	0.00251	0.00616	0.000964	0.006	1/52	2700 (c)	0/52
Ethylbenzene	1/52	1.9	0.01	0.018	0.001	0.001	0.001	--	0.00619	0.00106	0.006	0/52	27000 (c)	0/52
Methylene Chloride	22/52	42.3	0.01	0.057	0.001	0.068	0.0138	0.0171	0.0105	0.0118	0.0085	10/52	85 (c)	0/52
Tetrachloroethene	3/52	5.7	0.01	0.018	0.002	0.002	0.002	--	0.006	0.00124	0.006	0/52	13 (c)	0/52
Toluene	16/52	30.7	0.011	0.018	0.001	0.032	0.00618	0.00779	0.00627	0.00426	0.006	4/52	55000 (c)	0/52
1,1,1-Trichloroethane	16/52	30.7	0.01	0.018	0.001	0.005	0.00281	0.00116	0.00522	0.00186	0.006	0/52	25000 (c)	0/52
Xylene	3/52	5.7	0.01	0.018	0.003	0.004	0.00366	0.000577	0.0061	0.000962	0.006	0/52	550000 (c)	0/52
Semivolatile Organic Compounds														
Acenaphthene	26/52	50	0.33	2.1	0.022	0.81	0.143	0.19	0.193	0.184	0.1925	4/52	16000 (c)	0/52
Acenaphthylene	27/52	51.9	0.34	0.88	0.024	2.7	0.182	0.512	0.198	0.368	0.185	4/52	27000 (c)	0/52
Anthracene	42/52	80.7	0.37	0.52	0.029	3	0.352	0.555	0.326	0.501	0.1925	16/52	82000 (c)	0/52
Benzo(a)anthracene	52/52	100	--	--	0.033	21	1.49	3.36	1.49	3.36	0.245	38/52	0.9 (c)	20/52
Benzo(a)pyrene	52/52	100	--	--	0.03	20	1.43	3.16	1.43	3.16	0.28	35/52	0.09 (c)	47/52
Benzo(b)fluoranthene	50/52	96.1	0.38	0.42	0.026	30	1.79	4.5	1.73	4.42	0.36	36/52	0.9 (c)	20/52
Benzo(g,h,i)perylene	51/52	98	0.47	0.47	0.024	13	0.999	1.92	0.985	1.9	0.21	37/52	1100 (c)	0/52
Benzo(k)fluoranthene	31/52	59.6	0.34	0.84	0.033	19	2.11	4.01	1.34	3.21	0.205	26/52	0.9 (c)	16/52
Bis(2-ethylhexyl)phthalate	15/48	31.2	0.044	2.1	0.075	3.1	0.658	0.755	0.366	0.475	0.2025	12/48	46 (c)	0/48
Butylbenzylphthalate	19/52	36.5	0.33	2.1	0.022	0.96	0.209	0.269	0.236	0.203	0.1825	5/52	55000 (c)	0/52
Carbazole	38/52	73	0.33	0.59	0.019	1.1	0.17	0.237	0.183	0.204	0.195	7/52	32 (d)	0/52
4-Chloro-3-methylphenol	1/52	1.9	0.33	2.1	0.032	0.032	0.032	--	0.228	0.129	0.195	0/52	--	NA
2-Chlorophenol	1/52	1.9	0.33	2.1	0.029	0.029	0.029	--	0.228	0.129	0.195	0/52	1400 (c)	0/52
Chrysene	52/52	100	--	--	0.035	21	1.53	3.25	1.53	3.25	0.3	36/52	9 (c)	2/52
Dibenz(a,h)anthracene	12/52	23	0.33	2.1	0.05	7.6	0.848	2.13	0.379	1.03	0.195	7/52	0.09 (c)	8/52
Dibenzofuran	21/52	40.3	0.33	2.1	0.018	0.47	0.107	0.126	0.186	0.156	0.1925	4/52	--	NA
1,4-Dichlorobenzene	1/52	1.9	0.33	2.1	0.17	0.17	0.17	--	0.227	0.123	0.195	0/52	27 (c)	0/52
Diethylphthalate	9/52	17.3	0.33	0.98	0.021	0.12	0.0624	0.0428	0.196	0.0882	0.195	0/52	220000 (c)	0/52
2,4-Dimethylphenol	2/52	3.8	0.33	2.1	0.021	0.049	0.035	0.0198	0.226	0.132	0.195	0/52	5500 (c)	0/52

Key at end of table.

Table 4.1-18

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
di-n-Butyl Phthalate	24/52	46.1	0.36	2.1	0.026	1.1	0.173	0.254	0.216	0.213	0.1925	6/52	7800 (d)	0/52
di-n-Octyl Phthalate	14/52	26.9	0.33	2.1	0.018	0.14	0.0522	0.0393	0.184	0.145	0.195	0/52	1600 (d)	0/52
Fluoranthene	52/52	100	--	--	0.042	16	1.98	3.22	1.98	3.22	0.345	38/52	11000 (c)	0/52
Fluorene	27/52	51.9	0.33	2.1	0.02	0.78	0.111	0.158	0.176	0.176	0.1925	3/52	11000 (c)	0/52
Indeno(1,2,3-cd)pyrene	49/52	94.2	0.43	0.47	0.029	14	0.997	2.09	0.952	2.04	0.21	34/52	0.9 (c)	12/52
2-Methylnaphthalene	21/52	40.3	0.33	2.1	0.02	0.19	0.0626	0.0482	0.168	0.15	0.195	0/52	--	NA
2-Methylphenol	1/52	1.9	0.33	2.1	0.041	0.041	0.041	--	0.229	0.129	0.195	0/52	14000 (c)	0/52
4-Methylphenol	2/52	3.8	0.33	2.1	0.021	0.043	0.032	0.0155	0.226	0.132	0.195	0/52	14000 (c)	0/52
Naphthalene	24/52	46.1	0.33	2.1	0.021	0.39	0.0949	0.086	0.178	0.154	0.195	4/52	1100 (c)	0/52
Phenanthrene	49/52	94.2	0.37	0.43	0.033	6.9	0.97	1.56	0.926	1.52	0.21	35/52	7900 (c)	0/52
Pyrene	52/52	100	--	--	0.038	34	2.49	6.05	2.49	6.05	0.355	40/52	8200 (c)	0/52
Pesticides/PCBs														
Aldrin	13/52	25	0.0017	0.19	0.00176	0.00886	0.00465	0.00228	0.00394	0.0131	0.001025	13/52	0.038 (d)	0/52
Aroclor 1248	1/52	1.9	0.033	3.8	2.6	2.6	2.6	--	0.145	0.5	0.0195	1/52	0.083 (d)	1/52
Aroclor 1254	6/52	11.5	0.033	3.8	0.045	1.5	0.562	0.513	0.158	0.42	0.0195	6/52	0.083 (d)	5/52
Aroclor 1260	9/52	17.3	0.033	3.8	0.087	0.74	0.251	0.229	0.144	0.374	0.01975	9/52	0.083 (d)	9/52
alpha-BHC	1/52	1.9	0.0017	0.19	0.00102	0.00102	0.00102	--	0.00305	0.0131	0.001	1/52	0.1 (d)	0/52
beta-BHC	6/52	11.5	0.0017	0.19	0.00235	0.00718	0.00404	0.00183	0.00339	0.0131	0.001	6/52	0.35 (d)	0/52
delta-BHC	6/52	11.5	0.0017	0.19	0.00219	0.0069	0.00365	0.00169	0.00335	0.0131	0.001	6/52	--	NA
gamma-BHC	5/52	9.6	0.0017	0.19	0.00251	0.00425	0.00334	0.000866	0.00327	0.013	0.001	5/52	0.49 (d)	0/52
alpha-Chlordane	44/52	84.6	0.0017	0.19	0.00219	1.3	0.0474	0.195	0.042	0.18	0.00181	44/52	0.49 (d)	1/52
gamma-Chlordane	39/52	75	0.0017	0.19	0.00249	0.11	0.0177	0.0217	0.0157	0.0228	0.001575	39/52	0.49 (d)	0/52
4,4'-DDD	35/52	67.3	0.0033	0.0059	0.0051	18	0.545	3.03	0.367	2.49	0.00195	35/52	2.7 (d)	1/52
4,4'-DDE	39/52	75	0.0033	0.0061	0.00415	0.82	0.115	0.216	0.0871	0.193	0.002075	39/52	1.9 (d)	0/52
4,4'-DDT	44/52	84.6	0.0039	0.057	0.00585	1.2	0.122	0.233	0.105	0.218	0.008225	39/52	1.9 (d)	0/52
Dieldrin	25/52	48	0.0033	0.37	0.00436	2.4	0.112	0.477	0.0586	0.332	0.01225	12/52	0.04 (d)	3/52
Endosulfan I	1/52	1.9	0.0017	0.19	0.0078	0.0078	0.00779	--	0.00337	0.0131	0.001	1/52	470 (d)	0/52
Endosulfan II	25/52	48	0.0034	0.0061	0.0041	0.37	0.0388	0.0857	0.0197	0.0616	0.001975	25/52	470 (d)	0/52
Endosulfan Sulfate	11/52	21.1	0.0033	0.37	0.0041	0.026	0.0107	0.00745	0.00776	0.0256	0.00195	11/52	--	NA
Endrin	36/52	69.2	0.0035	0.0061	0.0037	0.54	0.035	0.0902	0.0249	0.0763	0.002075	36/52	23 (d)	0/52
Endrin Aldehyde	35/52	67.3	0.0033	0.37	0.0055	1.1	0.0546	0.183	0.0409	0.153	0.005135	35/52	--	NA
Endrin Ketone	12/52	23	0.0033	0.37	0.00428	0.23	0.0399	0.0693	0.0147	0.0432	0.001975	12/52	--	NA
Heptachlor	18/52	34.6	0.0017	0.19	0.0024	0.0098	0.00415	0.00214	0.00412	0.013	0.001	18/52	0.14 (d)	0/52

Key at end of table.

Table 4.1-18

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
Heptachlor Epoxide	19/52	36.5	0.0017	0.19	0.00192	0.0525	0.00833	0.0114	0.00561	0.0147	0.001025	19/52	0.07 (d)	NA
Methoxychlor	8/52	15.3	0.017	1.9	0.026	0.66	0.135	0.215	0.0495	0.157	0.01	8/52	390 (d)	0/52

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-19

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL001-SS-01	AL-GL002-SS-01	AL-GL003-SS-01	AL-GL004-SS-01	AL-GL005-SS-01
Aluminum	8998	79000 (c)	1992	9065 J	10390	18348 J	11609 J
Antimony	2.95	110 (c)	4 UJ	4.5 UJ	6.9 UJ	7.2 UJ	10.3 J
Arsenic	6.2	0.37 (c)	1.7 J	14.4	14.5 J	11.1	33.9
Barium	215	14000 (c)	80.1	183	474	363	725
Beryllium	0.485	0.15 (c)	0.14 U	0.4 J	0.25 U	0.75 J	0.18 UJ
Cadmium	0.48	140 (c)	0.67 JL	0.97 JL	7.1 J	1.5 JL	12
Calcium	9533	NA	56633 J	18967 J	13166 J	12210 J	32194 J
Chromium	16	1400 (c)	7.1 J	15.6 J	31.1 J	24.1 J	66.2 J
Cobalt	6.55	2.7 (c)	2.7	7.2	12.6	8.1	15.1
Copper	19.95	10000 (c)	12.2	42.2	737	78.2	647
Cyanide	0.295	5500 (c)	0.19	0.18 U	0.79	0.29 U	0.25 JL
Iron	12506.5	NA	3908 J	13305 J	24654 J	22241 J	114153 J
Lead	60.5	400 (c)	37.6 J	110 J	408 J	148 J	1795 J
Magnesium	3600.5	NA	1030	3295 J	3265	4585 J	3234 J
Manganese	323.5	27000 (c)	127	275 J	329	399 J	550 J
Mercury	0.06	82 (c)	0.05 U	0.18	0.34	0.4	0.52
Nickel	15.9	5500 (c)	7	15.9 J	26.2	27.1 J	75 J
Potassium	1476	NA	499	1993	2610	4740	2149
Selenium	0.3575	820 (c)	0.21 UJ	0.36 J	1.2 J	1 J	0.26 UJ
Silver	0.585	820 (c)	0.29 U	0.32 U	0.52	0.72 UC	7.5
Sodium	117.5	NA	371 J	169	306 J	275	385
Thallium	0.1775	19 (c)	0.42 U	0.48 U	0.72 UJ	0.72 U	0.52 U
Vanadium	23.5	1800 (c)	6.6	21.9 J	28.7	46.1 J	31.1 J
Zinc	126.5	55000 (c)	103 J	161 J	1252 J	408 J	2095 J

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL006-SS-01	AL-GL007-SS-01	AL-GL008-SS-01	AL-GL009-SS-01	AL-GL010-SS-01
Aluminum	8998	79000 (c)	5977	5337	13421	14572	7189
Antimony	2.95	110 (c)	5.2 UJ	6.9 J	18.8	63.7	21.6
Arsenic	6.2	0.37 (c)	**19.5 J**	**2.4 JL**	**20.8 JL**	**31.8 JL**	**48.3 JL**
Barium	215	14000 (c)	234	197	1048	1242	809
Beryllium	0.485	0.15 (c)	0.19 U	**0.34**	**0.34**	**0.35**	0.12
Cadmium	0.48	140 (c)	1.3 JL	1.1	12.7	15.2	5.3
Calcium	9533	NA	25203 J	13067	30989	33880	34936
Chromium	16	1400 (c)	17.8 J	10.1	85.6	90.8	87.6
Cobalt	6.55	2.7 (c)	**6**	**5.3**	**27.8**	**25.2**	**38.5**
Copper	19.95	10000 (c)	47.5	28.5	674	1562	559
Cyanide	0.295	5500 (c)	0.25 JL	1.1	1.1	3	0.79
Iron	12506.5	NA	13447 J	11834	135394	153515	252910
Lead	60.5	400 (c)	**185 J**	110	**2167**	**28307**	**1917**
Magnesium	3600.5	NA	2656	2758	2965	3183	2416
Manganese	323.5	27000 (c)	555	264	1214	1336	1642
Mercury	0.06	82 (c)	0.82	0.19	1.4	0.93999	2.3
Nickel	15.9	5500 (c)	17	14.7	80	82	110
Potassium	1476	NA	1430	1267	2295	3178	956
Selenium	0.3575	820 (c)	0.6 J	0.44 JL	0.62 JL	1.2 JL	0.32 JL
Silver	0.585	820 (c)	0.37 U	0.92	56.7	16.6	15.5
Sodium	117.5	NA	179 J	52.6	614	1574	356
Thallium	0.1775	19 (c)	0.54 UJ	R	R	R	R
Vanadium	23.5	1800 (c)	18.8	14.9	20	20.2	3.8 JL
Zinc	126.5	55000 (c)	872 J	400	2346	2479	2338

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL011-SS-01	AL-GL012-SS-01	AL-GL013-SS-01	AL-GL014-SS-01	AL-GL021-SS-01
Aluminum	8998	79000 (c)	6498	10057	9358	8150	6587 J
Antimony	2.95	110 (c)	7.9 J	43	29.1 J	31	16.7 J
Arsenic	6.2	0.37 (c)	**27.3 J**	**38.6 JL**	**31.2 J**	**36.6 J**	**39.5**
Barium	215	14000 (c)	797	1280	1520 J	1170 J	1523
Beryllium	0.485	0.15 (c)	0.17 U	**0.23**	0.41 UC	0.44 UC	0.17 UJ
Cadmium	0.48	140 (c)	13.9 J	15	16.2	11.8	23.9
Calcium	9533	NA	42772 J	32656	41047	47800	25725 J
Chromium	16	1400 (c)	51.1 J	111	150	91.7	155 J
Cobalt	6.55	2.7 (c)	**13.1**	**30.8**	**35.5**	**26.3**	**18.3**
Copper	19.95	10000 (c)	597	1072	1023	2740	1653
Cyanide	0.295	5500 (c)	3.2	1.45	4.8	2.1	4
Iron	12506.5	NA	68872 J	220000	217864 J	151000 J	135742 J
Lead	60.5	400 (c)	**1556 J**	**3558**	**3394**	**2600**	**3068 J**
Magnesium	3600.5	NA	2662	2877	2585	3290	2982 J
Manganese	323.5	27000 (c)	605	2918	1730	1141	945 J
Mercury	0.06	82 (c)	1	5.2	5.1 J	3.2 J	2.8
Nickel	15.9	5500 (c)	54.1	111	130 J	109 J	79.8 J
Potassium	1476	NA	1493	1854	1390	1303	1066
Selenium	0.3575	820 (c)	1.2 UJ	0.4 JL	0.64 J	0.88 J	0.25 UJ
Silver	0.585	820 (c)	4.9	17.2	17.9	14.5	10.2
Sodium	117.5	NA	513 J	498	453	273	307
Thallium	0.1775	19 (c)	0.47 U	R	R	R	0.5 UJ
Vanadium	23.5	1800 (c)	19	16.1	37.9	28.1	34.1 J
Zinc	126.5	55000 (c)	1996 J	4564	4114	3555	7743 J

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL022-SS-01	AL-GL023-SS-01	AL-GL028-SS-01	AL-GL029-SS-01	AL-GL030-SS-01
Aluminum	8998	79000 (c)	7241 J	1693.596	6578	13748 J	3683.671
Antimony	2.95	110 (c)	22 J	12.889	5.1 UJ	5.1 UJ	26.045
Arsenic	6.2	0.37 (c)	**30.2**	**3.685 JL**	**28.3 J**	**9**	**14.689**
Barium	215	14000 (c)	961	71.059	683	277	528.453
Beryllium	0.485	0.15 (c)	0.16 UJ	**0.269**	0.18 U	**0.83 J**	0.213 U
Cadmium	0.48	140 (c)	17.9	2.097 JL	7.4 J	1 JL	6.99
Calcium	9533	NA	27642 J	3754.95	28540 J	10345 J	16130.843
Chromium	16	1400 (c)	68 J	6.079	38.8 J	16.5 J	43.057
Cobalt	6.55	2.7 (c)	**18.9**	**3.434**	**13.6**	**5.7**	**6.897**
Copper	19.95	10000 (c)	804	26.972	339	44.5 J	223.458
Cyanide	0.295	5500 (c)	2.3	1.01 U	2 JL	0.23	1.067 U
Iron	12506.5	NA	144435 J	6423.636	91058 J	18917 J	38768.41
Lead	60.5	400 (c)	**2005 J**	84.796	**1334 J**	131 J	**1074.963**
Magnesium	3600.5	NA	2176 J	1438.424	2085	3398 J	1716.99
Manganese	323.5	27000 (c)	867 J	88.768	671	134 J	337.481
Mercury	0.06	82 (c)	1.3	0.101 U	1.1	0.28	0.176
Nickel	15.9	5500 (c)	79 J	11.665	52.8	24.3 J	41.825
Potassium	1476	NA	864	324.222 J	963	2432	508.879 J
Selenium	0.3575	820 (c)	0.41 J	0.606 U	0.27 UJ	0.54 J	0.64 U
Silver	0.585	820 (c)	6.3	1.818 U	3.3	0.36 U	5.274
Sodium	117.5	NA	292	42.416 JL	278 J	104 JH	98.593 JL
Thallium	0.1775	19 (c)	0.46 UJ	0.808 U	0.54 U	0.74 UC	0.854 U
Vanadium	23.5	1800 (c)	21 J	8.64	14.6	33.2 J	18.107
Zinc	126.5	55000 (c)	2404 J	149.364	1271 J	209 J	1927.577

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL035-SS-01	AL-GL036-SS-01	AL-GL037-SS-01	AL-GL038-SS-01	AL-GL040-SS-01
Aluminum	8998	79000 (c)	4114.607	3075 J	3433.265	6940.024	7263
Antimony	2.95	110 (c)	11.685 U	87.5 J	10.744 U	12.425 UJ	18.5 J
Arsenic	6.2	0.37 (c)	**11.544**	**5.3**	**10.969**	**70.719**	**58.2 J**
Barium	215	14000 (c)	329.618	456	455.826	812.449	1081
Beryllium	0.485	0.15 (c)	**0.258**	**1.3 J**	0.207 U	0.239 U	0.23 U
Cadmium	0.48	140 (c)	1.82 JL	16.9	1.855 JL	7.147 JL	12.7 J
Calcium	9533	NA	8766.517	15844 J	28245.868	40420.55	25430
Chromium	16	1400 (c)	21.849	129 J	26.866	50.55	99.2
Cobalt	6.55	2.7 (c)	**6.4**	**26.2**	**8.192**	**10.206**	**8.5**
Copper	19.95	10000 (c)	149.721	764 J	374.711	388.602	693 J
Cyanide	0.295	5500 (c)	1.124 U	1.3	1.033 U	1.195 U	1.6
Iron	12506.5	NA	24301.124	221653 J	53411.157	96798.088	174988
Lead	60.5	400 (c)	**615.618**	**843 J**	**754.07**	**2289.869**	**3965 J**
Magnesium	3600.5	NA	2390.787	1173 J	1899.504	2642.772	2549
Manganese	323.5	27000 (c)	331.82	1546 J	368.43	736.416	893 J
Mercury	0.06	82 (c)	0.787	0.9	0.553	0.155	1.52 J
Nickel	15.9	5500 (c)	23.706	191 J	84.326	61.396	123
Potassium	1476	NA	816.494 J	333	352.789 J	1281.816 J	1158
Selenium	0.3575	820 (c)	0.674 U	0.21 J	0.62 U	0.717 U	1.17 U
Silver	0.585	820 (c)	2.023 U	0.77 UC	1.86 U	6.81	8.9
Sodium	117.5	NA	120.245 JL	117	337.665	444.516 JL	394
Thallium	0.1775	19 (c)	2.052	0.47 UJC	0.826 U	0.956 U	1.64 U
Vanadium	23.5	1800 (c)	16.805	25.4 J	15.438	36.356	9.43
Zinc	126.5	55000 (c)	755.64	2028 J	3598.141	2793.309	2577

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL043-SS-01	AL-GL044-SS-01	AL-GL045-SS-01	AL-GL046-SS-01	AL-GL047-SS-01
Aluminum	8998	79000 (c)	5915	8650	8110	9320	6253
Antimony	2.95	110 (c)	4.3 UJ	5.6 J	17.3 J	12.25 UJ	5.4 UJ
Arsenic	6.2	0.37 (c)	**7.6 J**	**10.6**	**36.9 J**	**35.706**	**18.4 J**
Barium	215	14000 (c)	208	399	509	967.02	497 J
Beryllium	0.485	0.15 (c)	0.15 U	0.14 U	0.15 U	0.236 U	0.33 UC
Cadmium	0.48	140 (c)	2 JL	5.7 J	10.8 J	1.621 JL	2.9
Calcium	9533	NA	8652 J	20993	25925	36000	11252
Chromium	16	1400 (c)	20.9 J	27.7	50.8	61.039	28.3
Cobalt	6.55	2.7 (c)	**7.2**	**7.9**	**12.9**	**13.684**	**9.8**
Copper	19.95	10000 (c)	81.7	1625 J	621 J	969.046	216
Cyanide	0.295	5500 (c)	0.21 JL	0.25	1.4	1.178 U	0.55 U
Iron	12506.5	NA	23949 J	49781	131783	135000	42438 J
Lead	60.5	400 (c)	**402 J**	**905**	**1759**	**2591.519**	**672**
Magnesium	3600.5	NA	3357	1370	1707	2330	2740
Manganese	323.5	27000 (c)	345	442	705	1082.85	424
Mercury	0.06	82 (c)	0.2	0.37	0.51	0.536	0.4 J
Nickel	15.9	5500 (c)	23.9	41	63	70.707	31.2 J
Potassium	1476	NA	895	574	726	1300 J	1159
Selenium	0.3575	820 (c)	0.23 J	0.32 J	0.77	0.707 U	0.56 J
Silver	0.585	820 (c)	0.34	1.8	2.1	2.12 U	4.6
Sodium	117.5	NA	110 J	568 J	1320 J	1390	181
Thallium	0.1775	19 (c)	0.45 UJ	0.42 UJ	0.45 U	0.94199 U	R
Vanadium	23.5	1800 (c)	17.6	8.7	13.3	23.802	14.5
Zinc	126.5	55000 (c)	562 J	1422 J	3325 J	3288.575	923

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL053-SS-01	AL-GL054-SS-01	AL-GL055-SS-01	AL-GL061-SS-01	AL-GL062-SS-01
Aluminum	8998	79000 (c)	9122	7312.365	8507	7954	9255.583
Antimony	2.95	110 (c)	41 J	12.485 U	7.6 J	25.7 J	12.903 U
Arsenic	6.2	0.37 (c)	**60.4 J**	**5.258**	**28**	**50.5 J**	**8.35**
Barium	215	14000 (c)	1018 J	265.594	696	1410	269.851
Beryllium	0.485	0.15 (c)	0.18 U	**0.603**	0.18 U	0.18 U	**1.156 JL**
Cadmium	0.48	140 (c)	8.7	0.72 U	8.8 J	18.1 J	0.744 U
Calcium	9533	NA	22818	21823.529	66380	19868	30042.184
Chromium	16	1400 (c)	99	19.366	36.2	71.2	16.496
Cobalt	6.55	2.7 (c)	27	**5.397**	**10.5**	20	**7.531 JL**
Copper	19.95	10000 (c)	787 J	32.603	547 J	594 J	52.854
Cyanide	0.295	5500 (c)	1.6	1.201 U	0.88	1.5	1.241 U
Iron	12506.5	NA	242691	11672.749	110474	162302	18537.221
Lead	60.5	400 (c)	**2375**	90.094	**1305**	**3865**	194.588
Magnesium	3600.5	NA	1745	2509.964	2139	2067	3173.449
Manganese	323.5	27000 (c)	1248 J	199.767	724	847	288.189
Mercury	0.06	82 (c)	1.9	0.12 U	0.79	1.9	0.124 U
Nickel	15.9	5500 (c)	103	18.204	49.6	75.6	23.975
Potassium	1476	NA	716	1586.315 J	1086	1081	2027.196
Selenium	0.3575	820 (c)	2 J	0.956	0.26 U	0.26 UJ	0.744 U
Silver	0.585	820 (c)	16.4 J	2.161 U	5.6	4.6	2.233 U
Sodium	117.5	NA	456	158.351 JL	1035 J	263 J	212.012 JL
Thallium	0.1775	19 (c)	2.8 J	0.96 U	0.52 UJ	0.52 UJ	0.993 U
Vanadium	23.5	1800 (c)	11.2	21.911	12.5	39.2	32.836
Zinc	126.5	55000 (c)	4163 J	132.85	1935 J	3681 J	255.161

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL063-SS-01	AL-GL069-SS-01	AL-GL070-SS-01	AL-GL071-SS-01	AL-GL072-SS-01
Aluminum	8998	79000 (c)	7756	7651	7684.87	13512.951	18896.48
Antimony	2.95	110 (c)	28.7 J	5.2 J	12.293 U	13.885 U	13.559 U
Arsenic	6.2	0.37 (c)	**14.1**	**30.5 J**	**48.033**	**19.976**	**10.357**
Barium	215	14000 (c)	909	1247	1490.142	450.948	381.121
Beryllium	0.485	0.15 (c)	0.18 U	0.16 U	0.236 U	**0.844**	**1.02**
Cadmium	0.48	140 (c)	6.4 J	20.7 J	6.494 JL	0.801 U	0.782 U
Calcium	9533	NA	33134	42449 J	40657.21	15272.096	18773.142
Chromium	16	1400 (c)	43.6	103 J	80.333	36.053	22.628
Cobalt	6.55	2.7 (c)	**9**	**18.1**	**17.012**	**8.387**	**9.528**
Copper	19.95	10000 (c)	5273 J	810	679.078	170.04	72.874
Cyanide	0.295	5500 (c)	0.91	1.2 JL	2.01	1.736	1.304 U
Iron	12506.5	NA	57502	127111 J	147865.248	43062.75	22738.462
Lead	60.5	400 (c)	**1824**	**3883 J**	**2485.106**	391.509	163.656
Magnesium	3600.5	NA	2548	3354	2261.466	3240.32	5069.1
Manganese	323.5	27000 (c)	524	801	976.95	357.09	411.03
Mercury	0.06	82 (c)	1.7	1.5	1.98	0.307	0.13 U
Nickel	15.9	5500 (c)	37.6	109	80.837	69.995	33.16
Potassium	1476	NA	1444	1033	1647.14 J	2496.422 J	3698.827 J
Selenium	0.3575	820 (c)	0.27 UJ	0.24 UJ	0.709 U	0.801 U	1.189
Silver	0.585	820 (c)	2.2	5.9	2.128 U	2.403 U	2.347 U
Sodium	117.5	NA	404 J	363 J	656.147	193.148 JL	294.576 JL
Thallium	0.1775	19 (c)	0.54 UJ	0.48 U	0.946 U	1.068 U	1.043 U
Vanadium	23.5	1800 (c)	19	27.1	42.759	41.808	42.597
Zinc	126.5	55000 (c)	1734 J	3162	3354.61	900.481	322.842

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL078-SS-01	AL-GL079-SS-01	AL-GL080-SS-01	AL-GL081-SS-01	AL-GL086-SS-01
Aluminum	8998	79000 (c)	7460	6793	17362	10077.455	6479
Antimony	2.95	110 (c)	7.5 J	4.42 UCJ	R	14.385 U	11.6 J
Arsenic	6.2	0.37 (c)	**28.9 J**	**57.7 J**	**9.7**	**22.307**	**23.9 J**
Barium	215	14000 (c)	791	1385	427	255.71	858
Beryllium	0.485	0.15 (c)	0.16 U	0.25 U	0.21 U	**0.573**	0.17 U
Cadmium	0.48	140 (c)	10.8 J	13.8 J	1.9 JL	0.83 U	9.4 J
Calcium	9533	NA	28424 J	39722	16440	21012.448	31856 J
Chromium	16	1400 (c)	46.2 J	213	31.2	11.58	53.2 J
Cobalt	6.55	2.7 (c)	**13.1**	**12.1**	**10.5**	**5.591**	**13.8**
Copper	19.95	10000 (c)	536	920 J	128 J	41.203	620
Cyanide	0.295	5500 (c)	0.88 JL	4.3	5.1	1.383 U	1.2
Iron	12506.5	NA	101309 J	184637	54184	13919.502	74472 J
Lead	60.5	400 (c)	**1555 J**	**3607 J**	304	110.877	**1775 J**
Magnesium	3600.5	NA	3438	2329	3953	3363.209	2603
Manganese	323.5	27000 (c)	781	1199 J	559	218.855	574
Mercury	0.06	82 (c)	0.29	2.77 J	0.54	0.138 U	0.75
Nickel	15.9	5500 (c)	61.2	91.6	35.6	21.895	74.7
Potassium	1476	NA	1080	994	4010	3008.299 J	1221
Selenium	0.3575	820 (c)	0.23 UJ	1.27 U	1.5 JL	0.863	0.25 UJ
Silver	0.585	820 (c)	4.7	11.6	1.1	2.49 U	4.1
Sodium	117.5	NA	531 J	309	120 JL	202.34 JL	493 J
Thallium	0.1775	19 (c)	0.46 U	1.78 U	0.62 U	1.64 UC	0.51 UJ
Vanadium	23.5	1800 (c)	18.7	2.23	42	25.505	19.9
Zinc	126.5	55000 (c)	2797 J	2775	577 J	183.001	2062 J

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL087-SS-01	AL-GL088-SS-01	AL-GL089-SS-01	AL-GL090-SS-01	AL-GL095-SS-01
Aluminum	8998	79000 (c)	9804	9805	8072	7142	5342
Antimony	2.95	110 (c)	4.01 UCJ	R	3.22 UJ	3.05 UJ	R
Arsenic	6.2	0.37 (c)	**63.1 J**	**8**	**7.55 J**	**54.4 J**	**20.7**
Barium	215	14000 (c)	1458	373	143	192	418
Beryllium	0.485	0.15 (c)	**0.5**	**0.27**	**0.28**	**0.32**	0.17 U
Cadmium	0.48	140 (c)	23.7 J	1.5 JL	1.05 J	1.41 J	1.1 J
Calcium	9533	NA	43274	25094	6073	5811	21690
Chromium	16	1400 (c)	104	19.4	12	23.9	12.7
Cobalt	6.55	2.7 (c)	**20.3**	**6.7**	**4.97**	**5.35**	**4.1**
Copper	19.95	10000 (c)	1235 J	104 J	30.1 J	75.3 J	57.7 J
Cyanide	0.295	5500 (c)	1.36	0.47	0.62 U	0.59 U	1.9
Iron	12506.5	NA	231991	20010	10910	22158	11343
Lead	60.5	400 (c)	**3251 J**	276	60.9 J	187 J	290
Magnesium	3600.5	NA	2799	3369	2324	1451	2453
Manganese	323.5	27000 (c)	1565 J	259	338 J	502 J	197
Mercury	0.06	82 (c)	1.73 J	0.27	0.12 UJ	0.15 J	0.95
Nickel	15.9	5500 (c)	119	25.5	14.7 UC	17.8 JH	16.8
Potassium	1476	NA	1363	2164	1829	1215	1049
Selenium	0.3575	820 (c)	1.28 U	0.68999 JL	1.24 U	1.17 U	0.24 UJ
Silver	0.585	820 (c)	12.3	0.77	0.75 UC	1.42 UC	0.33 U
Sodium	117.5	NA	326	173	208	201	90.9 JL
Thallium	0.1775	19 (c)	1.8 U	0.55 UJ	1.73 UC	1.64 U	0.48 UJ
Vanadium	23.5	1800 (c)	2.67	25.4	21	19.8	15.4
Zinc	126.5	55000 (c)	3383	394 J	156	245	420 J

Key at end of table.

Table 4.1-20

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL096-SS-01	AL-GL097-SS-01			
Aluminum	8998	79000 (c)	12622	8994			
Antimony	2.95	110 (c)	3.32 UJ	7.5 J			
Arsenic	6.2	0.37 (c)	8.22	14.5			
Barium	215	14000 (c)	368 J	943			
Beryllium	0.485	0.15 (c)	0.71	0.17 U			
Cadmium	0.48	140 (c)	1.7 J	10.4 J			
Calcium	9533	NA	15092	32033			
Chromium	16	1400 (c)	21.8 J	56.3			
Cobalt	6.55	2.7 (c)	6.73	13.7			
Copper	19.95	10000 (c)	97.1 J	753 J			
Cyanide	0.295	5500 (c)	0.64 U	0.29			
Iron	12506.5	NA	19983	108549			
Lead	60.5	400 (c)	261 J	1553			
Magnesium	3600.5	NA	4403	2775			
Manganese	323.5	27000 (c)	385	630			
Mercury	0.06	82 (c)	0.16	0.22			
Nickel	15.9	5500 (c)	23.7 J	56.8			
Potassium	1476	NA	2675	1915			
Selenium	0.3575	820 (c)	1.28 U	0.25 U			
Silver	0.585	820 (c)	1.33 J	2.5			
Sodium	117.5	NA	236 J	243 J			
Thallium	0.1775	19 (c)	1.79 U	0.51 U			
Vanadium	23.5	1800 (c)	30.5	23.3			
Zinc	126.5	55000 (c)	330 J	2367 J			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

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Table 4.1-21

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL001-SS-01	AL-GL002-SS-01	AL-GL003-SS-01	AL-GL004-SS-01	AL-GL005-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.019 UJ
Bromomethane	0.006	380 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.012 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.012 U
Chloroform	0.006	110 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.012 U
1,1-Dichloroethene	0.006	1.1 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.012 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.012 U	0.018 U	0.018 U	0.012 U
Ethylbenzene	0.006	27000 (c)	0.011 UJL	0.012 UJL	0.018 UJL	0.018 UJL	0.012 UJL
Methylene Chloride	0.0085	85 (c)	0.055 J	0.012 U	0.018 U	0.002 J	0.012 U
Tetrachloroethene	0.006	13 (c)	0.011 UJL	0.012 U	0.018 UJL	0.018 UJL	0.012 UJL
Toluene	0.006	55000 (c)	0.011 UJL	0.002 J	0.018 UJL	0.003 J	0.002 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.011 U	0.012 U	0.018 U	0.018 UJL	0.012 U
Xylene	0.006	550000 (c)	0.011 UJL	0.012 UJL	0.018 UJL	0.018 UJL	0.012 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.036 J	0.1 J	0.033 J	0.59 U	0.41 U
Acenaphthylene	0.185	27000 (c)	0.38 U	0.072 J	0.038 J	0.05 J	0.086 J
Anthracene	0.1925	82000 (c)	0.1 J	0.24 J	0.1 J	0.067 J	0.14 J
Benzo(a)anthracene	0.245	0.9 (c)	0.38	0.79	0.39 J	0.19 J	0.55
Benzo(a)pyrene	0.28	0.09 (c)	**0.37 J**	**0.64**	**0.56 J**	**0.23 J**	**0.53**
Benzo(b)fluoranthene	0.36	0.9 (c)	0.65	**1.3 J**	0.9	0.26 J	**1.3**
Benzo(g,h,i)perylene	0.21	1100 (c)	0.34 J	0.51	0.55 J	0.16 J	0.47
Benzo(k)fluoranthene	0.205	0.9 (c)	0.38 U	0.4 UJL	0.61 U	0.28 J	0.41 UJL
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Butylbenzylphthalate	0.1825	55000 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Carbazole	0.195	32 (d)	0.072 J	0.16 J	0.068 J	0.59 U	0.048 J
4-Chloro-3-methylphenol	0.195	--	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
2-Chlorophenol	0.195	1400 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Chrysene	0.3	9 (c)	0.45	0.77	0.53 J	0.26 J	0.62
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.38 U	0.4 U	0.61 U	0.071 J	0.21 J

Key at end of table.

Table 4.1-21

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL001-SS-01	AL-GL002-SS-01	AL-GL003-SS-01	AL-GL004-SS-01	AL-GL005-SS-01
Dibenzofuran	0.1925	--	0.024 J	0.062 J	0.61 U	0.59 U	0.41 U
1,4-Dichlorobenzene	0.195	27 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Diethylphthalate	0.195	220000 (c)	0.38 U	0.021 J	0.084 J	0.59 U	0.41 U
2,4-Dimethylphenol	0.195	5500 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.38 U	0.4 U	0.058 J	0.74	0.41 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Fluoranthene	0.345	11000 (c)	0.7	1	0.74	0.34 J	0.77
Fluorene	0.1925	11000 (c)	0.032 J	0.12 J	0.61 U	0.59 U	0.024 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.27 J	0.46	0.41 J	0.14 J	0.43
2-Methylnaphthalene	0.195	--	0.049 J	0.043 J	0.61 U	0.59 U	0.41 U
2-Methylphenol	0.195	14000 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
4-Methylphenol	0.195	14000 (c)	0.38 U	0.4 U	0.61 U	0.59 U	0.41 U
Naphthalene	0.195	1100 (c)	0.029 J	0.078 J	0.61 U	0.04 J	0.41 U
Phenanthrene	0.21	7900 (c)	0.4	0.96	0.37 J	0.21 J	0.37 J
Pyrene	0.355	8200 (c)	0.53	1.2	0.67	0.45 J	0.87 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0022 J
Aroclor 1248	0.0195	0.083 (d)	0.037 U	0.04 U	0.061 U	0.059 U	0.041 U
Aroclor 1254	0.0195	0.083 (d)	0.037 U	0.04 U	0.061 U	0.059 U	0.041 U
Aroclor 1260	0.01975	0.083 (d)	0.037 U	0.04 U	0.061 U	0.59 U	**0.15 N**
alpha-BHC	0.001	0.1 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0021 U
beta-BHC	0.001	0.35 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0037 JT
delta-BHC	0.001	--	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0021 U
gamma-BHC	0.001	0.49 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0021 U
alpha-Chlordane	0.00181	0.49 (d)	0.0019 U	0.0051 JL	0.00579 J	0.005 J	0.024 J
gamma-Chlordane	0.001575	0.49 (d)	0.0026 J	0.0052 JL	0.00432 J	0.006 J	0.023
4,4'-DDD	0.00195	2.7 (d)	0.0037 U	0.004 UJL	0.0072 J	0.0059 U	0.012 J
4,4'-DDE	0.002075	1.9 (d)	0.0037 U	0.004 UJL	0.0061 UJ	0.0059 U	0.014 J
4,4'-DDT	0.008225	1.9 (d)	0.00585 J	0.004 UJL	0.0109 J	0.01 J	0.016 J

Key at end of table.

Table 4.1-21

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL001-SS-01	AL-GL002-SS-01	AL-GL003-SS-01	AL-GL004-SS-01	AL-GL005-SS-01
Dieldrin	0.01225	0.04 (d)	0.0037 U	0.004 UJL	0.0061 UJ	0.0059 U	0.0079 J
Endosulfan I	0.001	470 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0021 U
Endosulfan II	0.001975	470 (d)	0.0037 U	0.016 JL	0.0061 U	0.0063	0.012
Endosulfan Sulfate	0.00195	--	0.0037 U	0.004 UJL	0.0061 U	0.0059 U	0.0041
Endrin	0.002075	23 (d)	0.0037 U	0.032 JL	0.0061 U	0.0065 J	0.026
Endrin Aldehyde	0.005135	--	0.0037 U	0.011 JL	0.0106 J	0.021 J	0.023 J
Endrin Ketone	0.001975	--	0.0037 U	0.004 UJL	0.0061 U	0.0059 U	0.0041 U
Heptachlor	0.001	0.14 (d)	0.0074 J	0.0029 J	0.0031 UJ	0.003 U	0.0038 J
Heptachlor Epoxide	0.001025	0.07 (d)	0.0019 U	0.002 U	0.0031 UJ	0.003 U	0.0022 J
Methoxychlor	0.01	390 (d)	0.019 U	0.02 UJL	0.031 U	0.03 UJL	0.021 UJL

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL006-SS-01	AL-GL007-SS-01	AL-GL008-SS-01	AL-GL009-SS-01	AL-GL010-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.025 UJ	0.013 UC	0.013 U	0.014 U	0.013 U
Bromomethane	0.006	380 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
Chloroform	0.006	110 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
Ethylbenzene	0.006	27000 (c)	0.013 UJL	0.013 U	0.013 U	0.014 U	0.013 U
Methylene Chloride	0.0085	85 (c)	0.013 U	0.001 J	0.013 U	0.014 U	0.001 J
Tetrachloroethene	0.006	13 (c)	0.013 UJL	0.013 U	0.013 U	0.014 U	0.013 U
Toluene	0.006	55000 (c)	0.013 UJL	0.013 U	0.013 U	0.014 U	0.013 U
1,1,1-Trichloroethane	0.006	25000 (c)	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U
Xylene	0.006	550000 (c)	0.013 UJL	0.013 U	0.013 U	0.014 U	0.013 U
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Acenaphthylene	0.185	27000 (c)	0.41 J	0.42 U	0.43 U	0.47 U	0.43 U
Anthracene	0.1925	82000 (c)	0.64 J	0.42 U	0.43 U	0.47 U	0.43 U
Benzo(a)anthracene	0.245	0.9 (c)	**13**	0.068 J	0.033 J	0.041 J	0.034 J
Benzo(a)pyrene	0.28	0.09 (c)	**12**	**0.095 J**	0.03 J	0.057 J	0.034 J
Benzo(b)fluoranthene	0.36	0.9 (c)	**13**	0.17 J	0.026 J	0.078 J	0.039 J
Benzo(g,h,i)perylene	0.21	1100 (c)	**5**	0.082 J	0.024 J	0.47 U	0.026 J
Benzo(k)fluoranthene	0.205	0.9 (c)	**13**	0.42 U	0.033 J	0.04 J	0.43 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	2.1 U	0.42 UC	0.43 UC	0.47 U	0.43 UC
Butylbenzylphthalate	0.1825	55000 (c)	2.1 U	0.42 U	0.43 U	0.035 J	0.43 U
Carbazole	0.195	32 (d)	0.16 J	0.42 U	0.43 U	0.47 U	0.43 U
4-Chloro-3-methylphenol	0.195	--	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
2-Chlorophenol	0.195	1400 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Chrysene	0.3	9 (c)	**11**	0.099 J	0.036 J	0.057 J	0.035 J
Dibenz(a,h)anthracene	0.195	0.09 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL006-SS-01	AL-GL007-SS-01	AL-GL008-SS-01	AL-GL009-SS-01	AL-GL010-SS-01
Dibenzofuran	0.1925	--	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
1,4-Dichlorobenzene	0.195	27 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Diethylphthalate	0.195	220000 (c)	0.12 J	0.42 U	0.43 U	0.47 U	0.43 U
2,4-Dimethylphenol	0.195	5500 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
di-n-Butyl Phthalate	0.1925	7800 (d)	2.1 U	0.42 U	0.43 U	0.32 J	0.43 U
di-n-Octyl Phthalate	0.195	1600 (d)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Fluoranthene	0.345	11000 (c)	6.5	0.097 J	0.047 J	0.049 J	0.042 J
Fluorene	0.1925	11000 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	5.4	0.063 J	0.43 U	0.47 U	0.43 U
2-Methylnaphthalene	0.195	--	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
2-Methylphenol	0.195	14000 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
4-Methylphenol	0.195	14000 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Naphthalene	0.195	1100 (c)	2.1 U	0.42 U	0.43 U	0.47 U	0.43 U
Phenanthrene	0.21	7900 (c)	0.41 J	0.034 J	0.43 U	0.034 J	0.43 U
Pyrene	0.355	8200 (c)	34 J	0.12 J	0.038 J	0.052 J	0.063 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
Aroclor 1248	0.0195	0.083 (d)	0.042 U	0.042 U	0.043 U	0.047 U	0.043 U
Aroclor 1254	0.0195	0.083 (d)	0.042 U	0.042 U	0.043 U	0.047 U	0.043 U
Aroclor 1260	0.01975	0.083 (d)	0.042 U	0.042 U	0.043 U	0.047 U	0.043 U
alpha-BHC	0.001	0.1 (d)	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
beta-BHC	0.001	0.35 (d)	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
delta-BHC	0.001	--	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
gamma-BHC	0.001	0.49 (d)	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
alpha-Chlordane	0.00181	0.49 (d)	0.00619 J	0.0035 J	0.0056 J	0.0024 U	0.003 J
gamma-Chlordane	0.001575	0.49 (d)	0.00668	0.0025 J	0.0038 J	0.0024 U	0.0035
4,4'-DDD	0.00195	2.7 (d)	0.0042 U	0.0042 U	0.0043 U	0.0047 U	0.0043 U
4,4'-DDE	0.002075	1.9 (d)	0.0125 J	0.0083	0.0043 U	0.0047 U	0.0043 U
4,4'-DDT	0.008225	1.9 (d)	0.084 J	0.0341 J	0.0129 JH	0.0047 U	0.043 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL006-SS-01	AL-GL007-SS-01	AL-GL008-SS-01	AL-GL009-SS-01	AL-GL010-SS-01
Dieldrin	0.01225	0.04 (d)	0.0042 U	0.0042 U	0.0043 U	0.0047 U	0.0043 U
Endosulfan I	0.001	470 (d)	0.0022 U	0.0022 U	0.0022 U	0.0024 U	0.0022 U
Endosulfan II	0.001975	470 (d)	0.0575 J	0.0042 U	0.0049 J	0.0047 U	0.0043 U
Endosulfan Sulfate	0.00195	--	0.0042 U	0.0042 U	0.0043 U	0.0047 U	0.0043 U
Endrin	0.002075	23 (d)	0.084 J	0.0042 U	0.0093 J	0.0047 U	0.0043 U
Endrin Aldehyde	0.005135	--	0.0042 U	0.013 J	0.017 JH	0.0047 U	0.00752 J
Endrin Ketone	0.001975	--	0.0042 U	0.0042 U	0.0043 U	0.0047 U	0.0043 U
Heptachlor	0.001	0.14 (d)	0.0042 J	0.0022 U	0.0022 U	0.0024 U	0.0022 U
Heptachlor Epoxide	0.001025	0.07 (d)	0.0114	0.0022 U	0.0022 U	0.0024 U	0.0022 U
Methoxychlor	0.01	390 (d)	0.66 J	0.022 U	0.022 U	0.024 U	0.022 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL011-SS-01	AL-GL012-SS-01	AL-GL013-SS-01	AL-GL014-SS-01	AL-GL021-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.017 UJ
Bromomethane	0.006	380 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.013 U
Chloroform	0.006	110 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.005 J
Ethylbenzene	0.006	27000 (c)	0.012 UJL	0.012 UJL	0.013 UJL	0.013 UJL	0.013 U
Methylene Chloride	0.0085	85 (c)	0.012 U	0.012 U	0.013 U	0.014 U	0.013 J
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.012 UJL	0.013 UJL	0.013 UJL	0.002 J
Toluene	0.006	55000 (c)	0.012 UJL	0.012 UJL	0.013 UJL	0.013 UJL	0.032 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.002 J
Xylene	0.006	550000 (c)	0.012 UJL	0.012 UJL	0.013 UJL	0.013 UJL	0.004 J
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.058 J	0.4 U	0.43 U	0.057 J	0.81 J
Acenaphthylene	0.185	27000 (c)	0.066 J	0.4 U	0.042 J	0.1 J	0.078 J
Anthracene	0.1925	82000 (c)	0.16 J	0.029 J	0.11 J	0.34 J	1.6
Benzo(a)anthracene	0.245	0.9 (c)	**0.92**	0.19 J	**0.8**	**1.8**	**3.3**
Benzo(a)pyrene	0.28	0.09 (c)	**0.75**	**0.19 J**	**0.88**	**1.3**	**2.8**
Benzo(b)fluoranthene	0.36	0.9 (c)	**1.3**	0.47	**1.5**	**2.7**	**4.4**
Benzo(g,h,i)perylene	0.21	1100 (c)	0.37 J	0.13 J	0.78	1.8	2.3
Benzo(k)fluoranthene	0.205	0.9 (c)	0.69	0.4 U	0.43 U	0.44 U	0.84 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.84	0.44 B	0.52 B	0.044 U	0.33 J
Butylbenzylphthalate	0.1825	55000 (c)	0.39 U	0.024 J	0.43 U	0.44 U	0.84 U
Carbazole	0.195	32 (d)	0.13 J	0.027 J	0.088 J	0.26 J	0.7 J
4-Chloro-3-methylphenol	0.195	--	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
2-Chlorophenol	0.195	1400 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
Chrysene	0.3	9 (c)	0.88	0.21 J	0.94	1.9	3.6
Dibenz(a,h)anthracene	0.195	0.09 (c)	**0.26 J**	0.078 J	**0.34 J**	**0.35 J**	0.84 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL011-SS-01	AL-GL012-SS-01	AL-GL013-SS-01	AL-GL014-SS-01	AL-GL021-SS-01
Dibenzofuran	0.1925	--	0.048 J	0.4 U	0.43 U	0.05 J	0.47 J
1,4-Dichlorobenzene	0.195	27 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.17 J
Diethylphthalate	0.195	220000 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
2,4-Dimethylphenol	0.195	5500 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.041 J	0.03 J	0.43 U	0.099 J	0.84 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.39 U	0.063 J	0.43 U	0.44 U	0.056 J
Fluoranthene	0.345	11000 (c)	1.5	0.29 J	0.8	2.4	12
Fluorene	0.1925	11000 (c)	0.088 J	0.4 U	0.43 U	0.053 J	0.78 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.36 J	0.14 J	0.84	1.6	2.1
2-Methylnaphthalene	0.195	--	0.037 J	0.4 U	0.037 J	0.034 J	0.12 J
2-Methylphenol	0.195	14000 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
4-Methylphenol	0.195	14000 (c)	0.39 U	0.4 U	0.43 U	0.44 U	0.84 U
Naphthalene	0.195	1100 (c)	0.1 J	0.4 U	0.14 J	0.065 J	0.17 J
Phenanthrene	0.21	7900 (c)	0.93	0.15 J	0.31 J	1	6
Pyrene	0.355	8200 (c)	1.4	0.27 J	0.72	1.8	5.9
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.00234 J	0.0021 U	0.0022 U	0.0023 U	0.00546 J
Aroclor 1248	0.0195	0.083 (d)	0.039 U	0.04 U	0.043 U	0.044 U	0.042 U
Aroclor 1254	0.0195	0.083 (d)	0.039 U	0.04 U	0.043 U	0.044 U	0.042 U
Aroclor 1260	0.01975	0.083 (d)	0.1 J	0.087 J	0.17	0.53 J	0.042 U
alpha-BHC	0.001	0.1 (d)	0.002 U	0.0021 U	0.0022 U	0.0023 U	0.0022 U
beta-BHC	0.001	0.35 (d)	0.00271 J	0.00235 J	0.0052 J	0.00718 J	0.0022 U
delta-BHC	0.001	--	0.002 U	0.0021 U	0.0022 U	0.00291 J	0.0022 U
gamma-BHC	0.001	0.49 (d)	0.00316 J	0.00424 J	0.00254 J	0.00425 J	0.0022 U
alpha-Chlordane	0.00181	0.49 (d)	0.00437 J	0.00219 J	0.00589 J	0.0204 J	0.0204 J
gamma-Chlordane	0.001575	0.49 (d)	0.00332 J	0.0021 U	0.00411 J	0.0278	0.0193
4,4'-DDD	0.00195	2.7 (d)	0.0071	0.00539	0.00539 J	0.0143 J	0.0475
4,4'-DDE	0.002075	1.9 (d)	0.00875	0.004 U	0.0142	0.0696	0.11 J
4,4'-DDT	0.008225	1.9 (d)	0.0039 U	0.004 UJ	0.0043 UJ	0.0044 UJ	0.0591 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL011-SS-01	AL-GL012-SS-01	AL-GL013-SS-01	AL-GL014-SS-01	AL-GL021-SS-01
Dieldrin	0.01225	0.04 (d)	0.0056 J	0.004 U	0.00436	0.0107	0.0415 J
Endosulfan I	0.001	470 (d)	0.002 U	0.0021 U	0.0022 U	0.0023 U	0.0022 U
Endosulfan II	0.001975	470 (d)	0.0039 U	0.004 U	0.0043 U	0.0044 UJ	0.0042 U
Endosulfan Sulfate	0.00195	--	0.0039 U	0.004 UJ	0.0043 U	0.0044 UJ	0.0042 U
Endrin	0.002075	23 (d)	0.0039 U	0.004 U	0.0043 UJ	0.0044 UJ	0.0188 J
Endrin Aldehyde	0.005135	--	0.0039 U	0.004 U	0.0043 UJ	0.0044 UJ	0.0042 U
Endrin Ketone	0.001975	--	0.0039 U	0.004 U	0.0043 U	0.0044 UJ	0.0215 J
Heptachlor	0.001	0.14 (d)	0.002 U	0.0021 U	0.0022 U	0.0023 U	0.0048
Heptachlor Epoxide	0.001025	0.07 (d)	0.00297 J	0.0021 U	0.0022 U	0.00285 J	0.00936
Methoxychlor	0.01	390 (d)	0.02 U	0.021 U	0.022 U	0.023 UJ	0.022 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL022-SS-01	AL-GL023-SS-01	AL-GL028-SS-01	AL-GL029-SS-01	AL-GL030-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.016 UJ	0.012 UJ	0.013 U	0.041 UJ	0.011 U
Bromomethane	0.006	380 (c)	0.012 U	0.01 U	0.013 U	0.014 U	0.011 UJ
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.01 U	0.013 U	0.014 U	0.011 U
Chloroform	0.006	110 (c)	0.012 U	0.01 U	0.013 U	0.014 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.01 U	0.013 U	0.014 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.01 U	0.013 U	0.014 U	0.011 U
Ethylbenzene	0.006	27000 (c)	0.012 UJL	0.01 U	0.013 UJL	0.014 UJ	0.011 UJ
Methylene Chloride	0.0085	85 (c)	0.012 U	0.01 U	0.068 J	0.014 U	0.011 U
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.01 U	0.013 UJL	0.014 UJ	0.011 UJ
Toluene	0.006	55000 (c)	0.007 J	0.005 J	0.013 UJL	0.014 UJ	0.011 UJ
1,1,1-Trichloroethane	0.006	25000 (c)	0.012 UJL	0.01 U	0.013 UJL	0.002 J	0.011 UJ
Xylene	0.006	550000 (c)	0.012 UJL	0.01 U	0.013 UJL	0.014 UJ	0.011 UJ
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.028 J	0.33 U	0.42 U	0.45 U	0.35 U
Acenaphthylene	0.185	27000 (c)	0.065 J	0.084 J	0.024 J	0.45 U	0.037 J
Anthracene	0.1925	82000 (c)	0.23 J	0.087 J	0.081 J	0.45 U	0.064 J
Benzo(a)anthracene	0.245	0.9 (c)	1.3	1.6	0.78	0.04 J	0.21 J
Benzo(a)pyrene	0.28	0.09 (c)	1.4 J	1.6	0.98	0.038 J	0.26 J
Benzo(b)fluoranthene	0.36	0.9 (c)	1.8 J	2.3	0.82	0.038 J	0.32 J
Benzo(g,h,i)perylene	0.21	1100 (c)	0.92 J	0.92	0.79	0.032 J	0.19 J
Benzo(k)fluoranthene	0.205	0.9 (c)	1.4 J	1.5	0.94	0.034 J	0.35 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.58 UJ	0.33 U	0.42 U	0.075 J	1.3
Butylbenzylphthalate	0.1825	55000 (c)	0.39 UJL	0.33 U	0.42 U	0.45 U	0.14 J
Carbazole	0.195	32 (d)	0.14 J	0.33 U	0.04 J	0.45 U	0.033 J
4-Chloro-3-methylphenol	0.195	--	0.39 U	0.33 U	0.42 U	0.45 U	0.35 U
2-Chlorophenol	0.195	1400 (c)	0.39 U	0.33 U	0.42 U	0.45 U	0.35 U
Chrysene	0.3	9 (c)	1.3	1.6	0.78	0.048 J	0.24 J
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.52 J	0.33 U	0.42 U	0.45 U	0.35 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL022-SS-01	AL-GL023-SS-01	AL-GL028-SS-01	AL-GL029-SS-01	AL-GL030-SS-01
Dibenzofuran	0.1925	--	0.034 J	0.33 U	0.42 U	0.45 U	0.35 U
1,4-Dichlorobenzene	0.195	27 (c)	0.39 U	0.33 U	0.42 U	0.45 U	0.35 U
Diethylphthalate	0.195	220000 (c)	0.032 J	0.33 U	0.041 J	0.45 U	0.022 J
2,4-Dimethylphenol	0.195	5500 (c)	0.39 U	0.33 U	0.42 U	0.45 U	0.049 J
di-n-Butyl Phthalate	0.1925	7800 (d)	0.39 U	0.046 J	0.048 J	0.45 U	0.081 J
di-n-Octyl Phthalate	0.195	1600 (d)	0.032 J	0.33 U	0.42 U	0.45 U	0.14 J
Fluoranthene	0.345	11000 (c)	1.6	1.6	0.86	0.07 J	0.22 J
Fluorene	0.1925	11000 (c)	0.033 J	0.33 U	0.42 U	0.45 U	0.35 U
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.88 J	1	0.63	0.029 J	0.16 J
2-Methylnaphthalene	0.195	--	0.023 J	0.33 U	0.029 J	0.45 U	0.35 U
2-Methylphenol	0.195	14000 (c)	0.39 U	0.33 U	0.42 U	0.45 U	0.041 J
4-Methylphenol	0.195	14000 (c)	0.39 U	0.33 U	0.42 U	0.45 U	0.043 J
Naphthalene	0.195	1100 (c)	0.044 J	0.33 U	0.067 J	0.45 U	0.35 U
Phenanthrene	0.21	7900 (c)	0.93	0.17 J	0.32 J	0.033 J	0.16 J
Pyrene	0.355	8200 (c)	2.8 J	1.8	0.92	0.08 J	0.32 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.002 U	0.0017 U	0.0022 U	0.0023 U	0.0018 U
Aroclor 1248	0.0195	0.083 (d)	0.039 U	0.033 U	0.042 U	0.045 U	0.035 U
Aroclor 1254	0.0195	0.083 (d)	0.039 U	0.033 U	0.042 U	0.045 U	0.035 U
Aroclor 1260	0.01975	0.083 (d)	0.39 U	0.033 U	0.042 U	0.045 U	0.035 U
alpha-BHC	0.001	0.1 (d)	0.002 U	0.0017 U	0.0022 U	0.0023 U	0.0018 U
beta-BHC	0.001	0.35 (d)	0.002 U	0.0017 U	0.0022 U	0.0023 U	0.0018 U
delta-BHC	0.001	--	0.0069 JT	0.0017 U	0.0022 U	0.0023 U	0.0033 T
gamma-BHC	0.001	0.49 (d)	0.002 U	0.0017 U	0.0022 U	0.0023 U	0.0018 U
alpha-Chlordane	0.00181	0.49 (d)	0.088 J	0.0017 U	0.014 J	0.0023 U	0.05 J
gamma-Chlordane	0.001575	0.49 (d)	0.065 J	0.0017 U	0.0268 J	0.0023 U	0.045 J
4,4'-DDD	0.00195	2.7 (d)	0.043	0.0033 U	0.0552 J	0.0045 UJL	0.072 J
4,4'-DDE	0.002075	1.9 (d)	0.13	0.0033 U	0.12	0.064	0.29
4,4'-DDT	0.008225	1.9 (d)	0.13 J	0.0077 J	0.057 U	0.14 JL	0.51 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL022-SS-01	AL-GL023-SS-01	AL-GL028-SS-01	AL-GL029-SS-01	AL-GL030-SS-01
Dieldrin	0.01225	0.04 (d)	0.033 JH	0.0033 U	0.025 J	0.0045 U	0.025
Endosulfan I	0.001	470 (d)	0.002 U	0.0017 U	0.0022 U	0.0023 U	0.0018 U
Endosulfan II	0.001975	470 (d)	0.0094 J	0.0041 J	0.0042 U	0.00568 J	0.0035 U
Endosulfan Sulfate	0.00195	--	0.0039 U	0.0033 U	0.0042 U	0.0045 UJL	0.0066 J
Endrin	0.002075	23 (d)	0.028 JH	0.0037 J	0.0042 U	0.0045 UJL	0.0035 U
Endrin Aldehyde	0.005135	--	1.1	0.0033 U	0.0042 U	0.0114 JTL	0.0035 U
Endrin Ketone	0.001975	--	0.039 U	0.0033 U	0.0042 U	0.0045 UJL	0.0035 U
Heptachlor	0.001	0.14 (d)	0.0098 JH	0.0017 U	0.0022 U	0.0023 U	0.0035 J
Heptachlor Epoxide	0.001025	0.07 (d)	0.013 JH	0.0017 U	0.00222 J	0.0023 U	0.009
Methoxychlor	0.01	390 (d)	0.02 UJL	0.017 U	0.022 U	0.023 UJL	0.038 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL035-SS-01	AL-GL036-SS-01	AL-GL037-SS-01	AL-GL038-SS-01	AL-GL040-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.011 J	0.011 U	0.009 J	0.013 UJ	0.011 U
Bromomethane	0.006	380 (c)	0.011 U	0.011 U	0.01 U	0.005 J	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.011 U	0.01 U	0.012 U	0.011 U
Chloroform	0.006	110 (c)	0.011 U	0.011 U	0.01 U	0.001 J	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.011 U	0.001 J	0.01 U	0.005 J	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.011 U	0.01 U	0.007 J	0.011 U
Ethylbenzene	0.006	27000 (c)	0.011 UJL	0.011 U	0.01 U	0.001 J	0.011 UJL
Methylene Chloride	0.0085	85 (c)	0.014 J	0.002 J	0.014 J	0.028 UJ	0.019 U
Tetrachloroethene	0.006	13 (c)	0.011 UJL	0.011 U	0.01 U	0.002 J	0.011 UJL
Toluene	0.006	55000 (c)	0.011 UJL	0.011 U	0.006 J	0.004 J	0.002 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.004 J	0.011 U	0.002 J	0.012 U	0.011 U
Xylene	0.006	550000 (c)	0.011 UJL	0.011 U	0.01 U	0.004 J	0.011 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.11 J	0.14 J	0.023 J	0.44	0.15 J
Acenaphthylene	0.185	27000 (c)	0.026 J	0.36 U	0.34 U	0.04 J	0.3 J
Anthracene	0.1925	82000 (c)	0.36 J	0.29 J	0.063 J	1.3	0.56
Benzo(a)anthracene	0.245	0.9 (c)	1.2	0.79	0.31 J	2.8	2.8
Benzo(a)pyrene	0.28	0.09 (c)	1	0.88	0.26 J	2.6	2.8
Benzo(b)fluoranthene	0.36	0.9 (c)	0.9	0.86	0.4	2.2	0.38 U
Benzo(g,h,i)perylene	0.21	1100 (c)	0.72	0.61	0.29 J	1.4	1.8
Benzo(k)fluoranthene	0.205	0.9 (c)	1.1	0.77	0.34 U	2.8	5.6 J
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.36 U	0.33 J	1.8 B	0.4 U	0.38 u
Butylbenzylphthalate	0.1825	55000 (c)	0.36 U	0.22 J	0.52	0.095 J	0.38 U
Carbazole	0.195	32 (d)	0.12 J	0.21 J	0.045 J	0.88	0.29 J
4-Chloro-3-methylphenol	0.195	--	0.36 U	0.36 U	0.34 U	0.4 U	0.38 U
2-Chlorophenol	0.195	1400 (c)	0.36 U	0.36 U	0.34 U	0.4 U	0.38 U
Chrysene	0.3	9 (c)	1.2	0.89	0.36	3	2.7
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.36 U	0.36 U	0.34 U	0.4 U	0.38 UJ

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL035-SS-01	AL-GL036-SS-01	AL-GL037-SS-01	AL-GL038-SS-01	AL-GL040-SS-01
Dibenzofuran	0.1925	--	0.1 J	0.059 J	0.018 J	0.39 J	0.078 J
1,4-Dichlorobenzene	0.195	27 (c)	0.36 U	0.36 U	0.34 U	0.4 U	0.38 U
Diethylphthalate	0.195	220000 (c)	0.11 J	0.36 U	0.34 U	0.98 U	0.38 U
2,4-Dimethylphenol	0.195	5500 (c)	0.36 U	0.36 U	0.34 U	0.021 J	0.38 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.36 U	0.053 J	0.34 J	0.082 J	0.095 J
di-n-Octyl Phthalate	0.195	1600 (d)	0.018 J	0.36 U	0.038 J	0.4 U	0.38 U
Fluoranthene	0.345	11000 (c)	1.8	1.9	0.49	6.5	3.7
Fluorene	0.1925	11000 (c)	0.16 J	0.092 J	0.024 J	0.4 U	0.16 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.64	0.53	0.21 J	1.4	1.6
2-Methylnaphthalene	0.195	--	0.092 J	0.022 J	0.039 J	0.16 J	0.057 J
2-Methylphenol	0.195	14000 (c)	0.36 U	0.36 U	0.34 U	0.4 U	0.38 U
4-Methylphenol	0.195	14000 (c)	0.36 U	0.36 U	0.34 U	0.4 U	0.38 U
Naphthalene	0.195	1100 (c)	0.21 J	0.048 J	0.046 J	0.2 J	0.078 J
Phenanthrene	0.21	7900 (c)	1.6	1.2	0.29 J	6.7	2.1
Pyrene	0.355	8200 (c)	1.8	1.4	0.48	4.5	4.9
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0019 U	0.0018 U	0.00176	0.0021 U	0.02 U
Aroclor 1248	0.0195	0.083 (d)	0.036 U	0.036 U	0.034 U	2.6	3.8 UJ
Aroclor 1254	0.0195	0.083 (d)	0.036 U	0.036 U	0.034 U	0.04 U	3.8 UJ
Aroclor 1260	0.01975	0.083 (d)	0.036 U	0.25 J	0.034 U	0.04 U	3.8 UJ
alpha-BHC	0.001	0.1 (d)	0.0019 U	0.0018 U	0.0017 U	0.0021 U	0.02 U
beta-BHC	0.001	0.35 (d)	0.0019 U	0.0018 U	0.0017 U	0.0021 U	0.02 U
delta-BHC	0.001	--	0.0019 U	0.0018 U	0.0017 U	0.0021 U	0.02 U
gamma-BHC	0.001	0.49 (d)	0.0019 U	0.0018 U	0.0017 U	0.0021 U	0.02 U
alpha-Chlordane	0.00181	0.49 (d)	0.00581 J	0.00623 J	0.00856	0.0021 U	1.3 JT
gamma-Chlordane	0.001575	0.49 (d)	0.00519 J	0.00521 J	0.00625 J	0.021 U	0.02 U
4,4'-DDD	0.00195	2.7 (d)	0.0121	0.00785	0.0218 J	0.018 JH	0.113 J
4,4'-DDE	0.002075	1.9 (d)	0.0166	0.0114	0.47 J	0.048 JH	0.0359 J
4,4'-DDT	0.008225	1.9 (d)	0.0113	0.0342 J	0.23	0.052 JH	0.0416 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL035-SS-01	AL-GL036-SS-01	AL-GL037-SS-01	AL-GL038-SS-01	AL-GL040-SS-01
Dieldrin	0.01225	0.04 (d)	0.0036 U	0.00951 J	0.00704 J	0.004 U	2.4 J
Endosulfan I	0.001	470 (d)	0.0019 U	0.0018 U	0.0017 U	0.0078 J	0.02 U
Endosulfan II	0.001975	470 (d)	0.0036 U	0.0036 U	0.0034 U	0.013 JH	0.26 J
Endosulfan Sulfate	0.00195	--	0.0036 U	0.00547 J	0.0034 U	0.004 U	0.038 U
Endrin	0.002075	23 (d)	0.00968 J	0.0135 J	0.00401 J	0.004 U	0.0338 J
Endrin Aldehyde	0.005135	--	0.00736 J	0.089 J	0.031 J	0.004 U	0.00631 J
Endrin Ketone	0.001975	--	0.0036 U	0.00758 J	0.0034 U	0.004 U	0.131 J
Heptachlor	0.001	0.14 (d)	0.0019 U	0.0018 U	0.0017 U	0.0021 U	0.02 U
Heptachlor Epoxide	0.001025	0.07 (d)	0.0019 U	0.0018 U	0.0017 U	0.014 J	0.0525 J
Methoxychlor	0.01	390 (d)	0.019 U	0.018 U	0.017 U	0.1 JH	0.2 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL043-SS-01	AL-GL044-SS-01	AL-GL045-SS-01	AL-GL046-SS-01	AL-GL047-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.011 U	0.015 UJ	0.052 UJ	0.012 U	0.011 U
Bromomethane	0.006	380 (c)	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
Chloroform	0.006	110 (c)	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
Ethylbenzene	0.006	27000 (c)	0.011 U	0.011 U	0.012 UJ	0.012 UJ	0.011 U
Methylene Chloride	0.0085	85 (c)	0.011 U	0.02 UJ	0.031 UJ	0.012 U	0.013 UJ
Tetrachloroethene	0.006	13 (c)	0.011 U	0.011 U	0.012 UJ	0.012 UJ	0.011 U
Toluene	0.006	55000 (c)	0.011 U	0.006 J	0.016 J	0.012 UJ	0.011 U
1,1,1-Trichloroethane	0.006	25000 (c)	0.011 U	0.003 J	0.005 J	0.012 U	0.011 U
Xylene	0.006	550000 (c)	0.011 U	0.011 U	0.012 UJ	0.012 UJ	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.023 J	0.35 U	0.41 U	0.39 U	0.033 J
Acenaphthylene	0.185	27000 (c)	0.38 U	0.35 U	0.41 U	0.025 J	0.37 U
Anthracene	0.1925	82000 (c)	0.058 J	0.029 J	0.076 J	0.042 J	0.063 J
Benzo(a)anthracene	0.245	0.9 (c)	0.3 J	0.13 J	0.3 J	0.19 J	0.3 J
Benzo(a)pyrene	0.28	0.09 (c)	**0.31 J**	**0.13 J**	**0.28 J**	**0.26 J**	**0.34 J**
Benzo(b)fluoranthene	0.36	0.9 (c)	0.51	0.28 J	0.56	0.34 J	0.62 J
Benzo(g,h,i)perylene	0.21	1100 (c)	0.31 J	0.1 J	0.21 J	0.18 J	0.39 J
Benzo(k)fluoranthene	0.205	0.9 (c)	0.38 U	0.35 U	0.41 U	0.39	0.37 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.38 U	0.17 J	0.62	0.46 U	0.37 U
Butylbenzylphthalate	0.1825	55000 (c)	0.38 U	0.069 J	0.13 J	0.052 J	0.14 J
Carbazole	0.195	32 (d)	0.037 J	0.019 J	0.048 J	0.029 J	0.14 J
4-Chloro-3-methylphenol	0.195	--	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
2-Chlorophenol	0.195	1400 (c)	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
Chrysene	0.3	9 (c)	0.34 J	0.16 J	0.37 J	0.22 J	0.31 J
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.38 U	0.35 U	0.41 U	0.39 U	**0.14 J**

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL043-SS-01	AL-GL044-SS-01	AL-GL045-SS-01	AL-GL046-SS-01	AL-GL047-SS-01
Dibenzofuran	0.1925	--	0.38 U	0.35 U	0.41 U	0.39 U	0.02 J
1,4-Dichlorobenzene	0.195	27 (c)	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
Diethylphthalate	0.195	220000 (c)	0.38 U	0.35 U	0.41 U	0.022 J	0.37 U
2,4-Dimethylphenol	0.195	5500 (c)	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.38 U	1.1	0.14 J	0.027 J	0.026 J
di-n-Octyl Phthalate	0.195	1600 (d)	0.38 U	0.02 J	0.022 J	0.39 U	0.37 U
Fluoranthene	0.345	11000 (c)	0.43	0.25 J	0.61	0.21 J	0.58
Fluorene	0.1925	11000 (c)	0.02 J	0.35 U	0.41 U	0.39 U	0.031 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.26 J	0.085 J	0.17 J	0.17 J	0.39 J
2-Methylnaphthalene	0.195	--	0.02 J	0.35 U	0.41 U	0.39 U	0.37 U
2-Methylphenol	0.195	14000 (c)	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
4-Methylphenol	0.195	14000 (c)	0.38 U	0.35 U	0.41 U	0.39 U	0.37 U
Naphthalene	0.195	1100 (c)	0.024 J	0.35 U	0.41 U	0.39 U	0.021 J
Phenanthrene	0.21	7900 (c)	0.3 J	0.11 J	0.29 J	0.13 J	0.38 J
Pyrene	0.355	8200 (c)	0.55 J	0.22 J	0.52	0.31 J	0.36 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0019 U	0.00311 J	0.0021 U	0.002 UJL	0.19 U
Aroclor 1248	0.0195	0.083 (d)	0.037 U	0.035 U	0.041 U	0.039 UJL	3.7 U
Aroclor 1254	0.0195	0.083 (d)	0.045 J	0.035 U	0.42 J	0.5 JL	3.7 U
Aroclor 1260	0.01975	0.083 (d)	0.037 U	0.74	0.041 U	0.039 UJL	3.7 U
alpha-BHC	0.001	0.1 (d)	0.0019 U	0.0018 U	0.0021 U	0.002 UJL	0.19 U
beta-BHC	0.001	0.35 (d)	0.0019 U	0.0018 U	0.0021 U	0.002 UJL	0.19 U
delta-BHC	0.001	--	0.0019 U	0.0018 U	0.0021 U	0.002 UJL	0.19 U
gamma-BHC	0.001	0.49 (d)	0.0019 U	0.0018 U	0.0021 U	0.002 UJL	0.19 U
alpha-Chlordane	0.00181	0.49 (d)	0.00301 J	0.0212 J	0.056 J	0.002 UJL	0.19 U
gamma-Chlordane	0.001575	0.49 (d)	0.00249 JH	0.014 J	0.054 J	0.015 JTL	0.19 U
4,4'-DDD	0.00195	2.7 (d)	0.00622 JH	0.0203	0.02 J	0.0051 JL	18 J
4,4'-DDE	0.002075	1.9 (d)	0.0081 JH	0.025	0.14 JH	0.033 JL	0.82
4,4'-DDT	0.008225	1.9 (d)	0.00713 J	0.074 JH	0.36 JH	0.016 JL	1.2 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL043-SS-01	AL-GL044-SS-01	AL-GL045-SS-01	AL-GL046-SS-01	AL-GL047-SS-01
Dieldrin	0.01225	0.04 (d)	0.0037 U	0.0035 U	0.0609	0.0039 UJL	0.37 U
Endosulfan I	0.001	470 (d)	0.0019 U	0.0018 U	0.0021 U	0.0027 UJL	0.19 U
Endosulfan II	0.001975	470 (d)	0.0037 U	0.0035 U	0.0041 U	0.016 JL	0.37 JL
Endosulfan Sulfate	0.00195	--	0.0037 U	0.00588 J	0.0041 U	0.0065 JL	0.37 U
Endrin	0.002075	23 (d)	0.0037 U	0.00707 J	0.0169 J	0.0039 UJL	0.54 JH
Endrin Aldehyde	0.005135	--	0.0037 U	0.0035 U	0.086 J	0.025 JTL	0.37 U
Endrin Ketone	0.001975	--	0.0037 U	0.0035 U	0.0094 J	0.0039 UJL	0.37 U
Heptachlor	0.001	0.14 (d)	0.0019 U	0.00275 J	0.00327 J	0.002 UJL	0.19 U
Heptachlor Epoxide	0.001025	0.07 (d)	0.0019 U	0.00192 J	0.00542 J	0.0097 UJL	0.19 U
Methoxychlor	0.01	390 (d)	0.019 U	0.018 U	0.021 UJL	0.02 UJL	1.9 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL053-SS-01	AL-GL054-SS-01	AL-GL055-SS-01	AL-GL061-SS-01	AL-GL062-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.012 U	0.019 UJ	0.013 U	0.012 U
Bromomethane	0.006	380 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
Chloroform	0.006	110 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.012 U	0.002 J	0.013 U	0.012 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
Ethylbenzene	0.006	27000 (c)	0.012 UJL	0.012 UJL	0.013 UJ	0.013 UJ	0.012 UJL
Methylene Chloride	0.0085	85 (c)	0.057 U	0.004 J	0.008 J	0.004 J	0.008 J
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.012 UJL	0.013 UJ	0.013 UJ	0.012 UJL
Toluene	0.006	55000 (c)	0.012 UJL	0.001 J	0.002 J	0.013 UJ	0.012 UJL
1,1,1-Trichloroethane	0.006	25000 (c)	0.012 U	0.003 J	0.013 U	0.013 UJ	0.004 J
Xylene	0.006	550000 (c)	0.012 UJL	0.012 UJL	0.013 UJ	0.013 UJ	0.012 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.041 J	0.39 U	0.03 J	0.022 J	0.1 J
Acenaphthylene	0.185	27000 (c)	0.027 J	0.39 U	0.42 U	0.028 J	0.13 J
Anthracene	0.1925	82000 (c)	0.19 J	0.39 U	0.1 J	0.16 J	0.45
Benzo(a)anthracene	0.245	0.9 (c)	**1.1 J**	0.06 J	0.44	1.3	1.9
Benzo(a)pyrene	0.28	0.09 (c)	**1.3 J**	0.075 J	0.48	1.3	1.6
Benzo(b)fluoranthene	0.36	0.9 (c)	**2.1 J**	0.085 J	0.38 J	1.4	1.4
Benzo(g,h,i)perylene	0.21	1100 (c)	1.1 J	0.075 J	0.2 J	0.98	1.6
Benzo(k)fluoranthene	0.205	0.9 (c)	0.4 U	0.064 J	0.51	1.6	1.3
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.47 U	0.39 U	0.13 J	0.54	0.4 U
Butylbenzylphthalate	0.1825	55000 (c)	0.96 J	0.39 U	0.035 J	0.067 J	0.4 U
Carbazole	0.195	32 (d)	0.16 J	0.39 U	0.056 J	0.069 J	0.13 J
4-Chloro-3-methylphenol	0.195	--	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
2-Chlorophenol	0.195	1400 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
Chrysene	0.3	9 (c)	1.1 J	0.081 J	0.52	1.4	1.8
Dibenz(a,h)anthracene	0.195	0.09 (c)	**0.48 J**	0.39 U	0.42 U	0.42 U	0.4 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL053-SS-01	AL-GL054-SS-01	AL-GL055-SS-01	AL-GL061-SS-01	AL-GL062-SS-01
Dibenzofuran	0.1925	--	0.022 J	0.39 U	0.42 U	0.42 U	0.1 J
1,4-Dichlorobenzene	0.195	27 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
Diethylphthalate	0.195	220000 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
2,4-Dimethylphenol	0.195	5500 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.31 J	0.39 U	0.42 U	0.084 J	0.4 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.13 J	0.39 U	0.42 U	0.024 J	0.4 U
Fluoranthene	0.345	11000 (c)	1.9 J	0.091 J	1	1.9	2.8
Fluorene	0.1925	11000 (c)	0.04 J	0.39 U	0.029 J	0.029 J	0.15 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	1.4 J	0.053 J	0.26 J	0.87	1.3
2-Methylnaphthalene	0.195	--	0.4 U	0.39 U	0.42 U	0.42 U	0.12 J
2-Methylphenol	0.195	14000 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
4-Methylphenol	0.195	14000 (c)	0.4 U	0.39 U	0.42 U	0.42 U	0.4 U
Naphthalene	0.195	1100 (c)	0.029 J	0.39 U	0.42 U	0.42 U	0.2 J
Phenanthrene	0.21	7900 (c)	0.76 J	0.042 J	0.54	0.65	1.5
Pyrene	0.355	8200 (c)	1.1 J	0.12 J	0.86	1.6	1.8
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.00264 J	0.002 UJL	0.00886 J	0.00296 J	0.0021 U
Aroclor 1248	0.0195	0.083 (d)	0.04 U	0.039 UJL	0.042 U	0.042 U	0.04 U
Aroclor 1254	0.0195	0.083 (d)	0.04 U	0.039 UJL	0.7 J	0.042 U	0.04 U
Aroclor 1260	0.01975	0.083 (d)	0.12 J	0.039 UJL	0.042 U	0.042 U	0.04 U
alpha-BHC	0.001	0.1 (d)	0.0021 U	0.002 UJL	0.00102 J	0.0022 U	0.0021 U
beta-BHC	0.001	0.35 (d)	0.00313 J	0.002 UJL	0.0022 U	0.0022 U	0.0021 U
delta-BHC	0.001	--	0.0021 U	0.002 UJL	0.00219 J	0.0022 U	0.0021 U
gamma-BHC	0.001	0.49 (d)	0.00251 J	0.002 UJL	0.0022 U	0.0022 U	0.0021 U
alpha-Chlordane	0.00181	0.49 (d)	0.0121	0.00434 JL	0.0283 JH	0.00721 J	0.00535 J
gamma-Chlordane	0.001575	0.49 (d)	0.0117	0.002 UJF	0.0236 JH	0.00618 J	0.0021 U
4,4'-DDD	0.00195	2.7 (d)	0.00579	0.0039 UJL	0.29 J	0.00664 J	0.00897
4,4'-DDE	0.002075	1.9 (d)	0.0195	0.00415 JL	0.79	0.0406	0.004 U
4,4'-DDT	0.008225	1.9 (d)	0.0249 JH	0.00671 JL	0.5 JH	0.095	0.00978 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL053-SS-01	AL-GL054-SS-01	AL-GL055-SS-01	AL-GL061-SS-01	AL-GL062-SS-01
Dieldrin	0.01225	0.04 (d)	0.0073	0.00755 JL	0.0358 J	0.00733 J	0.004 U
Endosulfan I	0.001	470 (d)	0.0021 U	0.002 UJL	0.0022 U	0.0022 U	0.0021 U
Endosulfan II	0.001975	470 (d)	0.004 U	0.0039 UJL	0.0042 U	0.0042 U	0.00701
Endosulfan Sulfate	0.00195	--	0.004 UJL	0.0039 UJL	0.00627 J	0.0042 U	0.004 U
Endrin	0.002075	23 (d)	0.004 U	0.00692 JL	0.0122 J	0.0229	0.0197
Endrin Aldehyde	0.005135	--	0.0122 J	0.0114 JL	0.0269 J	0.0357 J	0.004 U
Endrin Ketone	0.001975	--	0.00428	0.0039 UJL	0.0042 U	0.00924 J	0.004 U
Heptachlor	0.001	0.14 (d)	0.0021 U	0.002 UJL	0.00445 J	0.00259	0.0021 U
Heptachlor Epoxide	0.001025	0.07 (d)	0.0021 U	0.002 UJL	0.0022 U	0.0022 U	0.0021 U
Methoxychlor	0.01	390 (d)	0.021 U	0.02 UJL	0.022 U	0.022 UJL	0.021 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL063-SS-01	AL-GL069-SS-01	AL-GL070-SS-01	AL-GL071-SS-01	AL-GL072-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.013 U	0.014 UJL	0.012 U	0.012 U	0.013 U
Bromomethane	0.006	380 (c)	0.013 U	0.013 U	0.012 U	0.012 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.013 U	0.013 UJL	0.012 U	0.012 U	0.013 U
Chloroform	0.006	110 (c)	0.013 U	0.013 UJL	0.012 U	0.012 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.002 J	0.013 UJL	0.012 U	0.012 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.013 U	0.013 UJL	0.012 U	0.012 U	0.013 U
Ethylbenzene	0.006	27000 (c)	0.013 U	0.013 UJL	0.012 U	0.012 UJL	0.013 UJL
Methylene Chloride	0.0085	85 (c)	0.013 U	0.013 U	0.025 J	0.011 J	0.008 J
Tetrachloroethene	0.006	13 (c)	0.013 U	0.013 UJL	0.012 U	0.012 UJL	0.013 UJL
Toluene	0.006	55000 (c)	0.013 U	0.013 UJL	0.002 J	0.012 UJL	0.013 UJL
1,1,1-Trichloroethane	0.006	25000 (c)	0.013 U	0.013 UJL	0.003 J	0.002 J	0.003 J
Xylene	0.006	550000 (c)	0.013 U	0.013 UJL	0.012 U	0.012 UJL	0.013 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.46 J	0.14 J	0.4 U	0.022 J	0.42 U
Acenaphthylene	0.185	27000 (c)	0.88 U	0.046 J	0.4 U	0.39 U	0.053 J
Anthracene	0.1925	82000 (c)	1.3	0.64	0.062 J	0.058 J	0.046 J
Benzo(a)anthracene	0.245	0.9 (c)	4.1	3.2	0.32 J	0.27 J	0.25 J
Benzo(a)pyrene	0.28	0.09 (c)	3.7	3.1	0.35 J	0.3 J	0.29 J
Benzo(b)fluoranthene	0.36	0.9 (c)	3.9	0.42 U	0.44	0.42	0.37 J
Benzo(g,h,i)perylene	0.21	1100 (c)	2.2	2.7	0.37 J	0.35 J	0.28 J
Benzo(k)fluoranthene	0.205	0.9 (c)	3.2	4.9	0.29 J	0.39 UJL	0.42 U
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	1	3.1	0.46 U	0.39 UJL	0.42 U
Butylbenzylphthalate	0.1825	55000 (c)	0.88 U	0.84	0.24 J	0.39 UJL	0.42 U
Carbazole	0.195	32 (d)	1.1	0.18 J	0.051 J	0.04 J	0.42 U
4-Chloro-3-methylphenol	0.195	--	0.88 U	0.42 U	0.4 U	0.39 U	0.42 U
2-Chlorophenol	0.195	1400 (c)	0.88 U	0.42 U	0.4 U	0.39 U	0.42 U
Chrysene	0.3	9 (c)	5	3.9	0.35 J	0.32 J	0.28 J
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.88 U	0.073 J	0.4 U	0.39 UJL	0.42 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL063-SS-01	AL-GL069-SS-01	AL-GL070-SS-01	AL-GL071-SS-01	AL-GL072-SS-01
Dibenzofuran	0.1925	--	0.21 J	0.08 J	0.4 U	0.39 U	0.42 U
1,4-Dichlorobenzene	0.195	27 (c)	0.88 U	0.42 U	0.4 U	0.39 U	0.42 U
Diethylphthalate	0.195	220000 (c)	0.88 U	0.11 J	0.4 U	0.39 U	0.42 U
2,4-Dimethylphenol	0.195	5500 (c)	0.88 U	0.42 U	0.4 U	0.39 U	0.42 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.88 U	0.21 J	0.4 U	0.39 U	0.42 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.075 J	0.056 J	0.4 U	0.39 UJL	0.42 U
Fluoranthene	0.345	11000 (c)	12	5.6	0.63	0.39 J	0.32 J
Fluorene	0.1925	11000 (c)	0.32 J	0.17 J	0.021 J	0.021 J	0.42 U
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	2	2.4	0.32 J	0.24 J	0.21 J
2-Methylnaphthalene	0.195	--	0.045 J	0.045 J	0.4 U	0.39 U	0.42 U
2-Methylphenol	0.195	14000 (c)	0.88 U	0.42 U	0.4 U	0.39 U	0.42 U
4-Methylphenol	0.195	14000 (c)	0.88 U	0.021 J	0.4 U	0.39 U	0.42 U
Naphthalene	0.195	1100 (c)	0.88 U	0.054 J	0.4 U	0.39 U	0.036 J
Phenanthrene	0.21	7900 (c)	6.9	2.6	0.28 J	0.24 J	0.12 J
Pyrene	0.355	8200 (c)	9.4	5.7	0.48	0.53	0.4 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.00671 J	0.0022 U	0.002 U	0.002 U	0.0022 UJL
Aroclor 1248	0.0195	0.083 (d)	0.044 U	0.042 UJL	0.04 U	0.039 U	0.042 UJL
Aroclor 1254	0.0195	0.083 (d)	0.044 U	1.5 JH	0.04 U	0.039 U	0.042 UJL
Aroclor 1260	0.01975	0.083 (d)	0.044 U	0.042 UJL	0.11 J	0.039 U	0.042 UJL
alpha-BHC	0.001	0.1 (d)	0.0023 U	0.0022 U	0.002 U	0.002 U	0.0022 UJL
beta-BHC	0.001	0.35 (d)	0.0023 U	0.0022 U	0.002 U	0.002 U	0.0022 UJL
delta-BHC	0.001	--	0.0023 U	0.0022 U	0.002 U	0.00395 J	0.0022 UJL
gamma-BHC	0.001	0.49 (d)	0.0023 U	0.0022 U	0.002 U	0.002 U	0.0022 UJL
alpha-Chlordane	0.00181	0.49 (d)	0.0313	0.033 J	0.00597 J	0.0146 J	0.0022 UJL
gamma-Chlordane	0.001575	0.49 (d)	0.0172	0.052 J	0.002 U	0.0159	0.0022 UJL
4,4'-DDD	0.00195	2.7 (d)	0.0493 J	0.0576 J	0.00767 J	0.00584 J	0.0042 UJL
4,4'-DDE	0.002075	1.9 (d)	0.76	0.11 J	0.0207	0.00857 J	0.00471 JL
4,4'-DDT	0.008225	1.9 (d)	0.82	0.13 J	0.0317 JH	0.0225 J	0.00713 JL

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL063-SS-01	AL-GL069-SS-01	AL-GL070-SS-01	AL-GL071-SS-01	AL-GL072-SS-01
Dieldrin	0.01225	0.04 (d)	0.0189 J	0.0245 J	0.004 U	0.0137 J	0.0042 UJL
Endosulfan I	0.001	470 (d)	0.0023 U	0.0022 U	0.002 U	0.002 U	0.0022 UJL
Endosulfan II	0.001975	470 (d)	0.0127 J	0.0482 J	0.00578 J	0.0039 U	0.00447 JL
Endosulfan Sulfate	0.00195	--	0.0044 U	0.00854 J	0.004 U	0.0039 U	0.0042 UJL
Endrin	0.002075	23 (d)	0.0276 J	0.0288 J	0.0066 J	0.0232 J	0.0067 JL
Endrin Aldehyde	0.005135	--	0.0228 J	0.0425 J	0.0267 JH	0.0133 J	0.0104 JL
Endrin Ketone	0.001975	--	0.0182 J	0.0042 U	0.004 U	0.0039 U	0.0042 UJL
Heptachlor	0.001	0.14 (d)	0.0023 U	0.00822 J	0.002 U	0.0024	0.0022 UJL
Heptachlor Epoxide	0.001025	0.07 (d)	0.0023 U	0.00595 J	0.002 U	0.00454	0.0022 UJL
Methoxychlor	0.01	390 (d)	0.023 U	0.12 J	0.02 U	0.02 U	0.022 UJL

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL078-SS-01	AL-GL079-SS-01	AL-GL080-SS-01	AL-GL081-SS-01	AL-GL086-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.022 UJ	0.013 U	0.014 J	0.014 UJL	0.018 UJ
Bromomethane	0.006	380 (c)	0.011 U	0.013 U	0.016 U	0.014 UJL	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.013 U	0.016 U	0.006 J	0.013 U
Chloroform	0.006	110 (c)	0.011 U	0.013 U	0.016 U	0.014 UJL	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.002 J	0.013 U	0.004 J	0.014 UJL	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.013 U	0.002 J	0.014 UJL	0.013 U
Ethylbenzene	0.006	27000 (c)	0.011 UJL	0.013 UJL	0.016 U	0.014 UJL	0.013 UJL
Methylene Chloride	0.0085	85 (c)	0.025 J	0.02 UJ	0.004 J	0.014 U	0.019 J
Tetrachloroethene	0.006	13 (c)	0.011 UJL	0.013 UJL	0.002 J	0.014 UJL	0.013 UJL
Toluene	0.006	55000 (c)	0.011 UJL	0.013 UJL	0.007 J	0.014 UJL	0.013 UJL
1,1,1-Trichloroethane	0.006	25000 (c)	0.011 UJL	0.013 UJL	0.002 J	0.005 J	0.013 U
Xylene	0.006	550000 (c)	0.011 UJL	0.013 UJL	0.003 J	0.014 UJL	0.013 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.37 U	0.056 J	0.52 U	0.46	0.04 J
Acenaphthylene	0.185	27000 (c)	0.37 U	0.056 J	0.52 U	0.027 J	0.42 U
Anthracene	0.1925	82000 (c)	0.37 U	0.16 J	0.52 U	0.78	0.15 J
Benzo(a)anthracene	0.245	0.9 (c)	0.056 J	1.1	0.47 J	1.4	1.1
Benzo(a)pyrene	0.28	0.09 (c)	**0.095 J**	1.2	0.48 J	0.97	1.2
Benzo(b)fluoranthene	0.36	0.9 (c)	0.24 J	1.7	0.54	0.8 J	1.2
Benzo(g,h,i)perylene	0.21	1100 (c)	0.12 J	1.3	0.39 J	0.72	0.88
Benzo(k)fluoranthene	0.205	0.9 (c)	0.37 U	0.42 U	0.38 J	1	1.1
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.37 U	0.43 B	0.45 J	0.44 U	0.31 J
Butylbenzylphthalate	0.1825	55000 (c)	0.17 J	0.42 U	0.52 U	0.44 U	0.11 J
Carbazole	0.195	32 (d)	0.37 U	0.072 J	0.52 U	0.47	0.064 J
4-Chloro-3-methylphenol	0.195	--	0.37 U	0.42 U	0.52 U	0.032 J	0.42 U
2-Chlorophenol	0.195	1400 (c)	0.37 U	0.42 U	0.52 U	0.029 J	0.42 U
Chrysene	0.3	9 (c)	0.11 J	1.1	0.68	1.4	1.1
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.05 J	0.42 U	0.52 U	0.44 U	0.42 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL078-SS-01	AL-GL079-SS-01	AL-GL080-SS-01	AL-GL081-SS-01	AL-GL086-SS-01
Dibenzofuran	0.1925	--	0.37 U	0.024 J	0.52 U	0.29 J	0.026 J
1,4-Dichlorobenzene	0.195	27 (c)	0.37 U	0.42 U	0.52 U	0.44 U	0.42 U
Diethylphthalate	0.195	220000 (c)	0.37 U	0.42 U	0.52 U	0.44 U	0.42 U
2,4-Dimethylphenol	0.195	5500 (c)	0.37 U	0.42 U	0.52 U	0.44 U	0.42 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.37 U	0.084 J	0.52 U	0.44 U	0.066 J
di-n-Octyl Phthalate	0.195	1600 (d)	0.37 U	0.42 U	0.52 U	0.44 U	0.029 J
Fluoranthene	0.345	11000 (c)	0.092 J	1.2	1.2	2.7	1.3
Fluorene	0.1925	11000 (c)	0.37 U	0.046 J	0.036 J	0.32 J	0.036 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.098 J	1.1	0.24 J	0.64	0.81
2-Methylnaphthalene	0.195	--	0.37 U	0.034 J	0.52 U	0.19 J	0.025 J
2-Methylphenol	0.195	14000 (c)	0.37 U	0.42 U	0.52 U	0.44 U	0.42 U
4-Methylphenol	0.195	14000 (c)	0.37 U	0.42 U	0.52 U	0.44 U	0.42 U
Naphthalene	0.195	1100 (c)	0.37 U	0.078 J	0.52 U	0.39 J	0.04 J
Phenanthrene	0.21	7900 (c)	0.37 U	0.47	0.62	2.3	0.61
Pyrene	0.355	8200 (c)	0.071 J	0.8	0.95	2.2	1.4 J
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0019 U	0.0062 J	0.00645 J	0.0023 U	0.0022 U
Aroclor 1248	0.0195	0.083 (d)	0.037 U	0.042 U	0.052 U	0.045 U	0.042 U
Aroclor 1254	0.0195	0.083 (d)	0.21	0.042 U	0.052 U	0.045 U	0.042 U
Aroclor 1260	0.01975	0.083 (d)	0.037 U	0.042 U	0.052 U	0.045 U	0.042 U
alpha-BHC	0.001	0.1 (d)	0.0019 U	0.0022 U	0.0027 U	0.0023 U	0.0022 U
beta-BHC	0.001	0.35 (d)	0.0019 U	0.0022 U	0.0027 U	0.0023 U	0.0022 U
delta-BHC	0.001	--	0.0019 U	0.0022 U	0.0027 U	0.0023 U	0.0022 U
gamma-BHC	0.001	0.49 (d)	0.0019 U	0.0022 U	0.0027 U	0.0023 U	0.0022 U
alpha-Chlordane	0.00181	0.49 (d)	0.00303 J	0.065 J	0.12 J	0.00727 J	0.013 J
gamma-Chlordane	0.001575	0.49 (d)	0.00624 JH	0.031 J	0.11 J	0.0023 U	0.00924 J
4,4'-DDD	0.00195	2.7 (d)	0.0116 JH	0.019 JH	0.0122 J	0.0045 U	0.0458 J
4,4'-DDE	0.002075	1.9 (d)	0.0217 JH	0.044	0.0363	0.00596	0.0386
4,4'-DDT	0.008225	1.9 (d)	0.0297 J	0.11 J	0.0421 J	0.00875 J	0.0613 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL078-SS-01	AL-GL079-SS-01	AL-GL080-SS-01	AL-GL081-SS-01	AL-GL086-SS-01
Dieldrin	0.01225	0.04 (d)	0.0037 U	0.014 JH	0.0202	0.0045 U	0.0042 U
Endosulfan I	0.001	470 (d)	0.0019 U	0.0022 U	0.0027 U	0.0023 U	0.0022 U
Endosulfan II	0.001975	470 (d)	0.0142 JH	0.012 JH	0.0265	0.0045 U	0.0136 J
Endosulfan Sulfate	0.00195	--	0.0037 U	0.012 JH	0.0052 U	0.0045 U	0.0042 U
Endrin	0.002075	23 (d)	0.0102 JH	0.04 JH	0.0165 J	0.00602 J	0.00651 J
Endrin Aldehyde	0.005135	--	0.0225 J	0.052 JH	0.0212 J	0.00641 J	0.025 J
Endrin Ketone	0.001975	--	0.0037 U	0.0042 U	0.0052 U	0.0045 U	0.0042 U
Heptachlor	0.001	0.14 (d)	0.00241 J	0.0029 J	0.0035	0.0023 U	0.00346 J
Heptachlor Epoxide	0.001025	0.07 (d)	0.0019 U	0.005 J	0.00779	0.00251 J	0.00227 J
Methoxychlor	0.01	390 (d)	0.019 U	0.037 JH	0.026 JL	0.023 U	0.0694 J

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL087-SS-01	AL-GL088-SS-01	AL-GL089-SS-01	AL-GL090-SS-01	AL-GL095-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.013 U	0.014 U	0.012 U	0.012 U	0.013 U
Bromomethane	0.006	380 (c)	0.013 U	0.014 U	0.012 U	0.012 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.013 U	0.014 U	0.012 U	0.012 U	0.013 U
Chloroform	0.006	110 (c)	0.013 U	0.014 U	0.012 U	0.012 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.013 U	0.002 J	0.012 U	0.012 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.013 U	0.014 U	0.012 U	0.012 U	0.013 U
Ethylbenzene	0.006	27000 (c)	0.013 UJL	0.014 UJL	0.012 UJL	0.012 UJL	0.013 UJL
Methylene Chloride	0.0085	85 (c)	0.015 UJ	0.002 J	0.006 J	0.012 U	0.013 U
Tetrachloroethene	0.006	13 (c)	0.013 UJL	0.014 UJL	0.012 UJL	0.012 UJL	0.013 UJL
Toluene	0.006	55000 (c)	0.013 UJL	0.014 UJL	0.012 UJL	0.012 UJL	0.013 UJL
1,1,1-Trichloroethane	0.006	25000 (c)	0.002 J	0.014 UJL	0.012 U	0.012 U	0.002 J
Xylene	0.006	550000 (c)	0.013 UJL	0.014 UJL	0.012 UJL	0.012 UJL	0.013 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.42 U	0.48 U	0.41 U	0.11 J	0.42 U
Acenaphthylene	0.185	27000 (c)	0.42 U	0.48 U	0.28 J	2.7	0.42 U
Anthracene	0.1925	82000 (c)	0.062 J	0.48 U	0.24 J	3	0.12 J
Benzo(a)anthracene	0.245	0.9 (c)	0.26 J	0.12 J	1.5	21	0.76
Benzo(a)pyrene	0.28	0.09 (c)	0.25 J	0.13 J	1.3	20	1
Benzo(b)fluoranthene	0.36	0.9 (c)	0.28 J	0.16 J	2	30	1
Benzo(g,h,i)perylene	0.21	1100 (c)	0.23 J	0.12 J	0.8	13 J	0.71
Benzo(k)fluoranthene	0.205	0.9 (c)	0.25 J	0.098 J	1.2	19	0.83
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.42 U	0.3 J	0.41 U	0.41 U	0.42 U
Butylbenzylphthalate	0.1825	55000 (c)	0.022 J	0.48 U	0.41 U	0.41 U	0.42 U
Carbazole	0.195	32 (d)	0.023 J	0.48 U	0.066 J	0.072 JN	0.42 U
4-Chloro-3-methylphenol	0.195	--	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
2-Chlorophenol	0.195	1400 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
Chrysene	0.3	9 (c)	0.28 J	0.15 J	1.6	21	1
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.42 U	0.49 U	0.41 U	7.6	0.42 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL087-SS-01	AL-GL088-SS-01	AL-GL089-SS-01	AL-GL090-SS-01	AL-GL095-SS-01
Dibenzofuran	0.1925	--	0.42 U	0.48 U	0.41 U	0.079 J	0.42 U
1,4-Dichlorobenzene	0.195	27 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
Diethylphthalate	0.195	220000 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
2,4-Dimethylphenol	0.195	5500 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
di-n-Butyl Phthalate	0.1925	7800 (d)	0.039 J	0.48 U	0.41 U	0.41 U	0.42 U
di-n-Octyl Phthalate	0.195	1600 (d)	0.42 U	0.49 U	0.41 U	0.41 U	0.42 U
Fluoranthene	0.345	11000 (c)	0.54	0.22 J	1.1	16	1.5
Fluorene	0.1925	11000 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.024 J
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.19 J	0.093 J	0.78	14	0.62
2-Methylnaphthalene	0.195	--	0.42 U	0.48 U	0.41 U	0.093 J	0.42 U
2-Methylphenol	0.195	14000 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
4-Methylphenol	0.195	14000 (c)	0.42 U	0.48 U	0.41 U	0.41 U	0.42 U
Naphthalene	0.195	1100 (c)	0.42 U	0.48 U	0.41 U	0.091 J	0.42 U
Phenanthrene	0.21	7900 (c)	0.27 J	0.097 J	0.14 J	1.4	0.52
Pyrene	0.355	8200 (c)	0.47	0.22 J	1.4 J	28	1.1
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.00701	0.0025 U	0.0021 U	0.0021 U	0.00486 J
Aroclor 1248	0.0195	0.083 (d)	0.042 U	0.048 U	0.041 U	0.41 U	0.042 U
Aroclor 1254	0.0195	0.083 (d)	0.042 U	0.048 U	0.041 U	0.41 U	0.042 U
Aroclor 1260	0.01975	0.083 (d)	0.042 U	0.048 U	0.041 U	0.41 U	0.042 U
alpha-BHC	0.001	0.1 (d)	0.0022 U	0.0025 U	0.0021 U	0.0021 U	0.0022 U
beta-BHC	0.001	0.35 (d)	0.0022 U	0.0025 U	0.0021 U	0.0021 U	0.0022 U
delta-BHC	0.001	--	0.0022 U	0.0025 U	0.0021 U	0.0027 JN	0.0022 U
gamma-BHC	0.001	0.49 (d)	0.0022 U	0.0025 U	0.0021 U	0.0021 U	0.0022 U
alpha-Chlordane	0.00181	0.49 (d)	0.0063	0.00933 J	0.0023 NJ	0.0094 J	0.00574 J
gamma-Chlordane	0.001575	0.49 (d)	0.0036	0.00583 J	0.0021 U	0.014	0.00674 J
4,4'-DDD	0.00195	2.7 (d)	0.0072	0.0048 U	0.0041 U	0.0041 U	0.0333 J
4,4'-DDE	0.002075	1.9 (d)	0.0073	0.0106	0.0041 U	0.007 J	0.12
4,4'-DDT	0.008225	1.9 (d)	0.029 JL	0.0163 J	0.011 J	0.084	0.27

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL087-SS-01	AL-GL088-SS-01	AL-GL089-SS-01	AL-GL090-SS-01	AL-GL095-SS-01
Dieldrin	0.01225	0.04 (d)	0.0042 U	0.00912 J	0.0041 U	0.0074 J	0.00521 J
Endosulfan I	0.001	470 (d)	0.0022 U	0.0025 U	0.0021 U	0.021 U	0.0022 U
Endosulfan II	0.001975	470 (d)	0.0042 U	0.00504 J	0.0041 U	0.031 J	0.00846
Endosulfan Sulfate	0.00195	--	0.013 J	0.0048 U	0.0041 U	0.026 J	0.0234 J
Endrin	0.002075	23 (d)	0.0087 J	0.00626 J	0.014 J	0.14 J	0.00598 J
Endrin Aldehyde	0.005135	--	0.024	0.0197 J	0.0055 J	0.0041 U	0.0188 J
Endrin Ketone	0.001975	--	0.0042 U	0.0048 U	0.0232 J	0.23 J	0.011 J
Heptachlor	0.001	0.14 (d)	0.0022 U	0.0025 U	0.0021 U	0.0024 J	0.0022 U
Heptachlor Epoxide	0.001025	0.07 (d)	0.0022 U	0.0025 U	0.0021 U	0.0035 J	0.0022 U
Methoxychlor	0.01	390 (d)	0.026 J	0.025 U	0.021 U	0.021 U	0.022 U

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL096-SS-01	AL-GL097-SS-01			
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.013 U	0.013 U			
Bromomethane	0.006	380 (c)	0.013 U	0.013 U			
Carbon Disulfide	0.006	27000 (c)	0.013 U	0.013 U			
Chloroform	0.006	110 (c)	0.013 U	0.013 U			
1,1-Dichloroethene	0.006	1.1 (c)	0.013 U	0.013 U			
1,2-Dichloroethene	0.006	2700 (c)	0.013 U	0.013 U			
Ethylbenzene	0.006	27000 (c)	0.013 UJL	0.013 UJL			
Methylene Chloride	0.0085	85 (c)	0.009 J	0.013 U			
Tetrachloroethene	0.006	13 (c)	0.013 UJL	0.013 UJL			
Toluene	0.006	55000 (c)	0.002 J	0.013 UJL			
1,1,1-Trichloroethane	0.006	25000 (c)	0.001 J	0.013 U			
Xylene	0.006	550000 (c)	0.013 UJL	0.013 UJL			
Semivolatile Organic Compounds							
Acenaphthene	0.1925	16000 (c)	0.19 J	0.43 U			
Acenaphthylene	0.185	27000 (c)	0.034 J	0.43 U			
Anthracene	0.1925	82000 (c)	0.43	0.43 U			
Benzo(a)anthracene	0.245	0.9 (c)	1.3	0.21 J			
Benzo(a)pyrene	0.28	0.09 (c)	1.5	**0.24 J**			
Benzo(b)fluoranthene	0.36	0.9 (c)	1.2	0.31 J			
Benzo(g,h,i)perylene	0.21	1100 (c)	1.2	0.24 J			
Benzo(k)fluoranthene	0.205	0.9 (c)	0.96	0.23 J			
Bis(2-ethylhexyl)phthalate	0.2025	46 (c)	0.42 U	0.37 J			
Butylbenzylphthalate	0.1825	55000 (c)	0.42 U	0.1 J			
Carbazole	0.195	32 (d)	0.17 J	0.43 U			
4-Chloro-3-methylphenol	0.195	--	0.42 U	0.43 U			
2-Chlorophenol	0.195	1400 (c)	0.42 U	0.43 U			
Chrysene	0.3	9 (c)	1.4	0.28 J			
Dibenz(a,h)anthracene	0.195	0.09 (c)	0.42 U	0.43 U			

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL096-SS-01	AL-GL097-SS-01			
Dibenzofuran	0.1925	--	0.062 J	0.43 U			
1,4-Dichlorobenzene	0.195	27 (c)	0.42 U	0.43 U			
Diethylphthalate	0.195	220000 (c)	0.42 U	0.43 U			
2,4-Dimethylphenol	0.195	5500 (c)	0.42 U	0.43 U			
di-n-Butyl Phthalate	0.1925	7800 (d)	0.42 U	0.041 J			
di-n-Octyl Phthalate	0.195	1600 (d)	0.42 U	0.028 J			
Fluoranthene	0.345	11000 (c)	2.1	0.47			
Fluorene	0.1925	11000 (c)	0.14 J	0.43 U			
Indeno(1,2,3-cd)pyrene	0.21	0.9 (c)	0.68	0.16 J			
2-Methylnaphthalene	0.195	--	0.42 U	0.43 U			
2-Methylphenol	0.195	14000 (c)	0.42 U	0.43 U			
4-Methylphenol	0.195	14000 (c)	0.42 U	0.43 U			
Naphthalene	0.195	1100 (c)	0.42 U	0.43 U			
Phenanthrene	0.21	7900 (c)	1.4	0.2 J			
Pyrene	0.355	8200 (c)	1.7	0.39 J			
Pesticides/PCBs							
Aldrin	0.001025	0.038 (d)	0.0022 U	0.0022 U			
Aroclor 1248	0.0195	0.083 (d)	0.042 U	0.043 U			
Aroclor 1254	0.0195	0.083 (d)	0.042 U	0.043 U			
Aroclor 1260	0.01975	0.083 (d)	0.042 U	0.043 U			
alpha-BHC	0.001	0.1 (d)	0.0022 U	0.0022 U			
beta-BHC	0.001	0.35 (d)	0.0022 U	0.0022 U			
delta-BHC	0.001	--	0.0022 U	0.0022 U			
gamma-BHC	0.001	0.49 (d)	0.0022 U	0.0022 U			
alpha-Chlordane	0.00181	0.49 (d)	0.015	0.0212 J			
gamma-Chlordane	0.001575	0.49 (d)	0.0075 J	0.0173			
4,4'-DDD	0.00195	2.7 (d)	0.0042 U	0.00546 J			
4,4'-DDE	0.002075	1.9 (d)	0.0042 U	0.0043 U			
4,4'-DDT	0.008225	1.9 (d)	0.013 J	0.0153 J			

Key at end of table.

Table 4.1-21

SUMMARY ORGANIC RESULTS FOR SURFACE SOIL - 0 TO 3 INCHES: UNDEVELOPED LANDFILL GRID
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL096-SS-01	AL-GL097-SS-01			
Dieldrin	0.01225	0.04 (d)	0.0042 U	0.00489 J			
Endosulfan I	0.001	470 (d)	0.0022 U	0.0022 U			
Endosulfan II	0.001975	470 (d)	0.0042 U	0.0063 J			
Endosulfan Sulfate	0.00195	--	0.0042 U	0.0043 U			
Endrin	0.002075	23 (d)	0.0088 J	0.00854 J			
Endrin Aldehyde	0.005135	--	0.0074 J	0.0486 J			
Endrin Ketone	0.001975	--	0.007 J	0.0063			
Heptachlor	0.001	0.14 (d)	0.0022 U	0.0022 U			
Heptachlor Epoxide	0.001025	0.07 (d)	0.0022 U	0.0022 U			
Methoxychlor	0.01	390 (d)	0.022 U	0.022 U			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-22

SUMMARY OF DIOXIN RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Sample Number	Concentration
AL-GL001-SS-01	0.0057
AL-GL003-SS-01	0.0017
AL-GL006-SS-01	0.0026
AL-GL009-SS-01	0.0059
AL-GL010-SS-01	0.0028
AL-GL013-SS-01	0.309
AL-GL022-SS-01	0.0888
AL-GL028-SS-01	0.0706
AL-GL030-SS-01	0.049
AL-GL035-SS-01	0.0256
AL-GL037-SS-01	0.0133
AL-GL044-SS-01	0.0944
AL-GL045-SS-01	0.2176
AL-GL047-SS-01	0.0173
AL-GL053-SS-01	0.0362
AL-GL062-SS-01	0.0008
AL-GL069-SS-01	0.0668
AL-GL071-SS-01	0.0077
AL-GL072-SS-01	0.0018
AL-GL078-SS-01	0.0364
AL-GL081-SS-01	0.0007
AL-GL086-SS-01	0.0563
AL-GL088-SS-01	0.0013
AL-GL096-SS-01	0.001

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-23

SUMMARY OF RCRA CHARACTERISTIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994

Analyte	Sample Number				
	AL-GL010-SS-03	AL-GL012-SS-03	AL-GL013-SS-03	AL-GL021-SS-02	AL-GL070-SS-03
Corrosivity	Non-corrosive	Non-corrosive	Non-corrosive	Non-corrosive	Non-corrosive
Ignitability	> 200° F	> 200° F	> 200° F	> 200° F	> 200° F
pH	7.839	7.994	7.773	7.797	7.759
Reactive Cyanide	data unusable	data unusable	data unusable	data unusable	data unusable
Reactive Sulfide	data unusable	data unusable	data unusable	data unusable	data unusable
Reactivity	Non-reactive	Non-reactive	Non-reactive	Non-reactive	Non-reactive
TCLP	Passed	Passed	Passed	Passed	Passed

Table 4.1-24

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	18/18	100	--	--	3550	14200	8870	2900	8870	2900	11735	4/18	79000 (c)	0/18
Antimony	9/18	50	5.28	14.1	3.76	56	27.2	15.4	16.4	15.4	3.65	9/18	110 (c)	0/18
Arsenic	18/18	100	--	--	4.6	110	36.5	26.9	36.5	26.9	6.2	16/18	0.37 (c)	18/18
Barium	18/18	100	--	--	117	1680	817	436	817	436	246	16/18	14000 (c)	0/18
Beryllium	11/18	61.1	0.209	0.42	0.15	0.88	0.439	0.219	0.321	0.227	0.935	0/18	0.15 (c)	10/18
Cadmium	15/18	83.3	0.693	0.748	0.874	23.7	9.97	7.19	8.37	7.5	0.625	15/18	140 (c)	0/18
Calcium	18/18	100	--	--	9550	75600	35600	18500	35600	18500	10225.5	17/18	NA	NA
Chromium	18/18	100	--	--	7.65	183	71.1	44.3	71.1	44.3	17.9	17/18	1400 (c)	0/18
Cobalt	18/18	100	--	--	4.19	37.1	18.5	10.4	18.5	10.4	8.6	13/18	2.7 (c)	18/18
Copper	18/18	100	--	--	26.1	33700	2530	7780	2530	7780	28.3	17/18	10000 (c)	1/18
Cyanide	7/18	38.8	0.64	1.36	0.86	3.7	2.19	1.05	1.18	1.05	0.355	7/18	5500 (c)	0/18
Iron	18/18	100	--	--	9650	237000	128000	82300	128000	82300	18221.5	17/18	NA	NA
Lead	18/18	100	--	--	41.9	4460	1930	1180	1930	1180	28.05	18/18	400 (c)	15/18
Magnesium	18/18	100	--	--	1470	4580	2680	854	2680	854	4368	1/18	NA	NA
Manganese	18/18	100	--	--	134	4890	1060	1060	1060	1060	293.5	16/18	27000 (c)	0/18
Mercury	17/18	94.4	0.116	0.116	0.29	3.3	1.58	0.995	1.49	1.03	0.085	17/18	82 (c)	0/18
Nickel	18/18	100	--	--	18	227	84.3	55.8	84.3	55.8	24.15	17/18	5500 (c)	0/18
Potassium	18/18	100	--	--	367	2760	1410	704	1410	704	1592.5	6/18	NA	NA
Selenium	10/18	55.5	0.626	1.24	0.32	7.9	1.52	2.29	1.02	1.76	0.595	6/18	820 (c)	0/18
Silver	15/18	83.3	0.82	2.24	1.46	115	18	27.5	15.2	25.8	0.505	15/18	820 (c)	0/18
Sodium	18/18	100	--	--	50.8	1100	458	306	458	306	271	13/18	NA	NA
Thallium	5/11	45.4	0.924	1.8	0.55	21.6	8.05	8.41	4	6.58	0.275	5/11	19 (c)	1/11
Vanadium	17/18	94.4	1	1	10.6	50.3	28.4	13.3	26.8	14.4	29.45	7/18	1800 (c)	0/18
Zinc	18/18	100	--	--	60.1	10300	3120	2600	3120	2600	107.5	17/18	55000 (c)	0/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-25

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Chloromethane	1/18	5.5	0.011	0.016	0.011	0.011	0.011	--	0.00652	0.0013	0.007	1/18	49 (d)	0/18
Bromomethane	1/18	5.5	0.011	0.016	0.096	0.096	0.096	--	0.0112	0.0212	0.007	1/18	380 (c)	0/18
1,1-Dichloroethene	1/18	5.5	0.011	0.016	0.007	0.007	0.007	--	0.0063	0.000689	0.00675	1/18	1.1 (c)	0/18
1,2-Dichloroethene	1/18	5.5	0.011	0.016	0.005	0.005	0.005	--	0.00619	0.00073	0.0065	0/18	2700 (c)	0/18
Methylene Chloride	4/17	23.5	0.011	0.032	0.002	0.016	0.00875	0.0068	0.00808	0.00409	0.015	1/17	85 (c)	0/17
Toluene	7/18	38.8	0.011	0.016	0.002	0.056	0.0137	0.0191	0.00922	0.012	0.00625	3/18	55000 (c)	0/18
1,1,1-Trichloroethane	2/18	11.1	0.011	0.016	0.001	0.002	0.0015	0.000707	0.00572	0.00169	0.007	0/18	25000 (c)	0/18
Xylene	4/18	22.2	0.011	0.016	0.002	0.006	0.00425	0.0017	0.00588	0.0013	0.00725	0/18	550000 (c)	0/18
Semivolatile Organic Compounds														
Acenaphthene	8/18	44.4	0.35	0.86	0.021	0.14	0.0719	0.0494	0.161	0.103	0.215	0/18	16000 (c)	0/18
Acenaphthylene	7/18	38.8	0.38	0.86	0.02	0.093	0.0534	0.0266	0.164	0.106	0.2325	0/18	27000 (c)	0/18
Anthracene	11/18	61.1	0.38	0.52	0.041	0.67	0.267	0.211	0.247	0.165	0.215	5/18	82000 (c)	0/18
Benzo(a)anthracene	16/18	88.8	0.41	0.42	0.024	2.9	0.874	0.935	0.8	0.904	0.21	11/18	0.9 (c)	6/18
Benzo(a)pyrene	16/18	88.8	0.4	0.41	0.022	2.1	0.728	0.688	0.67	0.668	0.2125	11/18	0.09 (c)	14/18
Benzo(b)fluoranthene	17/18	94.4	0.41	0.41	0.028	3	0.88	0.915	0.842	0.902	0.245	12/18	0.9 (c)	6/18
Benzo(g,h,i)perylene	17/18	94.4	0.41	0.41	0.024	2.1	0.635	0.613	0.611	0.603	0.2125	12/18	1100 (c)	0/18
Benzo(k)fluoranthene	10/18	55.5	0.38	0.86	0.023	3.1	0.806	1.02	0.551	0.803	0.22	6/18	0.9 (c)	3/18
Bis(2-ethylhexyl)phthalate	4/17	23.5	0.35	0.86	0.099	1.7	0.572	0.761	0.309	0.367	0.24	2/17	46 (c)	0/17
Butylbenzylphthalate	2/18	11.1	0.35	0.86	0.086	0.2	0.143	0.0806	0.211	0.0647	0.2325	0/18	55000 (c)	0/18
Carbazole	10/18	55.5	0.38	0.86	0.025	0.55	0.174	0.155	0.204	0.129	0.215	3/18	32 (d)	0/18
Chrysene	18/18	100	--	--	0.025	3.5	0.83	1	0.83	1	0.2275	11/18	9 (c)	0/18
Dibenz(a,h)anthracene	6/18	33.3	0.35	0.86	0.072	0.93	0.389	0.311	0.281	0.194	0.2325	3/18	0.09 (c)	5/18
Dibenzofuran	7/18	38.8	0.35	0.86	0.026	0.088	0.0557	0.0247	0.162	0.104	0.22	0/18	--	NA
di-n-Butyl Phthalate	7/18	38.8	0.38	0.86	0.027	0.71	0.158	0.245	0.203	0.159	0.22	1/18	7800 (d)	0/18
Fluoranthene	17/18	94.4	0.41	0.41	0.028	7.2	1.27	1.79	1.21	1.76	0.24	10/18	11000 (c)	0/18
Fluorene	8/18	44.4	0.38	0.86	0.019	0.26	0.0991	0.0901	0.175	0.105	0.215	1/18	11000 (c)	0/18
Indeno(1,2,3-cd)pyrene	16/18	88.8	0.41	0.42	0.035	1.7	0.594	0.577	0.551	0.556	0.2125	11/18	0.9 (c)	3/18
2-Methylnaphthalene	7/18	38.8	0.35	0.86	0.033	0.13	0.0549	0.036	0.161	0.105	0.22	0/18	--	NA
Naphthalene	11/18	61.1	0.38	0.52	0.02	0.17	0.0614	0.0466	0.122	0.0877	0.22	0/18	1100 (c)	0/18
Phenanthrene	13/18	72.2	0.4	0.52	0.045	4.1	0.92	1.12	0.727	0.998	0.215	10/18	7900 (c)	0/18
Pyrene	16/18	88.8	0.41	0.42	0.032	5.4	1.25	1.46	1.13	1.41	0.24	11/18	8200 (c)	0/18

Key at end of table.

Table 4.1-25

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Pesticides/PCBs														
Aldrin	2/18	11.1	0.0018	0.0047	0.00324	0.00452	0.00387	0.000905	0.00145	0.000964	0.0012	2/18	0.038 (d)	0/18
Aroclor 1254	1/18	5.5	0.035	0.43	1.9	1.9	1.89	--	0.136	0.443	0.02325	1/18	0.083 (d)	1/18
Aroclor 1260	3/18	16.6	0.035	0.43	0.07	0.35	0.203	0.14	0.0619	0.0929	0.02325	3/18	0.083 (d)	2/18
alpha-BHC	2/18	11.1	0.0018	0.0027	0.0025	0.00575	0.00412	0.00229	0.00141	0.00113	0.0012	2/18	0.1 (d)	0/18
beta-BHC	3/18	16.6	0.0018	0.0027	0.00403	0.0266	0.0117	0.0129	0.00283	0.00601	0.0012	3/18	0.35 (d)	0/18
delta-BHC	2/18	11.1	0.0018	0.0027	0.0035	0.005	0.00425	0.00106	0.00143	0.00106	0.0012	2/18	--	NA
gamma-BHC	4/18	22.2	0.0018	0.0027	0.00256	0.00386	0.00317	0.000577	0.00154	0.00093	0.001125	4/18	0.49 (d)	0/18
alpha-Chlordane	15/18	83.3	0.0021	0.0026	0.00182	0.074	0.0197	0.0215	0.0166	0.0208	0.001175	15/18	0.49 (d)	0/18
gamma-Chlordane	14/18	77.7	0.0021	0.0026	0.00128	0.066	0.0178	0.0189	0.0141	0.018	0.0012	14/18	0.49 (d)	0/18
4,4'-DDD	13/18	72.2	0.0038	0.005	0.00433	0.31	0.0457	0.0884	0.0336	0.0769	0.002325	13/18	2.7 (d)	0/18
4,4'-DDE	12/18	66.6	0.0038	0.005	0.00893	0.32	0.0597	0.0874	0.0405	0.0757	0.00235	12/18	1.9 (d)	0/18
4,4'-DDT	12/18	66.6	0.0038	0.042	0.00552	1.1	0.118	0.31	0.0804	0.255	0.002225	12/18	1.9 (d)	0/18
Dieldrin	9/18	50	0.0038	0.0052	0.00658	0.034	0.0125	0.0085	0.00731	0.0079	0.00235	9/18	0.04 (d)	0/18
Endosulfan II	5/18	27.7	0.0038	0.0052	0.00776	0.039	0.0161	0.0129	0.006	0.009	0.0022	5/18	470 (d)	0/18
Endosulfan Sulfate	2/18	11.1	0.0035	0.0052	0.0065	0.0097	0.00809	0.00226	0.00273	0.00203	0.00235	2/18	--	NA
Endrin	6/18	33.3	0.0035	0.0052	0.0045	0.028	0.0144	0.00997	0.00617	0.00805	0.0022	6/18	23 (d)	0/18
Endrin Aldehyde	11/18	61.1	0.0038	0.0043	0.00607	0.056	0.0199	0.0147	0.0129	0.0144	0.002325	11/18	--	NA
Endrin Ketone	2/18	11.1	0.0035	0.0052	0.011	0.0116	0.0113	0.000424	0.00308	0.00299	0.002325	2/18	--	NA
Heptachlor	2/18	11.1	0.0018	0.0026	0.0038	0.005	0.0044	0.000849	0.00142	0.0011	0.001125	2/18	0.14 (d)	0/18
Heptachlor Epoxide	7/18	38.8	0.0018	0.0027	0.002	0.00412	0.00324	0.000875	0.00193	0.0012	0.001125	7/18	0.07 (d)	0/18
Methoxychlor	3/18	16.6	0.018	0.027	0.031	0.088	0.0543	0.0299	0.0181	0.0196	0.012	3/18	390 (d)	0/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-26

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_dioxin_STATS-03/08/95-D1

Table 4.1-27

STATISTICAL ANALYSIS OF PHYSIOCHEMICAL RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All
Alkalinity	18/18	100	--	--	8000	36000	21800	6610	21800	6610
Fluoride	16/18	88.8	51	51	53.8	339	135	76.2	123	79.9
Nitrate-N	18/18	100	--	--	157	3060	1450	1070	1450	1070
pH (pH units)	18/18	100	--	--	7.9	8.7	8.28	0.216	8.28	0.216
Phosphate	18/18	100	--	--	16.3	317	117	84.3	117	84.3
Sulfate	15/18	83.3	500	500	870	9670	2860	2250	2420	2270
Total Organic Carbon	18/18	100	--	--	1060	6330	2730	1460	2730	1460

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-28

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL007-SS-02	AL-GL008-SS-02	AL-GL009-SS-02	AL-GL010-SS-02	AL-GL011-SS-02
Aluminum	11735	79000 (c)	14178	11514	12635	8364	8019
Antimony	3.65	110 (c)	7.2 U	19.4 J	26.8	22.9	20.2
Arsenic	6.2	0.37 (c)	**4.6 JL**	**42.3 JL**	**34.2 JL**	**32.6 JL**	**27.3 JL**
Barium	246	14000 (c)	315	893	936	885	1353
Beryllium	0.935	0.15 (c)	**0.88**	**0.37**	0.15	**0.2**	**0.57**
Cadmium	0.625	140 (c)	1.3	11.7	13.1	18.3	23.7
Calcium	10225.5	NA	11342	32372	46198	50391	33120
Chromium	17.9	1400 (c)	21	90.6	107	127	68.2
Cobalt	8.6	2.7 (c)	**9.4**	**27.9**	**34**	**37.1**	**13.6**
Copper	28.3	10000 (c)	49.5	816	964	1214	854
Cyanide	0.355	5500 (c)	0.73 U	0.99	0.64 U	0.86	3.2
Iron	18221.5	NA	20007	159720	208421	236687	92919
Lead	28.05	400 (c)	181	**2212**	**2618**	**2791**	**2018**
Magnesium	4368	NA	4575	3013	3040	2954	3939
Manganese	293.5	27000 (c)	427	1132	1195	1205	713
Mercury	0.085	82 (c)	0.33	1.2	1.9	0.29	3.3
Nickel	24.15	5500 (c)	25	101	227	159	56.6
Potassium	1592.5	NA	2756	1920	2625	1290	1432
Selenium	0.595	820 (c)	0.96 JL	0.64 JL	0.99 JL	0.51 JL	0.55 JL
Silver	0.505	820 (c)	0.82 U	12.9	115	13.6	9.8
Sodium	271	NA	109	786	1090	405	368
Thallium	0.275	19 (c)	0.55 JL	R	R	R	R
Vanadium	29.45	1800 (c)	39.6	18	15.1	10.6	18.2
Zinc	107.5	55000 (c)	406	2310	5157	2702	3657

Key at end of table.

Table 4.1-28

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL012-SS-02	AL-GL013-SS-02	AL-GL014-SS-02	AL-GL023-SS-02	AL-GL030-SS-02
Aluminum	11735	79000 (c)	8099	5319	8469	5368.899	3547.862
Antimony	3.65	110 (c)	44.5	19.3 J	32 J	11.805 U	10.845 U
Arsenic	6.2	0.37 (c)	**22.8 JL**	**64 J**	**37.1 J**	**16.415**	**18.25**
Barium	246	14000 (c)	1096	1682 J	1208 J	533.621	352.492
Beryllium	0.935	0.15 (c)	**0.24**	0.27 UC	0.42 UC	**0.381**	0.209 U
Cadmium	0.625	140 (c)	13.5	15	15.1	4.518 JL	0.874 JL
Calcium	10225.5	NA	41946	75610	64447	29616.345	9549.948
Chromium	17.9	1400 (c)	82.3	79.8	102	36.879	29.118
Cobalt	8.6	2.7 (c)	**21.3**	**23.9**	**30.6**	**6.847**	**7.633**
Copper	28.3	10000 (c)	**33660**	689	1426	557.162	243.754
Cyanide	0.355	5500 (c)	2.4	3.7	2.2	1.135 U	1.043 U
Iron	18221.5	NA	131869	159579 J	228936 J	60029.512	40656.934
Lead	28.05	400 (c)	**2829**	**2637**	**2975**	**1153.53**	**783.253**
Magnesium	4368	NA	2550	2272	2992	1852.963	1563.253
Manganese	293.5	27000 (c)	1022	800	1401	402.202	316.35
Mercury	0.085	82 (c)	2.5	2.7 J	2.8 J	0.517	1.058
Nickel	24.15	5500 (c)	79.5	78.5 J	138 J	40.064	30.986
Potassium	1592.5	NA	1099	1045	1269	786.447 J	366.653 J
Selenium	0.595	820 (c)	0.32 JL	7.9 J	0.42 J	0.681 U	0.626 U
Silver	0.505	820 (c)	16	15.7	18.6	3.934	4.991
Sodium	271	NA	385	1100	338	241.181 JL	50.793 JL
Thallium	0.275	19 (c)	R	R	R	5.026	2.736
Vanadium	29.45	1800 (c)	10.7	46.4	26.6	25.553	16.067
Zinc	107.5	55000 (c)	7833	2919	3898	1951.986	1075.537

Key at end of table.

Table 4.1-28

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL038-SS-02	AL-GL046-SS-02	AL-GL054-SS-02	AL-GL062-SS-02	AL-GL070-SS-02
Aluminum	11735	79000 (c)	8243.211	11102.596	6396.998	11827.93	6397.286
Antimony	3.65	110 (c)	12.279 UJ	55.973 J	12.009 U	12.968 U	14.111 U
Arsenic	6.2	0.37 (c)	**68.975**	**47.644**	**5.268**	**17.294**	**28.763**
Barium	246	14000 (c)	655.939	792.583	116.795	463.741	709.145
Beryllium	0.935	0.15 (c)	0.236 U	0.247 U	**0.45**	**0.516**	0.271 U
Cadmium	0.625	140 (c)	1.367 JL	0.742 UJL	0.69299 U	0.748 U	4.041
Calcium	10225.5	NA	28120.425	27750.309	14744.804	52306.733	24607.87
Chromium	17.9	1400 (c)	69.929	79.001	7.649	22.594	61.544
Cobalt	8.6	2.7 (c)	**23.887**	**16.146**	**4.194**	**6.509**	**14.499 JL**
Copper	28.3	10000 (c)	884.392	976.539	26.129	185.222	612.809
Cyanide	0.355	5500 (c)	1.181 U	1.236 U	1.155 U	1.247 U	1.357 U
Iron	18221.5	NA	232257.379	152215.08	9651.963	29334.165	121454.546
Lead	28.05	400 (c)	**1812.822**	**2296.712**	41.945	**910.873**	**1919.186**
Magnesium	4368	NA	1644.439	2890.235	2089.769	2848.13	1472.754
Manganese	293.5	27000 (c)	1411.358	4888.752	133.559	304.963	761.683
Mercury	0.085	82 (c)	1.234	1.292	0.116 U	0.53	1.574
Nickel	24.15	5500 (c)	130.687	106.67	17.982	28.314	64.182
Potassium	1592.5	NA	636.789 J	1632.287 J	900.624 J	2228.828 J	1111.126
Selenium	0.595	820 (c)	0.708 U	0.742 U	1.03	0.748 U	0.81399 U
Silver	0.505	820 (c)	3.27	5.81	2.079 U	2.244 U	11.91
Sodium	271	NA	563.211 JL	818.047 JL	178.314 JL	479.327	402.361 JL
Thallium	0.275	19 (c)	**21.61**	10.304	0.924 U	0.998 U	1.086 U
Vanadium	29.45	1800 (c)	50.342	42.791	17.37	37.638	28.581
Zinc	107.5	55000 (c)	10255.962	3411.125	60.076	954.514	3038.263

Key at end of table.

Table 4.1-28

SUMMARY OF INORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL079-SS-02	AL-GL087-SS-02	AL-GL096-SS-02		
Aluminum	11735	79000 (c)	8039	10115.355	12026		
Antimony	3.65	110 (c)	5.28 UCJ	13.419 U	3.76 J		
Arsenic	6.2	0.37 (c)	**110 J**	66.387	**12.3 J**		
Barium	246	14000 (c)	1388	1099.536	234		
Beryllium	0.935	0.15 (c)	0.25 U	**0.377 JL**	**0.7**		
Cadmium	0.625	140 (c)	14.1 J	11.533	1.39 J		
Calcium	10225.5	NA	42814	45393.548	11006		
Chromium	17.9	1400 (c)	183	91.05	20.4		
Cobalt	8.6	2.7 (c)	**24**	**25.014**	**6.53**		
Copper	28.3	10000 (c)	924 J	1460.129	81.9 J		
Cyanide	0.355	5500 (c)	2	1.29 U	0.64 U		
Iron	18221.5	NA	228409	178214.194	19566		
Lead	28.05	400 (c)	**4459 J**	**2858.065**	187 J		
Magnesium	4368	NA	2311	2379.174	3910		
Manganese	293.5	27000 (c)	1380 J	1356.465	216 J		
Mercury	0.085	82 (c)	2.33 J	2.748	0.49 J		
Nickel	24.15	5500 (c)	104	104.563	26.2		
Potassium	1592.5	NA	1157	746.348	2388		
Selenium	0.595	820 (c)	1.24 U	0.774 U	1.91		
Silver	0.505	820 (c)	18.2	19.143	1.46		
Sodium	271	NA	402	318.348 JL	214		
Thallium	0.275	19 (c)	1.74 U	1.032 U	1.8 U		
Vanadium	29.45	1800 (c)	1 U	44.09	34.8		
Zinc	107.5	55000 (c)	2929	3381.936	213		

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

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Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL007-SS-02	AL-GL008-SS-02	AL-GL009-SS-02	AL-GL010-SS-02	AL-GL011-SS-02
Volatile Organic Compounds							
Bromomethane	0.007	380 (c)	0.015 U	0.016 U	0.012 U	0.013 U	0.012 U
Chloromethane	0.007	49 (d)	0.015 U	0.016 U	0.012 U	0.013 U	0.012 U
1,1-Dichloroethene	0.00675	1.1 (c)	0.015 U	0.016 U	0.012 U	0.013 U	0.012 U
1,2-Dichloroethene	0.0065	2700 (c)	0.015 U	0.016 U	0.012 U	0.013 U	0.012 U
Methylene Chloride	0.015	85 (c)	0.016 J	0.013 J	0.012 U	0.002 J	0.022 U
Toluene	0.00625	55000 (c)	0.015 UJ	0.016 U	0.012 U	0.013 U	0.012 U
1,1,1-Trichloroethane	0.007	25000 (c)	0.015 UJ	0.016 U	0.012 U	0.013 U	0.012 U
Xylene	0.00725	550000 (c)	0.015 UJ	0.016 U	0.012 U	0.013 U	0.012 U
Semivolatile Organic Compounds							
Acenaphthene	0.215	16000 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.021 J
Acenaphthylene	0.2325	27000 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.054 J
Anthracene	0.215	82000 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.16 J
Benzo(a)anthracene	0.21	0.9 (c)	0.13 J	0.11 J	0.41 U	0.42 U	0.64
Benzo(a)pyrene	0.2125	0.09 (c)	**0.12 J**	**0.15 J**	0.41 U	0.022 J	**0.55**
Benzo(b)fluoranthene	0.245	0.9 (c)	0.1 J	0.12 J	0.41 U	0.043 J	0.87
Benzo(g,h,i)perylene	0.2125	1100 (c)	0.081 J	0.11 J	0.41 U	0.024 J	0.74
Benzo(k)fluoranthene	0.22	0.9 (c)	0.16 J	0.14 J	0.029 J	0.42 U	0.39 U
Bis(2-ethylhexyl)phthalate	0.24	46 (c)	0.5 UC	0.52 UC	0.41 U	0.42 UC	6.2 B
Butylbenzylphthalate	0.2325	55000 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.39 U
Carbazole	0.215	32 (d)	0.5 U	0.52 U	0.41 U	0.42 U	0.11 J
Chrysene	0.2275	9 (c)	0.14 J	0.14 J	0.025 J	0.025 J	0.7
Dibenz(a,h)anthracene	0.2325	0.09 (c)	0.5 U	0.52 U	0.41 U	0.42 U	**0.23 J**
Dibenzofuran	0.22	--	0.5 U	0.52 U	0.41 U	0.42 U	0.026 J
di-n-Butyl Phthalate	0.22	7800 (d)	0.5 U	0.52 U	0.41 U	0.42 U	0.082 J
Fluoranthene	0.24	11000 (c)	0.17 J	0.16 J	0.41 U	0.028 J	0.85
Fluorene	0.215	11000 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.029 J
Indeno(1,2,3-cd)pyrene	0.2125	0.9 (c)	0.076 J	0.099 J	0.41 U	0.42 U	0.51
2-Methylnaphthalene	0.22	--	0.5 U	0.52 U	0.41 U	0.42 U	0.046 J

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL007-SS-02	AL-GL008-SS-02	AL-GL009-SS-02	AL-GL010-SS-02	AL-GL011-SS-02
Naphthalene	0.22	1100 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.12 J
Phenanthrene	0.215	7900 (c)	0.5 U	0.52 U	0.41 U	0.42 U	0.45
Pyrene	0.24	8200 (c)	0.15 J	0.16 J	0.41 U	0.42 U	0.68
Pesticides/PCBs							
Aldrin	0.0012	0.038 (d)	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.002 U
Aroclor 1254	0.02325	0.083 (d)	0.05 U	0.052 U	0.041 U	0.042 U	0.039 U
Aroclor 1260	0.02325	0.083 (d)	0.05 U	0.052 U	0.041 U	0.042 U	0.07 J
alpha-BHC	0.0012	0.1 (d)	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.002 U
beta-BHC	0.0012	0.35 (d)	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.002 U
delta-BHC	0.0012	--	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.002 U
gamma-BHC	0.001125	0.49 (d)	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.00286 J
alpha-Chlordane	0.001175	0.49 (d)	0.0026 U	0.021 J	0.00182 J	0.0022 U	0.00367
gamma-Chlordane	0.0012	0.49 (d)	0.0026 U	0.014 J	0.00128 J	0.0022 U	0.00385 J
4,4'-DDD	0.002325	2.7 (d)	0.005 U	0.0075 JH	0.0041 U	0.0042 U	0.00433 J
4,4'-DDE	0.00235	1.9 (d)	0.005 U	0.011 J	0.0041 U	0.0042 U	0.0114
4,4'-DDT	0.002225	1.9 (d)	0.024 J	0.0085 JH	0.0041 U	0.042 U	0.0039 UJ
Dieldrin	0.00235	0.04 (d)	0.005 U	0.0052 U	0.0041 U	0.0042 U	0.0039 U
Endosulfan II	0.0022	470 (d)	0.005 U	0.0052 U	0.0041 U	0.0042 U	0.0039 U
Endosulfan Sulfate	0.00235	--	0.005 U	0.0052 U	0.0041 U	0.0042 U	0.0039 UJ
Endrin	0.0022	23 (d)	0.005 U	0.0052 U	0.0041 U	0.0042 U	0.0039 U
Endrin Aldehyde	0.002325	--	0.018 J	0.018 JH	0.0041 U	0.00607 JT	0.0039 UJ
Endrin Ketone	0.002325	--	0.005 U	0.0052 U	0.0041 U	0.0042 U	0.0039 U
Heptachlor	0.001125	0.14 (d)	0.0026 U	0.005 J	0.0021 U	0.0022 U	0.002 U
Heptachlor Epoxide	0.001125	0.07 (d)	0.0026 U	0.0027 U	0.0021 U	0.0022 U	0.002 U
Methoxychlor	0.012	390 (d)	0.026 U	0.027 U	0.021 U	0.022 U	0.02 U

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL012-SS-02	AL-GL013-SS-02	AL-GL014-SS-02	AL-GL023-SS-02	AL-GL030-SS-02
Volatile Organic Compounds							
Bromomethane	0.007	380 (c)	0.011 U	0.013 U	0.013 U	0.096 J	0.011 U
Chloromethane	0.007	49 (d)	0.011 U	0.013 U	0.013 U	0.011 U	0.011 U
1,1-Dichloroethene	0.00675	1.1 (c)	0.011 U	0.013 U	0.013 U	0.007 J	0.011 U
1,2-Dichloroethene	0.0065	2700 (c)	0.011 U	0.013 U	0.013 U	0.005 J	0.011 U
Methylene Chloride	0.015	85 (c)	0.011 U	0.02 U	0.023 U	0.032 UJ	0.011 U
Toluene	0.00625	55000 (c)	0.015 J	0.056 J	0.013 U	0.006 J	0.002 J
1,1,1-Trichloroethane	0.007	25000 (c)	0.011 U	0.013 U	0.013 U	0.011 UJ	0.011 U
Xylene	0.00725	550000 (c)	0.005 J	0.006 J	0.013 U	0.004 J	0.002 J
Semivolatile Organic Compounds							
Acenaphthene	0.215	16000 (c)	0.38 U	0.058 J	0.024 J	0.14 J	0.35 U
Acenaphthylene	0.2325	27000 (c)	0.38 U	0.43 U	0.031 J	0.084 J	0.02 J
Anthracene	0.215	82000 (c)	0.38 U	0.48	0.19 J	0.67	0.1 J
Benzo(a)anthracene	0.21	0.9 (c)	0.18 J	2.9	0.94	2.9	0.43
Benzo(a)pyrene	0.2125	0.09 (c)	0.17 J	1.9 J	0.88 J	2.1	0.42
Benzo(b)fluoranthene	0.245	0.9 (c)	0.3 J	3 J	1.5 J	2.9	0.48
Benzo(g,h,i)perylene	0.2125	1100 (c)	0.25 J	1.5 J	0.93 J	1.6	0.36
Benzo(k)fluoranthene	0.22	0.9 (c)	0.38 U	0.43 U	0.42 U	3.1	0.35 J
Bis(2-ethylhexyl)phthalate	0.24	46 (c)	0.099 J	0.13 J	0.42 U	0.38 U	0.35 U
Butylbenzylphthalate	0.2325	55000 (c)	0.38 U	0.43 U	0.42 U	0.38 U	0.35 U
Carbazole	0.215	32 (d)	0.38 U	0.55	0.2 J	0.16 J	0.035 J
Chrysene	0.2275	9 (c)	0.21 J	2.7	1.1	3.5	0.48
Dibenz(a,h)anthracene	0.2325	0.09 (c)	0.072 J	0.93	0.55	0.38 U	0.35 U
Dibenzofuran	0.22	--	0.38 U	0.047 J	0.039 J	0.088 J	0.35 U
di-n-Butyl Phthalate	0.22	7800 (d)	0.38 U	0.09 J	0.049 J	0.096 J	0.027 J
Fluoranthene	0.24	11000 (c)	0.16 J	3.2	1.2	7.2	0.75
Fluorene	0.215	11000 (c)	0.38 U	0.061 J	0.023 J	0.26 J	0.019 J
Indeno(1,2,3-cd)pyrene	0.2125	0.9 (c)	0.2 J	1.7	0.82	1.5	0.3 J
2-Methylnaphthalene	0.22	--	0.38 U	0.13 J	0.033 J	0.033 J	0.35 U

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL012-SS-02	AL-GL013-SS-02	AL-GL014-SS-02	AL-GL023-SS-02	AL-GL030-SS-02
Naphthalene	0.22	1100 (c)	0.023 J	0.17 J	0.062 J	0.028 J	0.02 J
Phenanthrene	0.215	7900 (c)	0.074 J	1.2	0.63	4.1	0.34 J
Pyrene	0.24	8200 (c)	0.18 J	2.7	0.81	5.4	0.84
Pesticides/PCBs							
Aldrin	0.0012	0.038 (d)	0.002 U	0.0022 U	0.0022 U	0.0019 U	0.0018 U
Aroclor 1254	0.02325	0.083 (d)	0.038 U	0.043 U	0.042 U	0.038 U	0.035 U
Aroclor 1260	0.02325	0.083 (d)	0.038 U	0.19 J	0.35	0.038 U	0.035 U
alpha-BHC	0.0012	0.1 (d)	0.002 U	0.0022 U	0.0022 U	0.0019 U	0.0018 U
beta-BHC	0.0012	0.35 (d)	0.002 U	0.0266 JT	0.00403 J	0.0019 U	0.0018 U
delta-BHC	0.0012	--	0.002 U	0.0022 U	0.0022 U	0.0035 JT	0.0018 U
gamma-BHC	0.001125	0.49 (d)	0.00386	0.0022 U	0.00256 J	0.0019 U	0.0018 U
alpha-Chlordane	0.001175	0.49 (d)	0.00368	0.00698 J	0.0153	0.074	0.027
gamma-Chlordane	0.0012	0.49 (d)	0.00316 J	0.00586	0.0177	0.066 J	0.025 J
4,4'-DDD	0.002325	2.7 (d)	0.00828 NJ	0.00548 J	0.0172	0.31	0.15 J
4,4'-DDE	0.00235	1.9 (d)	0.0138 NJ	0.0268	0.037	0.12 J	0.32 J
4,4'-DDT	0.002225	1.9 (d)	0.0038 U	0.0043 UJ	0.0042 UJ	0.041 JH	1.1
Dieldrin	0.00235	0.04 (d)	0.0038 U	0.0113	0.00889	0.034 J	0.0089 J
Endosulfan II	0.0022	470 (d)	0.0038 U	0.0043 U	0.0042 UJ	0.0038 U	0.012 JH
Endosulfan Sulfate	0.00235	--	0.0038 U	0.0043 U	0.0042 UJ	0.0038 U	0.0035 U
Endrin	0.0022	23 (d)	0.0038 U	0.0043 U	0.0042 UJ	0.0038 U	0.0035 U
Endrin Aldehyde	0.002325	--	0.00948 J	0.0043 UJ	0.0042 UJ	0.0038 U	0.016 JTH
Endrin Ketone	0.002325	--	0.0038 U	0.0043 U	0.0042 UJ	0.0038 U	0.0035 U
Heptachlor	0.001125	0.14 (d)	0.002 U	0.0022 U	0.0022 U	0.0019 U	0.0018 U
Heptachlor Epoxide	0.001125	0.07 (d)	0.002 U	0.00356 J	0.0022 U	0.0039 J	0.0018 U
Methoxychlor	0.012	390 (d)	0.02 U	0.022 U	0.022 U	0.088 JH	0.018 U

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL038-SS-02	AL-GL046-SS-02	AL-GL054-SS-02	AL-GL062-SS-02	AL-GL070-SS-02
Volatile Organic Compounds							
Bromomethane	0.007	380 (c)	0.011 U	0.012 UJ	0.011 U	0.012 U	0.013 U
Chloromethane	0.007	49 (d)	0.011	0.012 U	0.011 U	0.012 U	0.013 U
1,1-Dichloroethene	0.00675	1.1 (c)	0.011 U	0.012 U	0.011 U	0.012 U	0.013 U
1,2-Dichloroethene	0.0065	2700 (c)	0.011 U	0.012 U	0.011 U	0.012 U	0.013 U
Methylene Chloride	0.015	85 (c)	0.011 U	0.012 U	0.011 U	0.014 UJ	0.013 U
Toluene	0.00625	55000 (c)	0.011 UJ	0.012 UJ	0.011 U	0.005 J	0.009 J
1,1,1-Trichloroethane	0.007	25000 (c)	0.011 U	0.012 UJ	0.011 U	0.002 J	0.013 UJL
Xylene	0.00725	550000 (c)	0.011 UJ	0.012 UJ	0.011 U	0.012 UJL	0.013 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.215	16000 (c)	0.065 J	0.14 J	0.38 U	0.099 J	0.028 J
Acenaphthylene	0.2325	27000 (c)	0.048 J	0.044 J	0.38 U	0.093 J	0.42 U
Anthracene	0.215	82000 (c)	0.25 J	0.5	0.38 U	0.39 J	0.041 J
Benzo(a)anthracene	0.21	0.9 (c)	1.2	1.3	0.045 J	1.7 J	0.26 J
Benzo(a)pyrene	0.2125	0.09 (c)	1.2	1	0.059 J	1.8 J	0.34 J
Benzo(b)fluoranthene	0.245	0.9 (c)	1.2	1.1	0.095 J	1.4 J	0.51 J
Benzo(g,h,i)perylene	0.2125	1100 (c)	0.98	0.64	0.065 J	2.1 J	0.48 J
Benzo(k)fluoranthene	0.22	0.9 (c)	0.83 J	0.97 J	0.38 U	2.1 J	0.42 UJL
Bis(2-ethylhexyl)phthalate	0.24	46 (c)	0.38 U	1.7	0.38 U	0.4 U	0.51 UJ
Butylbenzylphthalate	0.2325	55000 (c)	0.38 U	0.2 J	0.38 U	0.4 U	0.086 J
Carbazole	0.215	32 (d)	0.15 J	0.26 J	0.38 U	0.22 J	0.025 J
Chrysene	0.2275	9 (c)	1.3	1.3	0.052 J	2 J	0.32 J
Dibenz(a,h)anthracene	0.2325	0.09 (c)	0.38 U	0.36 J	0.38 U	0.19 J	0.42 UJL
Dibenzofuran	0.22	--	0.035 J	0.079 J	0.38 U	0.076 J	0.42 U
di-n-Butyl Phthalate	0.22	7800 (d)	0.71	0.049 J	0.38 U	0.4 U	0.42 U
Fluoranthene	0.24	11000 (c)	1.7	2.4	0.068 J	2.2	0.22 J
Fluorene	0.215	11000 (c)	0.061 J	0.19 J	0.38 U	0.15 J	0.42 U
Indeno(1,2,3-cd)pyrene	0.2125	0.9 (c)	0.86	0.67	0.052 J	1.7 J	0.26 J
2-Methylnaphthalene	0.22	--	0.38 U	0.034 J	0.38 U	0.072 J	0.036 J

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL038-SS-02	AL-GL046-SS-02	AL-GL054-SS-02	AL-GL062-SS-02	AL-GL070-SS-02
Naphthalene	0.22	1100 (c)	0.044 J	0.036 J	0.38 U	0.084 J	0.035 J
Phenanthrene	0.215	7900 (c)	0.87	2	0.045 J	1.5	0.16 J
Pyrene	0.24	8200 (c)	2	2.5	0.075 J	2.8 J	0.44 J
Pesticides/PCBs							
Aldrin	0.0012	0.038 (d)	0.002 U	0.0021 U	0.002 U	0.00324 J	0.00452 J
Aroclor 1254	0.02325	0.083 (d)	0.038 U	1.9	0.038 U	0.04 U	0.042 U
Aroclor 1260	0.02325	0.083 (d)	0.038 U	0.041 U	0.038 U	0.04 U	0.042 U
alpha-BHC	0.0012	0.1 (d)	0.0025	0.0021 U	0.002 U	0.00575 JT	0.0022 U
beta-BHC	0.0012	0.35 (d)	0.002 U	0.0021 U	0.002 U	0.0021 U	0.0044 J
delta-BHC	0.0012	--	0.005 J	0.0021 U	0.002 U	0.0021 U	0.0022 U
gamma-BHC	0.001125	0.49 (d)	0.0034 J	0.0021 U	0.002 U	0.0021 U	0.0022 U
alpha-Chlordane	0.001175	0.49 (d)	0.049 J	0.0021 U	0.00239 J	0.0229 J	0.012
gamma-Chlordane	0.0012	0.49 (d)	0.037 J	0.0021 U	0.00539 J	0.0197 J	0.0074
4,4'-DDD	0.002325	2.7 (d)	0.032 JH	0.016 J	0.0038 U	0.00875 J	0.0143 J
4,4'-DDE	0.00235	1.9 (d)	0.046	0.058 JH	0.0038 U	0.00893 J	0.0329 J
4,4'-DDT	0.002225	1.9 (d)	0.066 J	0.027 J	0.00552 J	0.0434 J	0.0263 J
Dieldrin	0.00235	0.04 (d)	0.016 J	0.0075 J	0.00927 J	0.004 U	0.00658 J
Endosulfan II	0.0022	470 (d)	0.0099 JH	0.039 JH	0.0038 U	0.00776 J	0.0042 U
Endosulfan Sulfate	0.00235	--	0.0038 U	0.0041 U	0.0038 U	0.004 U	0.0042 U
Endrin	0.0022	23 (d)	0.0038 U	0.0041 U	0.00649	0.0165 J	0.0239 J
Endrin Aldehyde	0.002325	--	0.0038 U	0.038 JT	0.00958 J	0.004 U	0.0124 J
Endrin Ketone	0.002325	--	0.0038 U	0.0041 U	0.0038 U	0.004 U	0.0116 J
Heptachlor	0.001125	0.14 (d)	0.002 U	0.0038 J	0.002 U	0.0021 U	0.0022 U
Heptachlor Epoxide	0.001125	0.07 (d)	0.002 J	0.0021 J	0.00412 J	0.00315 J	0.0022 U
Methoxychlor	0.012	390 (d)	0.044 JH	0.021 U	0.02 U	0.021 U	0.022 U

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL079-SS-02	AL-GL087-SS-02	AL-GL096-SS-02		
Volatile Organic Compounds							
Bromomethane	0.007	380 (c)	0.013 U	0.012 U	0.013 U		
Chloromethane	0.007	49 (d)	0.013 U	0.012 U	0.013 U		
1,1-Dichloroethene	0.00675	1.1 (c)	0.013 U	0.012 U	0.013 U		
1,2-Dichloroethene	0.0065	2700 (c)	0.013 U	0.012 U	0.013 U		
Methylene Chloride	0.015	85 (c)	0.037 JB	0.004 J	0.013 U		
Toluene	0.00625	55000 (c)	0.013 UJL	0.012 UJL	0.003 J		
1,1,1-Trichloroethane	0.007	25000 (c)	0.013 U	0.001 J	0.013 UJL		
Xylene	0.00725	550000 (c)	0.013 UJL	0.012 UJL	0.013 UJL		
Semivolatile Organic Compounds							
Acenaphthene	0.215	16000 (c)	0.86 U	0.4 U	0.42 U		
Acenaphthylene	0.2325	27000 (c)	0.86 U	0.4 U	0.42 U		
Anthracene	0.215	82000 (c)	0.094 J	0.4 U	0.062 J		
Benzo(a)anthracene	0.21	0.9 (c)	0.86 J	0.024 J	0.36 J		
Benzo(a)pyrene	0.2125	0.09 (c)	0.51 J	0.4 U	0.43		
Benzo(b)fluoranthene	0.245	0.9 (c)	0.83 J	0.028 J	0.48		
Benzo(g,h,i)perylene	0.2125	1100 (c)	0.54 J	0.041 J	0.36 J		
Benzo(k)fluoranthene	0.22	0.9 (c)	0.86 U	0.023 J	0.36 J		
Bis(2-ethylhexyl)phthalate	0.24	46 (c)	0.86 U	0.4 U	0.36 J		
Butylbenzylphthalate	0.2325	55000 (c)	0.86 U	0.4 U	0.42 U		
Carbazole	0.215	32 (d)	0.86 U	0.4 U	0.035 J		
Chrysene	0.2275	9 (c)	0.53 J	0.026 J	0.39 J		
Dibenz(a,h)anthracene	0.2325	0.09 (c)	0.86 U	0.4 U	0.42 U		
Dibenzofuran	0.22	--	0.86 U	0.4 U	0.42 U		
di-n-Butyl Phthalate	0.22	7800 (d)	0.86 U	0.4 U	0.42 U		
Fluoranthene	0.24	11000 (c)	0.8 J	0.037 J	0.5		
Fluorene	0.215	11000 (c)	0.86 U	0.4 U	0.42 U		
Indeno(1,2,3-cd)pyrene	0.2125	0.9 (c)	0.43 J	0.035 J	0.3 J		
2-Methylnaphthalene	0.22	--	0.86 U	0.4 U	0.42 U		

Key at end of table.

Table 4.1-29

SUMMARY OF ORGANIC RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL079-SS-02	AL-GL087-SS-02	AL-GL096-SS-02		
Naphthalene	0.22	1100 (c)	0.053 J	0.4 U	0.42 U		
Phenanthrene	0.215	7900 (c)	0.35 J	0.4 U	0.24 J		
Pyrene	0.24	8200 (c)	0.7 J	0.032 J	0.61		
Pesticides/PCBs							
Aldrin	0.0012	0.038 (d)	0.0047 U	0.0021 U	0.0022 U		
Aroclor 1254	0.02325	0.083 (d)	0.43 U	0.04 U	0.042 U		
Aroclor 1260	0.02325	0.083 (d)	0.43 U	0.04 U	0.042 U		
alpha-BHC	0.0012	0.1 (d)	0.0022 U	0.0021 U	0.0022 U		
beta-BHC	0.0012	0.35 (d)	0.0022 U	0.0021 U	0.0022 U		
delta-BHC	0.0012	--	0.0022 U	0.0021 U	0.0022 U		
gamma-BHC	0.001125	0.49 (d)	0.0022 U	0.0021 U	0.0022 U		
alpha-Chlordane	0.001175	0.49 (d)	0.047 J	0.0028 J	0.0054 JN		
gamma-Chlordane	0.0012	0.49 (d)	0.041	0.0021 J	0.0022 U		
4,4'-DDD	0.002325	2.7 (d)	0.014 JH	0.004 U	0.0065 J		
4,4'-DDE	0.00235	1.9 (d)	0.031 JH	0.004 U	0.0042 U		
4,4'-DDT	0.002225	1.9 (d)	0.044 JH	0.015 J	0.016 J		
Dieldrin	0.00235	0.04 (d)	0.01 JH	0.004 U	0.0042 U		
Endosulfan II	0.0022	470 (d)	0.012 JH	0.004 U	0.0042 U		
Endosulfan Sulfate	0.00235	--	0.0097 JH	0.0065 J	0.0042 U		
Endrin	0.0022	23 (d)	0.028 JH	0.0045	0.0068 J		
Endrin Aldehyde	0.002325	--	0.056 JH	0.014	0.021 J		
Endrin Ketone	0.002325	--	0.011 J	0.004 U	0.0042 U		
Heptachlor	0.001125	0.14 (d)	0.0022 U	0.0021 U	0.0022 U		
Heptachlor Epoxide	0.001125	0.07 (d)	0.0039 J	0.0021 U	0.0022 U		
Methoxychlor	0.012	390 (d)	0.031 JH	0.021 U	0.022 U		

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-30

SUMMARY OF DIOXIN RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA APRIL - MAY 1994

(µg/kg)

Sample Number	Concentration
AL-GL007-SS-02	0
AL-GL008-SS-02	0
AL-GL009-SS-02	0
AL-GL010-SS-02	0
AL-GL011-SS-02	0.0973
AL-GL012-SS-02	0.04
AL-GL013-SS-02	0.14
AL-GL014-SS-02	0.1442
AL-GL023-SS-02	0.01
AL-GL030-SS-02	0.02
AL-GL038-SS-02	0.0226
AL-GL046-SS-02	0
AL-GL054-SS-02	0.0016
AL-GL062-SS-02	0.0659
AL-GL070-SS-02	0.3304
AL-GL079-SS-02	0.0912
AL-GL087-SS-02	0.0095
AL-GL096-SS-02	0.0066

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

0011
57.4
76

Table 4.1-31

SUMMARY OF PHYSIOCHEMICAL RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

	Sample Number						
Analyte	AL-GL007-SS-02	AL-GL008-SS-02	AL-GL009-SS-02	AL-GL010-SS-02	AL-GL011-SS-02	AL-GL012-SS-02	AL-GL013-SS-02
Alkalinity	8000	20000	24000	16000	20000	32000	24000
Fluoride	120	109	82.9	94.6	73.6	51 U	98
Nitrate-N	575	2450	3010	1970	1770	1550	3010
pH (pH units)	8.1	8.5	8.5	8.4	8.2	8.2	8.1
Phosphate	131	164	317	148	80.5	151	48.6
Sulfate	5190	2840	1890	2680	500 U	1220	1800
Total Organic Carbon	6330	3550	3160	1130	3150	3710	2420

Key at end of table.

Table 4.1-31

SUMMARY OF PHYSIOCHEMICAL RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Sample Number						
	AL-GL014-SS-02	AL-GL023-SS-02	AL-GL030-SS-02	AL-GL038-SS-02	AL-GL046-SS-02	AL-GL054-SS-02	AL-GL062-SS-02
Alkalinity	20000	16000	20000	20000	28000	16000	24000
Fluoride	98.2	105	53.8	51 U	251	238	110
Nitrate-N	1540	267	157	678	267	636	3060
pH (pH units)	8.2	8.6	8.7	8.3	8.3	8.3	7.9
Phosphate	97.8	115	79	52.3	55.5	16.3	159
Sulfate	2480	4190	870	1400	2200	500 U	500 U
Total Organic Carbon	2330	1280	1370	2060	2500	3510	3250

Key at end of table.

Table 4.1-31

SUMMARY OF PHYSIOCHEMICAL RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Sample Number						
	AL-GL070-SS-02	AL-GL079-SS-02	AL-GL087-SS-02	AL-GL096-SS-02			
Alkalinity	24000	16000	28000	36000			
Fluoride	97.7	141	339	147			
Nitrate-N	3000	884	687	524			
pH (pH units)	7.9	8.2	8.4	8.2			
Phosphate	61.7	94.6	309	26.7			
Sulfate	3860	1260	1330	9670			
Total Organic Carbon	5360	1420	1060	1470			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-32

SUMMARY OF CATION-EXCHANGE CAPACITY AND GRAIN SIZE RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(meq/100g)

Analyte	Sample Number						
	AL-GL007-SS-02	AL-GL008-SS-02	AL-GL009-SS-02	AL-GL010-SS-02	AL-GL011-SS-02	AL-GL012-SS-02	AL-GL013-SS-02
Cation Exchange Capacity	21	32	35	19	26	39	30
Clay (percent)	58.3	12.4	6.5	3.5	5.7	1.5	3.1
Gravel (percent)	0	25.6	15.5	21.9	16.3	16.4	26.4
Sand (percent)	6.8	49.5	61.2	57.8	61.7	68	59.8
Silt (percent)	34.9	12.5	16.8	16.8	16.3	14.1	10.7

Key:

Meq/100g = Milliequivalents per 100 grams.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-32

SUMMARY OF CATION-EXCHANGE CAPACITY AND GRAIN SIZE RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(meq/100g)

Analyte	Sample Number						
	AL-GL014-SS-02	AL-GL023-SS-02	AL-GL030-SS-02	AL-GL038-SS-02	AL-GL046-SS-02	AL-GL054-SS-02	AL-GL062-SS-02
Cation Exchange Capacity	31	18	5.7	18	30	37	34
Clay (percent)	5.9	7.7	2.6	1.6	10.4	14.7	20.3
Gravel (percent)	24.9	17.5	6.8	16.7	18.6	9.7	10.8
Sand (percent)	53.5	63.8	85.5	72	53.5	45.6	49.6
Silt (percent)	15.7	11	5.1	9.7	17.5	30	19.3

Key:

Meq/100g = Milliequivalents per 100 grams.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-32

SUMMARY OF CATION-EXCHANGE CAPACITY AND GRAIN SIZE RESULTS FOR UNDEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(meq/100g)

Analyte	Sample Number						
	AL-GL070-SS-02	AL-GL079-SS-02	AL-GL087-SS-02	AL-GL096-SS-02			
Cation Exchange Capacity	32	27	17	38			
Clay (percent)	4.3	8.2	3.8	38			
Gravel (percent)	16.4	17.2	21.8	3.7			
Sand (percent)	60.7	55.9	56.4	39.9			
Silt (percent)	18.6	18.7	18	18.4			

Key:

Meq/100g = Milliequivalents per 100 grams.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-33

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
Aluminum	52/52	100	--	--	1860	10300	4320	1660	4320	1660	5352.5	15/52	79000 (c)	0/52
Antimony	9/45	20	3.04	12.6	5.4	15	9.34	3.7	4.89	3.17	3.6	9/45	110 (c)	0/45
Arsenic	52/52	100	--	--	1.2	37	9.35	6.57	9.35	6.57	3.15	46/52	0.37 (c)	52/52
Barium	52/52	100	--	--	50.3	814	222	144	222	144	145	35/52	14000 (c)	0/52
Beryllium	21/52	40.3	0.14	0.4	0.14	0.504	0.331	0.0986	0.192	0.134	0.3075	11/52	0.15 (c)	20/52
Cadmium	33/52	63.4	0.28	0.89	0.48	9.1	2.36	1.83	1.61	1.76	0.55	32/52	140 (c)	0/52
Calcium	52/52	100	--	--	1480	60900	7630	9730	7630	9730	4958.5	31/52	NA	NA
Chromium	52/52	100	--	--	4.6	79.1	18.7	12.9	18.7	12.9	11.15	35/52	1400 (c)	0/52
Cobalt	52/52	100	--	--	2.5	11.5	6.47	2.25	6.47	2.25	6.25	28/52	2.7 (c)	51/52
Copper	51/52	98	9.8	9.8	5	1120	119	177	117	176	10.05	45/52	10000 (c)	0/52
Cyanide	20/52	38.4	0.16	1.21	0.21	1.9	0.657	0.467	0.494	0.348	0.305	18/52	5500 (c)	0/52
Iron	52/52	100	--	--	5100	65900	22200	14900	22200	14900	9581.5	42/52	NA	NA
Lead	52/52	100	--	--	11.5	1970	314	328	314	328	36.9495	44/52	400 (c)	15/52
Magnesium	52/52	100	--	--	908	3360	1910	702	1910	702	2821	5/52	NA	NA
Manganese	52/52	100	--	--	74.6	680	254	125	254	125	216	30/52	27000 (c)	0/52
Mercury	44/52	84.6	0.06	0.114	0.07	1.52	0.478	0.313	0.412	0.327	0.06	44/52	82 (c)	0/52
Nickel	52/52	100	--	--	7.8	59.6	21.3	10.1	21.3	10.1	10.75	46/52	5500 (c)	0/52
Potassium	52/52	100	--	--	271	1790	767	303	767	303	1300.5	3/52	NA	NA
Selenium	13/48	27	0.19	1.17	0.2	0.68	0.318	0.159	0.253	0.141	0.415	2/48	820 (c)	0/48
Silver	26/52	50	0.28	2.17	0.35	113	6.47	21.8	3.49	15.5	0.7	24/52	820 (c)	0/52
Sodium	42/52	80.7	18.6	140	39.2	1160	132	193	112	178	97.4	18/52	NA	NA
Thallium	2/43	4.6	0.4	1.64	0.41	1.1	0.753	0.486	0.355	0.185	0.295	2/43	19 (c)	0/43
Vanadium	52/52	100	--	--	7.8	25.2	14.4	4.61	14.4	4.61	15.3	22/52	1800 (c)	0/52
Zinc	52/52	100	--	--	28.8	1830	436	401	436	401	111	40/52	55000 (c)	0/52

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-34

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Acetone	3/52	5.7	0.01	0.05	0.008	0.032	0.0177	0.0127	0.00844	0.00558	0.006	3/52	79000 (c)	0/52
Benzene	1/52	1.9	0.01	0.015	0.006	0.006	0.006	--	0.00574	0.000459	0.006	0/52	22 (c)	0/52
Bromodichloromethane	1/52	1.9	0.01	0.015	0.001	0.001	0.001	--	0.00565	0.000795	0.006	0/52	4.9 (c)	0/52
Bromomethane	2/52	3.8	0.01	0.015	0.003	0.005	0.004	0.00141	0.00568	0.000594	0.006	0/52	380 (c)	0/52
2-Butanone	2/52	3.8	0.01	0.015	0.02	0.023	0.0215	0.00212	0.00633	0.00311	0.006	2/52	47000 (d)	0/52
Carbon Disulfide	1/52	1.9	0.01	0.015	0.001	0.001	0.001	--	0.00563	0.000799	0.006	0/52	27000 (c)	0/52
Chloroform	2/52	3.8	0.01	0.015	0.001	0.001	0.001	--	0.00556	0.00102	0.006	0/52	110 (c)	0/52
Dibromochloromethane	1/52	1.9	0.01	0.015	0.001	0.001	0.001	--	0.00565	0.000795	0.006	0/52	7.6 (c)	0/52
1,1-Dichloroethene	11/52	21.1	0.01	0.013	0.002	0.007	0.00354	0.00211	0.00521	0.00131	0.006	2/52	1.1 (c)	0/52
1,2-Dichloroethene	9/52	17.3	0.01	0.013	0.001	0.007	0.00311	0.00214	0.00524	0.00134	0.006	1/52	2700 (c)	0/52
Ethylbenzene	2/52	3.8	0.01	0.015	0.001	0.001	0.001	--	0.00556	0.00102	0.00575	0/52	27000 (c)	0/52
Methylene Chloride	17/52	32.6	0.01	0.034	0.002	0.027	0.00735	0.0068	0.00743	0.00455	0.00925	4/52	85 (c)	0/52
Tetrachloroethene	5/52	9.6	0.01	0.013	0.002	0.004	0.0024	0.000894	0.00537	0.00107	0.006	0/52	13 (c)	0/52
Toluene	24/52	46.1	0.01	0.013	0.001	0.027	0.00687	0.00656	0.00621	0.00445	0.006	11/52	55000 (c)	0/52
1,1,1-Trichloroethane	14/52	26.9	0.01	0.015	0.001	0.013	0.00371	0.00312	0.00516	0.00185	0.006	2/52	25000 (c)	0/52
Trichloroethene	2/52	3.8	0.01	0.015	0.001	0.001	0.001	--	0.00556	0.00102	0.006	0/52	58 (c)	0/52
Xylene	4/52	7.6	0.01	0.013	0.003	0.004	0.00325	0.0005	0.00553	0.000766	0.006	0/52	550000 (c)	0/52
Semivolatile Organic Compounds														
Acenaphthene	5/52	9.6	0.34	0.49	0.0006	0.51	0.127	0.215	0.184	0.0647	0.1975	1/52	16000 (c)	0/52
Acenaphthylene	5/52	9.6	0.34	0.49	0.018	0.087	0.0348	0.0293	0.175	0.0491	0.1975	0/52	27000 (c)	0/52
Anthracene	29/52	55.7	0.34	0.49	0.016	1.3	0.109	0.24	0.144	0.183	0.1975	4/52	82000 (c)	0/52
Benzo(a)anthracene	50/52	96.1	0.34	0.36	0.041	4.6	0.311	0.648	0.306	0.636	0.19	23/52	0.9 (c)	2/52
Benzo(a)pyrene	49/52	94.2	0.34	0.37	0.023	5.2	0.336	0.736	0.327	0.715	0.19	21/52	0.09 (c)	40/52
Benzo(b)fluoranthene	50/51	98	0.34	0.34	0.02	4.8	0.416	0.676	0.411	0.67	0.1875	33/51	0.9 (c)	2/51
Benzo(g,h,i)perylene	46/52	88.4	0.34	0.37	0.036	3.1	0.274	0.456	0.263	0.429	0.1925	20/52	1100 (c)	0/52
Benzo(k)fluoranthene	26/52	50	0.34	0.41	0.03	4.9	0.418	0.931	0.302	0.662	0.1875	13/52	0.9 (c)	1/52
Bis(2-ethylhexyl)phthalate	24/42	57.1	0.34	1.6	0.06	7.8	1.71	1.69	1.07	1.47	0.1875	21/52	46 (c)	0/52
Butylbenzylphthalate	26/52	50	0.34	0.44	0.018	1.2	0.169	0.294	0.178	0.206	0.195	6/52	55000 (c)	0/52
Carbazole	18/52	34.6	0.34	0.49	0.02	1	0.0953	0.228	0.158	0.14	0.1975	1/52	32 (d)	0/52
Chrysene	52/52	100	--	--	0.023	5.7	0.358	0.788	0.358	0.788	0.19	25/52	9 (c)	0/52
Dibenz(a,h)anthracene	5/52	9.6	0.34	0.48	0.064	0.15	0.109	0.0313	0.183	0.0294	0.1975	0/52	0.09 (c)	4/52
Dibenzofuran	4/52	7.6	0.34	0.49	0.019	0.12	0.0505	0.0476	0.179	0.0415	0.1975	0/52	--	NA

Key at end of table.

Table 4.1-34

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Diethylphthalate	2/52	3.8	0.34	0.49	0.022	0.15	0.086	0.0905	0.186	0.0278	0.1975	0/52	220000 (c)	0/52
di-n-Butyl Phthalate	25/52	48	0.34	0.44	0.018	2.7	0.213	0.563	0.2	0.387	0.1975	5/52	7800 (d)	0/52
di-n-Octyl Phthalate	28/52	53.8	0.34	0.4	0.02	0.38	0.073	0.0892	0.125	0.0861	0.1975	2/52	1600 (d)	0/52
Fluoranthene	52/52	100	--	--	0.022	11	0.571	1.53	0.571	1.53	0.1825	38/52	11000 (c)	0/52
Fluorene	7/52	13.4	0.34	0.49	0.019	0.45	0.102	0.155	0.178	0.0626	0.1975	1/52	11000 (c)	0/52
Indeno(1,2,3-cd)pyrene	47/52	90.3	0.34	0.37	0.031	2.9	0.241	0.418	0.235	0.398	0.195	19/52	0.9 (c)	1/52
2-Methylnaphthalene	10/52	19.2	0.34	0.49	0.019	0.24	0.066	0.0891	0.166	0.0631	0.1975	2/52	--	NA
Naphthalene	14/52	26.9	0.34	0.49	0.022	0.2	0.0624	0.0602	0.156	0.0663	0.1975	1/52	1100 (c)	0/52
Phenanthrene	51/52	98	0.34	0.34	0.025	5.4	0.294	0.771	0.291	0.764	0.195	14/52	7900 (c)	0/52
Pyrene	52/52	100	--	--	0.021	10	0.521	1.38	0.521	1.38	0.185	35/52	8200 (c)	0/52
Pesticides/PCBs														
Aldrin	3/52	5.7	0.0018	0.019	0.0027	0.00364	0.00327	0.000503	0.00127	0.00128	0.001225	3/52	0.038 (d)	0/52
Aroclor 1260	3/52	5.7	0.028	0.43	0.086	0.18	0.129	0.0476	0.0425	0.0586	0.02375	3/52	0.083 (d)	3/52
alpha-BHC	1/52	1.9	0.0018	0.019	0.0018	0.0018	0.00179	--	0.00115	0.00118	0.001175	1/52	0.1 (d)	0/52
beta-BHC	4/52	7.6	0.0018	0.019	0.0023	0.0063	0.00365	0.00182	0.00134	0.00143	0.001225	4/52	0.35 (d)	0/52
delta-BHC	5/52	9.6	0.0018	0.019	0.0021	0.022	0.00617	0.00884	0.00163	0.00312	0.001225	5/52	--	NA
gamma-BHC	2/52	3.8	0.0018	0.019	0.00195	0.00207	0.002	0.0000849	0.00118	0.00119	0.0011	2/52	0.49 (d)	0/52
alpha-Chlordane	44/52	84.6	0.0018	0.002	0.00193	1.7	0.123	0.357	0.104	0.331	0.0195	15/52	0.49 (d)	3/52
gamma-Chlordane	40/52	76.9	0.0018	0.002	0.002	1.8	0.124	0.357	0.0959	0.317	0.01058	21/52	0.49 (d)	3/52
4,4'-DDD	15/52	28.8	0.00336	0.0044	0.00223	0.128	0.0216	0.0318	0.00755	0.019	0.0064	11/52	2.7 (d)	0/52
4,4'-DDE	30/52	57.6	0.0034	0.04	0.00369	0.16	0.0254	0.0344	0.0158	0.0284	0.115	1/52	1.9 (d)	0/52
4,4'-DDT	44/52	84.6	0.0034	0.004	0.00266	0.139	0.0268	0.032	0.0229	0.0307	0.119	2/52	1.9 (d)	0/52
Dieldrin	24/52	46.1	0.0034	0.04	0.00326	0.0821	0.0143	0.018	0.00797	0.0137	0.024	3/52	0.04 (d)	2/52
Endosulfan I	1/52	1.9	0.0018	0.021	0.00219	0.00219	0.00219	--	0.00134	0.00176	0.001225	1/52	470 (d)	0/52
Endosulfan II	5/52	9.6	0.0034	0.037	0.0039	0.00745	0.00559	0.00143	0.00287	0.00332	0.002375	5/52	470 (d)	0/52
Endosulfan Sulfate	3/52	5.7	0.0034	0.036	0.00414	0.0669	0.0253	0.036	0.00356	0.00924	0.002275	3/52	--	NA
Endrin	26/52	50	0.0034	0.004	0.00406	0.21	0.0238	0.0464	0.0128	0.0343	0.003975	26/52	23 (d)	0/52
Endrin Aldehyde	34/52	65.3	0.0034	0.041	0.00438	0.151	0.0288	0.0405	0.0199	0.0349	0.00621	32/52	--	NA
Endrin Ketone	1/52	1.9	0.0034	0.037	0.0136	0.0136	0.0136	--	0.00243	0.00279	0.002375	1/52	--	NA
Heptachlor	20/50	40	0.0018	0.019	0.002	0.042	0.00647	0.0102	0.00334	0.00696	0.001225	20/52	0.14 (d)	0/52
Heptachlor Epoxide	24/52	46.1	0.0018	0.0023	0.00099	0.36	0.0381	0.0853	0.0181	0.0602	0.002025	22/52	0.07 (d)	5/52
Methoxychlor	3/52	5.7	0.0018	0.19	0.032	0.058	0.0413	0.0145	0.0131	0.0141	0.012	3/52	390 (d)	0/52

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a	=	See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b	=	TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c	=	United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d	=	EPA Region 3 RBC.
FOD	=	Frequency of detection.
FOE	=	Frequency of exceedance.
MAX DET	=	Maximum detected concentration.
MEAN ALL	=	Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET	=	Mean concentration using only those samples in which the analyte was detected.
mg/kg	=	Milligrams per kilogram.
MIN DET	=	Minimum detected concentration.
MAX DL	=	Maximum detection limit for samples in which the analyte was not detected.
MIN DL	=	Minimum detection limit for samples in which the analyte was not detected.
NA	=	Not applicable.
% DET	=	Percentage of total samples in which the analyte was detected.
ST DEV ALL	=	Standard deviation associated with the MEAN ALL concentration.
ST DEV DET	=	Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL015-SS-01	AL-GL016-SS-01	AL-GL017-SS-01	AL-GL018-SS-01	AL-GL019-SS-01
Aluminum	5352.5	79000 (c)	4393 J	2559 J	10318 J	3707 J	4388
Antimony	3.6	110 (c)	4 UJ	5.6 J	12.7 J	4.2 UJ	6.9 J
Arsenic	3.15	0.37 (c)	**3**	**8.8**	**37**	**23.9**	**11 JL**
Barium	145	14000 (c)	85.5	221	814	322	300
Beryllium	0.3075	0.15 (c)	**0.23 J**	0.15 UJ	0.16 UJ	0.15 UJ	**0.31**
Cadmium	0.55	140 (c)	0.28 U	2 JL	9 J	4 J	2.9
Calcium	4958.5	NA	10148 J	5207 J	60921 J	8470 J	7976
Chromium	11.15	1400 (c)	7.5 J	16 J	54.4 J	25.4 J	23.1
Cobalt	6.25	2.7 (c)	**3.8**	**6.5**	**11.5**	**8.6**	**7.9**
Copper	10.05	10000 (c)	8.4	86.6	567	178	157
Cyanide	0.305	5500 (c)	0.16 U	0.16 U	0.48	0.37	0.64
Iron	9581.5	NA	7485 J	22632 J	65877 J	39504 J	24321
Lead	36.9495	400 (c)	28.4 J	293 J	**1974.269 J**	**626 J**	**484**
Magnesium	2821	NA	3218 J	1022 J	2685 J	1414 J	2804
Manganese	216	27000 (c)	138 J	183 J	680 J	316 J	367
Mercury	0.06	82 (c)	0.07	0.25	0.83	0.55	0.55
Nickel	10.75	5500 (c)	10.2 J	18 J	59.6 J	29.6 J	25.2
Potassium	1300.5	NA	926	480	1787	844	768
Selenium	0.415	820 (c)	0.2 J	0.21 UJ	0.24 J	0.29 J	0.28 JL
Silver	0.7	820 (c)	0.28 U	0.98 UC	5.3	2.4 JH	1.13
Sodium	97.4	NA	123	81.1 JH	719	151	77.9
Thallium	0.295	19 (c)	0.4 U	0.43 U	0.47 U	0.43 U	R
Vanadium	15.3	1800 (c)	12.2 J	7.8 J	24.3 J	13.2 J	12.9
Zinc	111	55000 (c)	57.3 J	390 J	1832 J	613 J	838

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL020-SS-01	AL-GL024-SS-01	AL-GL025-SS-01	AL-GL026-SS-01	AL-GL027-SS-01
Aluminum	5352.5	79000 (c)	6975 J	2775 J	3259 J	2744 J	4804 J
Antimony	3.6	110 (c)	4.6 UJ	4.9 UJ	4.1 UJ	3.9 UJ	4.1 UJ
Arsenic	3.15	0.37 (c)	**14.5**	**16**	**15.3**	**7.8**	**11.3**
Barium	145	14000 (c)	190	252	63.5	51.4	327
Beryllium	0.3075	0.15 (c)	0.16 UJ	0.18 UJ	0.15 UJ	0.14 UJ	0.15 UJ
Cadmium	0.55	140 (c)	0.78 JL	1.8 JL	0.29 U	0.28 U	4.8
Calcium	4958.5	NA	8657 J	8209 J	1628 J	1484 J	11061 J
Chromium	11.15	1400 (c)	18.1 J	15.3 J	7.3 J	4.6 J	29 J
Cobalt	6.25	2.7 (c)	**7.3**	**3.9**	**3.3**	2.5	**9.1**
Copper	10.05	10000 (c)	36.3	117	6	5	196
Cyanide	0.305	5500 (c)	0.47	0.2 U	0.21	0.24	1.5
Iron	9581.5	NA	14397 J	19769 J	5912 J	5100 J	40412 J
Lead	36.9495	400 (c)	119 J	355 J	15.7 J	14.9	**689 J**
Magnesium	2821	NA	3363 J	1296 J	997 J	964 J	2060 J
Manganese	216	27000 (c)	387 J	157 J	105 J	86.5 J	369 J
Mercury	0.06	82 (c)	0.17	0.33	0.15	0.12	0.96
Nickel	10.75	5500 (c)	17.7 J	21.1 J	8.6 J	7.8 J	26.6 J
Potassium	1300.5	NA	1452	395	578	491	741
Selenium	0.415	820 (c)	0.28 J	0.26 UJ	0.31 J	0.2 UJ	0.33 J
Silver	0.7	820 (c)	0.76 UC	0.6 UC	0.29 U	0.28 U	1.6 UC
Sodium	97.4	NA	114	106 JH	60.6 JH	50.2 JH	146
Thallium	0.295	19 (c)	0.48 U	0.52 U	0.41 U	0.4 UJ	0.42 UJ
Vanadium	15.3	1800 (c)	19.5 J	9.8 J	9.3 J	8.8 J	16.9 J
Zinc	111	55000 (c)	187 J	400 J	33.3 J	28.8 J	919 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number AL-GL031-SS-01	AL-GL032-SS-01	AL-GL033-SS-01	AL-GL034-SS-01	AL-GL039-SS-01
Aluminum	5352.5	79000 (c)	3916 J	4425	4717	3572 J	2553 J
Antimony	3.6	110 (c)	4.4 UJ	5.4 UJ	4.4 UJ	4.1 UJ	4.6 UJ
Arsenic	3.15	0.37 (c)	**6.4**	**3.6 JL**	**5.1 J**	**7.1**	**4**
Barium	145	14000 (c)	72.9	79.9	105	209	50.3
Beryllium	0.3075	0.15 (c)	0.16 UJ	**0.25**	0.16 U	0.15 UJ	0.16 UJ
Cadmium	0.55	140 (c)	0.48 JL	0.86 U	0.31 UJ	1.4 JL	0.33 U
Calcium	4958.5	NA	3673 J	16601	4477 J	5845 J	5965 J
Chromium	11.15	1400 (c)	6.5 J	8.3	9.4 J	15.2 J	7.4 J
Cobalt	6.25	2.7 (c)	**3.5**	**5.5**	**5.1**	**6.5**	**2.9**
Copper	10.05	10000 (c)	13.5	7.1	10	97.4	9.1
Cyanide	0.305	5500 (c)	0.17 U	0.55 U	0.17 U	0.53	0.18 U
Iron	9581.5	NA	8508 J	8404	8901 J	19882 J	9949 J
Lead	36.9495	400 (c)	37.7 J	12.7	17.2	**435 J**	13.1
Magnesium	2821	NA	1785 J	2731	2278	2348 J	2179 J
Manganese	216	27000 (c)	118 J	195	212	231 J	78.7 J
Mercury	0.06	82 (c)	0.18	0.11 U	0.06 U	0.74	0.09
Nickel	10.75	5500 (c)	9.4 J	11.6	12.6	23.1 J	9.9 J
Potassium	1300.5	NA	580	703	767	905	404
Selenium	0.415	820 (c)	0.23 UJ	R	0.22 UJ	0.21 UJ	0.23 UJ
Silver	0.7	820 (c)	0.31 U	0.62 U	0.31 U	1.2 UC	0.33 U
Sodium	97.4	NA	72.2 JH	133	67.8 JH	110	99.1 JH
Thallium	0.295	19 (c)	0.45 U	R	0.44 UJ	0.42 UJ	0.47 U
Vanadium	15.3	1800 (c)	11.2 J	12.1	12.8	12.6 J	8.4 J
Zinc	111	55000 (c)	75.9 J	44.6	54.2 J	435 J	33.5 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL041-SS-01	AL-GL042-SS-01	AL-GL048-SS-01	AL-GL049-SS-01	AL-GL050-SS-01
Aluminum	5352.5	79000 (c)	6304	5101 J	3970	5486	5009
Antimony	3.6	110 (c)	5.3 UJ	4.5 UJ	6.3 J	5.4 UJ	5.4 J
Arsenic	3.15	0.37 (c)	**2.5 J**	**4.6**	**14.8 J**	**3.1 JH**	7.7
Barium	145	14000 (c)	92.6 J	171	229 J	109 J	210
Beryllium	0.3075	0.15 (c)	0.39 UC	0.16 UJ	0.34 UC	0.4 UC	0.18 U
Cadmium	0.55	140 (c)	0.84 U	0.66 JL	2.3	0.86 U	2.8 JL
Calcium	4958.5	NA	3627	3485 J	3746	2357	5433
Chromium	11.15	1400 (c)	10.4	12.4 J	21.3	15.9	20.9
Cobalt	6.25	2.7 (c)	6.6	5.7	8.3	7.1	8.8
Copper	10.05	10000 (c)	9.8 UC	33.5	120	13.7 JH	102 J
Cyanide	0.305	5500 (c)	0.54 U	0.31	0.55 U	0.8	0.36
Iron	9581.5	NA	9929 J	12440 J	27534 J	10499 J	25401
Lead	36.9495	400 (c)	11.5	118 J	**455**	52	298
Magnesium	2821	NA	2818	1982 J	1261	1686	2717
Manganese	216	27000 (c)	225	276 J	268	236	325
Mercury	0.06	82 (c)	0.11 U	0.22	0.5 J	0.11 U	0.35
Nickel	10.75	5500 (c)	12.6 J	15.1 J	23.1 J	16.6 J	24.6
Potassium	1300.5	NA	1172	1056	829	848	653
Selenium	0.415	820 (c)	0.24 J	0.23 UJ	0.2 J	0.2 UJ	0.26 UJ
Silver	0.7	820 (c)	0.93999	0.32 U	2.4	0.91	0.35
Sodium	97.4	NA	56.4	100 JH	64.7	63.8	59.1 JL
Thallium	0.295	19 (c)	R	0.46 U	R	R	0.51 UJ
Vanadium	15.3	1800 (c)	17.3	14.8 J	12.8	16.3	15.5
Zinc	111	55000 (c)	64.1	220 J	493	106	408 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL051-SS-01	AL-GL052-SS-01	AL-GL056-SS-01	AL-GL057-SS-01	AL-GL058-SS-01
Aluminum	5352.5	79000 (c)	5911	7793	3094.714	2925.081	5531
Antimony	3.6	110 (c)	R	R	11.454 U	11.292 U	R
Arsenic	3.15	0.37 (c)	**9.8 J**	**6.7**	**6.87**	**8.604**	**7.6**
Barium	145	14000 (c)	172	158	159.104	144.986	242
Beryllium	0.3075	0.15 (c)	0.16 U	0.16 U	**0.432**	**0.426**	0.16 U
Cadmium	0.55	140 (c)	1.9 JL	0.58 JL	0.661 U	0.652 U	2.4 JL
Calcium	4958.5	NA	7097	6030	4067.401	2291.422	6869
Chromium	11.15	1400 (c)	25.1	18.1	14.011	14.341	30.3
Cobalt	6.25	2.7 (c)	**9.8**	**7.4**	**6.022**	**6.163**	**6.3**
Copper	10.05	10000 (c)	72.9 J	42.1 J	72.022	62.376	112 J
Cyanide	0.305	5500 (c)	0.42	0.34	1.101 U	1.086 U	1.3
Iron	9581.5	NA	27269	18175	16792.731	20207.818	40950
Lead	36.9495	400 (c)	158	104	341.828	216.463	303
Magnesium	2821	NA	3146	3301	1714.229	986.732	2048
Manganese	216	27000 (c)	381	352	154.443	191.707	330
Mercury	0.06	82 (c)	0.42	0.18	1.079	0.429	0.39
Nickel	10.75	5500 (c)	32.7	20.7	17.282	16.895	36.6
Potassium	1300.5	NA	1224	1361	561.013 J	473.898 J	1038
Selenium	0.415	820 (c)	0.24	0.24 U	0.661 U	0.652 U	0.65
Silver	0.7	820 (c)	0.89	0.33 U	1.982 U	1.954 U	0.97
Sodium	97.4	NA	82.2 JL	81 JL	111.465 JL	61.251 JL	66 JL
Thallium	0.295	19 (c)	0.48 UJ	0.49 U	1.097	0.869 U	0.48 UJ
Vanadium	15.3	1800 (c)	17.6	20.6	12.886	12.25	16.2
Zinc	111	55000 (c)	230 J	187 J	353.965	322.866	375 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL059-SS-01	AL-GL060-SS-01	AL-GL064-SS-01	AL-GL065-SS-01	AL-GL066-SS-01
Aluminum	5352.5	79000 (c)	6438.107	4815.036	3799	5479	5863
Antimony	3.6	110 (c)	12.308 U	10.711 U	10.1 J	5.3 UJ	4.4 UJ
Arsenic	3.15	0.37 (c)	**28.31**	**10.579**	**7.2 J**	**4.9 J**	**12 J**
Barium	145	14000 (c)	596.757	255.221	260 J	159 J	328
Beryllium	0.3075	0.15 (c)	**0.504**	0.206 U	0.26 UC	0.34 UC	0.16 U
Cadmium	0.55	140 (c)	0.71 U	0.618 U	2.3	0.84 U	3.5 J
Calcium	4958.5	NA	9776.568	6289.804	5858	4520	7526 J
Chromium	11.15	1400 (c)	36.911	30.935	24	13.2	34 J
Cobalt	6.25	2.7 (c)	**10.516**	**7.269**	**8**	**6.4**	**10.2**
Copper	10.05	10000 (c)	253.207	167.596	1124	42.5	160
Cyanide	0.305	5500 (c)	1.183 U	1.03 U	0.53 U	0.54 U	1.3
Iron	9581.5	NA	52298.225	32096.807	34054 J	14946 J	40351 J
Lead	36.9495	400 (c)	**693.633**	**548.651**	**687**	204	**611 J**
Magnesium	2821	NA	2472.663	1910.814	1584	2248	2638
Manganese	216	27000 (c)	473.373	277.961	279	229	452
Mercury	0.06	82 (c)	0.959	0.726	0.65 J	0.25 J	0.88
Nickel	10.75	5500 (c)	34.178	29.99	28.4 J	14.2 J	29.3
Potassium	1300.5	NA	933.16 J	729.804 J	700	1077	966
Selenium	0.415	820 (c)	0.71 U	0.618 U	0.2 J	0.19 UJ	0.23 UJ
Silver	0.7	820 (c)	2.13 U	3.967	3.4	0.93	0.76
Sodium	97.4	NA	166.902 JL	171.125 JH	76.3	80.4	121 J
Thallium	0.295	19 (c)	0.947 U	0.824 UF	R	R	0.46 UJ
Vanadium	15.3	1800 (c)	25.162	18.325	12.1	16	17.7
Zinc	111	55000 (c)	1061.87	678.579 J	925	246	675 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL067-SS-01	AL-GL068-SS-01	AL-GL073-SS-01	AL-GL074-SS-01	AL-GL075-SS-01
Aluminum	5352.5	79000 (c)	6075.845	3179.954	3002	3526	5718
Antimony	3.6	110 (c)	12.56 U	11.982 U	5.4 UJ	5.7 UJ	R
Arsenic	3.15	0.37 (c)	**14.469**	**10.099**	**5.4 JL**	**7.2 JL**	**12.2**
Barium	145	14000 (c)	377.874	234.816	132	184	207
Beryllium	0.3075	0.15 (c)	0.242 U	0.23 U	**0.2**	**0.24**	0.17 U
Cadmium	0.55	140 (c)	0.855 JL	2.857 JL	0.99	1.2	2.3 JL
Calcium	4958.5	NA	45241.546	10850.922	7421	3164	5925
Chromium	11.15	1400 (c)	30.988	25.903	8.6	20.3	23
Cobalt	6.25	2.7 (c)	**8.672**	**6.06**	**5**	**9.6**	**7.6**
Copper	10.05	10000 (c)	251.522	115.811	23.5	122	84.3 J
Cyanide	0.305	5500 (c)	1.208 U	1.152 U	0.55 U	0.58 U	0.5
Iron	9581.5	NA	52321.256	36449.309	9600	34356	27197
Lead	36.9495	400 (c)	**684.879**	360.553	99.3	319	222
Magnesium	2821	NA	2803.865	2074.447	1262	1235	2869
Manganese	216	27000 (c)	446.232	262.12	147	310	358
Mercury	0.06	82 (c)	1.516	0.599	0.16	0.4	0.39
Nickel	10.75	5500 (c)	37.457	23.32	14.1	28	23.3
Potassium	1300.5	NA	1122.778 J	400.599 J	735	744	723
Selenium	0.415	820 (c)	0.725 U	0.69099 U	R	R	0.25 U
Silver	0.7	820 (c)	2.174 U	2.866	0.61 U	2.5	0.34 U
Sodium	97.4	NA	1158.261	20.507 UJL	70.7	57.3	56.2 JL
Thallium	0.295	19 (c)	0.966 U	0.922 U	R	R	0.5 U
Vanadium	15.3	1800 (c)	22.833	16.136	9.9	11	18
Zinc	111	55000 (c)	998.744	788.226	146	539	365 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL076-SS-01	AL-GL077-SS-01	AL-GL082-SS-01	AL-GL083-SS-01	AL-GL084-SS-01
Aluminum	5352.5	79000 (c)	3800	2355.703	3496.689	6931	3612.335
Antimony	3.6	110 (c)	11.859 U	11.517 U	11.479 U	8.3 J	11.454 U
Arsenic	3.15	0.37 (c)	**9.517**	**3.692 JL**	**7.887**	**17.5**	**9.903**
Barium	145	14000 (c)	131.692	103.178	224.305	598	350.154
Beryllium	0.3075	0.15 (c)	**0.461**	**0.308**	**0.397**	0.18 U	**0.304**
Cadmium	0.55	140 (c)	0.684 U	1.145 JL	0.662 U	7 J	1.026
Calcium	4958.5	NA	5010	5282.614	4025.166	9357	4314.537
Chromium	11.15	1400 (c)	10.878	9.406	18.521	79.1	19.828
Cobalt	6.25	2.7 (c)	**6.949**	**4.638**	**6.943**	**10.9**	**6.185**
Copper	10.05	10000 (c)	27.628	40.239	117.706	415 J	132.916
Cyanide	0.305	5500 (c)	1.14 U	1.107 U	1.104 U	1.9	1.101 U
Iron	9581.5	NA	11900	10363.012	21821.413	62599	24669.604
Lead	36.9495	400 (c)	50.506	176.587	395.077	**937**	**450.903**
Magnesium	2821	NA	2110	1382.171	1481.921	1603	1221.454
Manganese	216	27000 (c)	286.021	117.318	220.567	536	241.542
Mercury	0.06	82 (c)	0.114 U	0.615	0.613	0.77	0.545
Nickel	10.75	5500 (c)	19.649	13.364	24.702	47	25.628
Potassium	1300.5	NA	880 J	845.471 J	453.797 J	773	403.238 J
Selenium	0.415	820 (c)	0.684 U	0.665 U	0.68	0.26 U	0.661 U
Silver	0.7	820 (c)	2.053 U	1.993 U	4.238	1.9	3.112
Sodium	97.4	NA	154 JL	19.712 UJL	128.751 UC	101 J	140.482 UC
Thallium	0.295	19 (c)	1.455 UC	0.886 U	0.883 UF	0.51 U	0.881 UF
Vanadium	15.3	1800 (c)	15.206	10.718	15.79	23.4	16.024
Zinc	111	55000 (c)	124.308	203.333	517.616 J	1599 J	681.52 J

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL085-SS-01	AL-GL091-SS-01	AL-GL092-SS-01	AL-GL093-SS-01	AL-GL094-SS-01
Aluminum	5352.5	79000 (c)	2361.725	4855.981	2903	2937.131	5532.85
Antimony	3.6	110 (c)	10.936 U	14.983	R	10.971 U	12.56 U
Arsenic	3.15	0.37 (c)	**3.91 JL**	**14.313**	**6**	**3.669**	**11.522**
Barium	145	14000 (c)	206.988	324.522	304	139.871	255.483
Beryllium	0.3075	0.15 (c)	**0.28**	**0.33**	0.15 U	**0.317**	**0.466**
Cadmium	0.55	140 (c)	0.631 UJL	2.687 JL	1.7 J	0.633 U	3.242 JL
Calcium	4958.5	NA	3575.394	8494.498	4565	2692.616	4996.377
Chromium	11.15	1400 (c)	9.031	21.763	20.7	9.293	22.36
Cobalt	6.25	2.7 (c)	**3.691**	**8.979**	**4.4**	**5.502**	**7.217**
Copper	10.05	10000 (c)	31.022	145.115	73.3 J	19.422	182.546
Cyanide	0.305	5500 (c)	1.052 U	1.196 U	0.57	1.055 U	1.208 U
Iron	9581.5	NA	10638.696	33569.378	16693	7925.738	29437.198
Lead	36.9495	400 (c)	101.796	**464.211**	346	69.186	**441.812**
Magnesium	2821	NA	1189.338	1999.737	991	932.848	1848.72
Manganese	216	27000 (c)	156.124	346.555	184	146.943	343.116
Mercury	0.06	82 (c)	0.273	0.544	0.21	0.106 U	0.393
Nickel	10.75	5500 (c)	11.735	27.318	17.9	13.414	28.21
Potassium	1300.5	NA	349.148 J	968.517 J	460	446.688 J	852.295 J
Selenium	0.415	820 (c)	0.631 U	0.718 U	0.22 UJ	0.633 U	0.725 U
Silver	0.7	820 (c)	1.893 U	2.775	1.3	2.321	3.563
Sodium	97.4	NA	18.717 UJL	21.292 UJL	47.4 JL	96.49 UC	21.498 UJL
Thallium	0.295	19 (c)	0.841 U	0.957 U	0.43 U	0.844 UF	0.966 U
Vanadium	15.3	1800 (c)	11.121	23.821	8.4	11.888	22.065
Zinc	111	55000 (c)	144.702	740.191	387 J	102.144 J	1271.184

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL098-SS-01	AL-GL099-SS-01	AL-GL100-SS-01	AL-GL101-SS-01	AL-GL102-SS-01
Aluminum	5352.5	79000 (c)	2038.686	5356	1857.313	2828	2340.492
Antimony	3.6	110 (c)	13.787	R	11.94 U	5.6 UJ	11.633 U
Arsenic	3.15	0.37 (c)	**2.788 JL**	7.5	**3.091 JL**	**1.2 JL**	7.244
Barium	145	14000 (c)	104.513	351	60.034	164	227.964
Beryllium	0.3075	0.15 (c)	**0.277**	0.16 U	**0.305**	0.14	0.465
Cadmium	0.55	140 (c)	1.458 JL	1.8 J	3.272 JL	0.89 U	0.671 U
Calcium	4958.5	NA	5322.419	9057	2105.144	2942	4096.421
Chromium	11.15	1400 (c)	6.144	19.7	5.94	5.8	12.604
Cobalt	6.25	2.7 (c)	**3.533**	**5.6**	**4.462**	**3.9 JL**	**3.251**
Copper	10.05	10000 (c)	31.032	92.4 J	32.177	12.6	73.383
Cyanide	0.305	5500 (c)	1.043 U	0.56	1.148 U	0.57 U	1.119 U
Iron	9581.5	NA	8461.314	20149	6646.154	6419	13736.018
Lead	36.9495	400 (c)	110.974	386	49.747	33.1	271.79
Magnesium	2821	NA	1297.998	1923	1086.016	1864	908.233
Manganese	216	27000 (c)	137.247	204	74.636	133	143.315
Mercury	0.06	82 (c)	0.104 U	0.29	0.322	0.11 U	0.93999
Nickel	10.75	5500 (c)	12.855	22.5	13.258	10.6	12.98
Potassium	1300.5	NA	497.164 J	857	270.815 J	531	487.539 J
Selenium	0.415	820 (c)	0.626 U	0.24 UJ	0.68899 U	R	0.671 U
Silver	0.7	820 (c)	1.877 U	0.64	2.932	0.64 U	2.374
Sodium	97.4	NA	18.561 UJL	87.1	20.436 UL	47.4	49.181 JL
Thallium	0.295	19 (c)	0.834 U	0.48 U	0.919 U	0.41 JL	0.895 U
Vanadium	15.3	1800 (c)	9.491	16.3	8.838	8.2	10.575
Zinc	111	55000 (c)	148.269	493 J	101.431	70.8	409.195

Key at end of table.

Table 4.1-35

SUMMARY OF INORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL103-SS-01	AL-GL104-SS-01			
Aluminum	5352.5	79000 (c)	3545	3646			
Antimony	3.6	110 (c)	R	3.04 UJ			
Arsenic	3.15	0.37 (c)	**6.1**	**10.8 J**			
Barium	145	14000 (c)	276	143			
Beryllium	0.3075	0.15 (c)	0.16 U	**0.3**			
Cadmium	0.55	140 (c)	0.99 J	1.29 J			
Calcium	4958.5	NA	5002	4238			
Chromium	11.15	1400 (c)	10.9	14.2			
Cobalt	6.25	2.7 (c)	**4**	**7.02**			
Copper	10.05	10000 (c)	46.6 J	112 J			
Cyanide	0.305	5500 (c)	0.35	0.59 U			
Iron	9581.5	NA	11796	15663			
Lead	36.9495	400 (c)	199	225 J			
Magnesium	2821	NA	1466	1995			
Manganese	216	27000 (c)	141	220 J			
Mercury	0.06	82 (c)	0.12	0.29 J			
Nickel	10.75	5500 (c)	16.3	18.6 JH			
Potassium	1300.5	NA	744	888			
Selenium	0.415	820 (c)	0.24 U	1.17 U			
Silver	0.7	820 (c)	0.32 U	1.4			
Sodium	97.4	NA	39.2 JL	206			
Thallium	0.295	19 (c)	0.47 UJ	1.64 U			
Vanadium	15.3	1800 (c)	12	11.9			
Zinc	111	55000 (c)	259 J	286			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL015-SS-01	AL-GL016-SS-01	AL-GL017-SS-01	AL-GL018-SS-01	AL-GL019-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.017 UJ	0.012 UJ	0.012 U	0.022 UJ	0.011 U
Benzene	0.006	22 (c)	0.01 U	0.011 U	0.012 U	0.011 UJL	0.011 U
Bromodichloromethane	0.006	4.9 (c)	0.01 U	0.011 U	0.012 U	0.011 UJL	0.011 U
Bromomethane	0.006	380 (c)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
2-Butanone	0.006	47000 (d)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
Chloroform	0.006	110 (c)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
Dibromochloromethane	0.006	7.6 (c)	0.01 U	0.011 U	0.012 U	0.011 UJL	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.01 U	0.011 UJL	0.012 U	0.011 UJL	0.011 UJL
Methylene Chloride	0.00925	85 (c)	0.01 U	0.011 U	0.012 U	0.016 UJ	0.011 U
Tetrachloroethene	0.006	13 (c)	0.01 U	0.011 UJL	0.012 U	0.011 UJL	0.011 UJL
Toluene	0.006	55000 (c)	0.027	0.013 J	0.002 J	0.002 J	0.011 UJL
1,1,1-Trichloroethane	0.006	25000 (c)	0.01 U	0.011 U	0.012 U	0.011 UJL	0.011 U
Trichloroethene	0.006	58 (c)	0.01 U	0.011 U	0.012 U	0.011 UJL	0.011 U
Xylene	0.006	550000 (c)	0.01 U	0.011 UJL	0.012 U	0.011 UJL	0.011 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.34 U	0.36 U	0.39 U	0.36 U	0.38 U
Acenaphthylene	0.1975	27000 (c)	0.34 U	0.36 U	0.39 U	0.36 U	0.38 U
Anthracene	0.1975	82000 (c)	0.016 J	0.024 J	0.039 J	0.069 J	0.023 J
Benzo(a)anthracene	0.19	0.9 (c)	0.06 J	0.13 J	0.14 J	0.36 J	0.25 J
Benzo(a)pyrene	0.19	0.09 (c)	0.076 J	**0.15 J**	**0.16 J**	**0.32 J**	**0.31 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.078 J	0.18 J	0.2 J	0.37	0.53
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.047 J	0.13 J	0.16 J	0.22 J	0.29 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL015-SS-01	AL-GL016-SS-01	AL-GL017-SS-01	AL-GL018-SS-01	AL-GL019-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.08 J	0.15 J	0.21 J	0.36 J	0.38 U
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.34 U	0.95 B	0.97 B	0.36 U	0.38 U
Butylbenzylphthalate	0.195	55000 (c)	0.34 U	0.2 J	0.39 U	0.36 U	0.041 J
Carbazole	0.1975	32 (d)	0.34 U	0.027 J	0.037 J	0.022 J	0.38 U
Chrysene	0.19	9 (c)	0.073 J	0.18 J	0.23 J	0.42	0.3 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.34 UJL	0.36 U	0.39 U	0.36 U	0.38 U
Dibenzofuran	0.1975	--	0.34 U	0.36 U	0.39 U	0.36 U	0.38 U
Diethylphthalate	0.1975	220000 (c)	0.34 U	0.36 U	0.022 J	0.36 U	0.38 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.34 U	1.1	0.39 U	0.36 U	0.019 J
di-n-Octyl Phthalate	0.1975	1600 (d)	0.022 J	0.068 J	0.38 J	0.026 J	0.38 U
Fluoranthene	0.1825	11000 (c)	0.11 J	0.26 J	0.35 J	0.5	0.27 J
Fluorene	0.1975	11000 (c)	0.34 U	0.36 U	0.39 U	0.36 U	0.38 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.043 J	0.12 J	0.13 J	0.21 J	0.27 J
2-Methylnaphthalene	0.1975	--	0.34 U	0.36 U	0.39 U	0.36 U	0.019 J
Naphthalene	0.1975	1100 (c)	0.34 U	0.36 U	0.026 J	0.36 U	0.041 J
Phenanthrene	0.195	7900 (c)	0.052 J	0.13 J	0.16 J	0.24 J	0.14 J
Pyrene	0.185	8200 (c)	0.13 J	0.25 J	0.35 J	0.47	0.38
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0018 U	0.00198 U	0.0027 J	0.0019 U	0.0019 U
Aroclor 1260	0.02375	0.083 (d)	0.034 U	0.036 U	0.39 U	0.086	0.037 U
alpha-BHC	0.001175	0.1 (d)	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
beta-BHC	0.001225	0.35 (d)	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
delta-BHC	0.001225	--	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
gamma-BHC	0.0011	0.49 (d)	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
alpha-Chlordane	0.0195	0.49 (d)	0.003 J	0.0032 J	0.0048 J	0.0026 J	0.00435 J
gamma-Chlordane	0.01058	0.49 (d)	0.0047 J	0.004 J	0.0063 J	0.0019 U	0.00459 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL015-SS-01	AL-GL016-SS-01	AL-GL017-SS-01	AL-GL018-SS-01	AL-GL019-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0034 U	0.0036 U	0.0039 U	0.0036 U	0.0037 UJ
4,4'-DDE	0.115	1.9 (d)	0.0034 U	0.0049 J	0.005 J	0.0048 J	0.022
4,4'-DDT	0.119	1.9 (d)	0.006 J	0.014 J	0.017 J	0.0077 J	0.077 J
Dieldrin	0.024	0.04 (d)	0.0034 U	0.0036 J	0.0039 U	0.0036 U	0.0065 J
Endosulfan I	0.001225	470 (d)	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
Endosulfan II	0.002375	470 (d)	0.0034 U	0.036 U	0.0039 U	0.0036 U	0.0037 UJ
Endosulfan Sulfate	0.002275	--	0.0034 U	0.0036 U	0.0039 U	0.036 U	0.0037 UJ
Endrin	0.003975	23 (d)	0.0034 U	0.009 J	0.01 J	0.0036 U	0.0037 UJ
Endrin Aldehyde	0.00621	--	0.016 U	0.036	0.023 J	0.014 J	0.0037 UJ
Endrin Ketone	0.002375	--	0.0034 U	0.0036 U	0.0039 U	0.0036 U	0.0037 UJ
Heptachlor	0.001225	0.14 (d)	0.00221 J	0.0031	0.002 U	0.0033 J	0.0019 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.0018 U	0.0019 U	0.002 U	0.0019 U	0.0019 U
Methoxychlor	0.012	390 (d)	0.018 UJL	0.019 UJL	0.02 UJL	0.019 UJL	0.019 UJ

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL020-SS-01	AL-GL024-SS-01	AL-GL025-SS-01	AL-GL026-SS-01	AL-GL027-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.013 U	0.011 U	0.01 U	0.012 UJ
Benzene	0.006	22 (c)	0.012 UJL	0.013 U	0.011 U	0.01 U	0.011 UJL
Bromodichloromethane	0.006	4.9 (c)	0.012 UJL	0.013 U	0.011 U	0.01 U	0.011 UJL
Bromomethane	0.006	380 (c)	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U
2-Butanone	0.006	47000 (d)	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.001 J	0.013 U	0.011 U	0.01 U	0.011 U
Chloroform	0.006	110 (c)	0.012 U	0.013 U	0.011 U	0.01 U	0.011 U
Dibromochloromethane	0.006	7.6 (c)	0.012 UJL	0.013 U	0.011 U	0.01 U	0.011 UJL
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.002 J	0.011 U	0.002 J	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.013 U	0.011 U	0.001 J	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.012 UJL	0.013 UJL	0.011 UJL	0.01 UJL	0.011 UJL
Methylene Chloride	0.00925	85 (c)	0.002 J	0.013 U	0.011 U	0.01 U	0.011 U
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.013 UJL	0.011 UJL	0.01 UJL	0.011 UJL
Toluene	0.006	55000 (c)	0.012 UJL	0.007 J	0.014 J	0.011 J	0.011 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.012 UJL	0.013 U	0.011 U	0.01 U	0.011 UJL
Trichloroethene	0.006	58 (c)	0.012 UJL	0.013 U	0.011 U	0.01 U	0.011 UJL
Xylene	0.006	550000 (c)	0.012 UJL	0.013 UJL	0.011 UJL	0.003 J	0.011 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.38 U	0.43 U	0.36 U	0.34 U	0.37 U
Acenaphthylene	0.1975	27000 (c)	0.38 U	0.43 U	0.36 U	0.34 U	0.026 J
Anthracene	0.1975	82000 (c)	0.38 U	0.058 J	0.36 U	0.34 U	0.065 J
Benzo(a)anthracene	0.19	0.9 (c)	0.049 J	0.33 J	0.36 U	0.34 U	0.29 J
Benzo(a)pyrene	0.19	0.09 (c)	0.066 J	0.39 J	0.023 J	0.34 U	0.34 J
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.095 J	0.45	0.02 J	0.34 U	0.39
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.062 J	0.34 J	0.36 U	0.34 U	0.29 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL020-SS-01	AL-GL024-SS-01	AL-GL025-SS-01	AL-GL026-SS-01	AL-GL027-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.38 U	0.35 J	0.03 J	0.34 U	0.34 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.06 J	3.1 J	0.36 U	0.34 U	1.4
Butylbenzylphthalate	0.195	55000 (c)	0.02 J	0.43 U	0.36 U	0.34 U	0.37 U
Carbazole	0.1975	32 (d)	0.38 U	0.034 J	0.36 U	0.34 U	0.039 J
Chrysene	0.19	9 (c)	0.058 J	0.39 J	0.033 J	0.023 J	0.34 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.38 U	0.43 U	0.36 U	0.34 U	**0.15 J**
Dibenzofuran	0.1975	--	0.38 U	0.43 U	0.36 U	0.34 U	0.37 U
Diethylphthalate	0.1975	220000 (c)	0.38 U	0.43 U	0.36 U	0.34 U	0.37 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.022 J	0.43 U	0.36 U	0.34 U	0.37 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.38 U	0.11 J	0.36 U	0.34 U	0.034 J
Fluoranthene	0.1825	11000 (c)	0.09 J	0.5	0.022 J	0.026 J	0.44
Fluorene	0.1975	11000 (c)	0.38 U	0.43 U	0.36 U	0.34 U	0.019 J
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.056 J	0.27 J	0.36 U	0.34 U	0.27 J
2-Methylnaphthalene	0.1975	--	0.38 U	0.43 U	0.36 U	0.34 U	0.02 J
Naphthalene	0.1975	1100 (c)	0.38 U	0.43 U	0.36 U	0.34 U	0.024 J
Phenanthrene	0.195	7900 (c)	0.041 J	0.22 J	0.038 J	0.34 U	0.27 J
Pyrene	0.185	8200 (c)	0.076 J	0.56 J	0.033 J	0.021 J	0.5
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.0019 U
Aroclor 1260	0.02375	0.083 (d)	0.036 U	0.43 U	0.43 U	0.034 UJL	0.37 U
alpha-BHC	0.001175	0.1 (d)	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.0019 U
beta-BHC	0.001225	0.35 (d)	0.0026 JT	0.0022 U	0.0019 U	0.0018 U	0.0063 JT
delta-BHC	0.001225	--	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.0021 JT
gamma-BHC	0.0011	0.49 (d)	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.0019 U
alpha-Chlordane	0.0195	0.49 (d)	0.00322	0.0053 JL	0.0019 U	0.0018 U	0.031 J
gamma-Chlordane	0.01058	0.49 (d)	0.002 J	0.0054 JL	0.0019 U	0.0018 U	0.008 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL020-SS-01	AL-GL024-SS-01	AL-GL025-SS-01	AL-GL026-SS-01	AL-GL027-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0036 U	0.0043 UJL	0.0036 UJL	0.0034 UJL	0.033 J
4,4'-DDE	0.115	1.9 (d)	0.0036 U	0.0054 JL	0.0036 UJL	0.0034 UJL	0.021 J
4,4'-DDT	0.119	1.9 (d)	0.00451 J	0.0064 JL	0.0047 JL	0.0034 UJL	0.033 J
Dieldrin	0.024	0.04 (d)	0.00542 J	0.0043 UJL	0.0036 UJL	0.0034 UJL	0.049 J
Endosulfan I	0.001225	470 (d)	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.0019 U
Endosulfan II	0.002375	470 (d)	0.0036 U	0.0043 UJL	0.0036 UJL	0.0034 UJL	0.0037 U
Endosulfan Sulfate	0.002275	--	0.0036 U	0.0043 UJL	0.0036 UJL	0.0034 UJL	0.0037 U
Endrin	0.003975	23 (d)	0.0036 U	0.0083 JL	0.0036 UJL	0.0034 UJL	0.0055 J
Endrin Aldehyde	0.00621	--	0.00965 J	0.15	0.15 JL	0.0034 UJL	0.011 J
Endrin Ketone	0.002375	--	0.0036 U	0.0043 UJL	0.0036 UJL	0.0034 UJL	0.0037 U
Heptachlor	0.001225	0.14 (d)	0.0019 U	0.0022 J	0.002 J	0.0027	0.0049 J
Heptachlor Epoxide	0.002025	0.07 (d)	0.0019 U	0.0022 U	0.0019 U	0.0018 U	0.014 J
Methoxychlor	0.012	390 (d)	0.019 U	0.022 UJL	0.019 UJL	0.018 UJL	0.019 UJL

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL031-SS-01	AL-GL032-SS-01	AL-GL033-SS-01	AL-GL034-SS-01	AL-GL039-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.011 U	0.013 UJ	0.02 UJ	0.011 U
Benzene	0.006	22 (c)	0.012 U	0.011 U	0.012 U	0.011 UJ	0.011 U
Bromodichloromethane	0.006	4.9 (c)	0.012 U	0.011 U	0.012 U	0.011 UJ	0.011 U
Bromomethane	0.006	380 (c)	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U
2-Butanone	0.006	47000 (d)	0.02	0.011 U	0.012 U	0.011 U	0.023 J
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U
Chloroform	0.006	110 (c)	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U
Dibromochloromethane	0.006	7.6 (c)	0.012 U	0.011 U	0.012 U	0.011 UJ	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.003 J	0.011 U	0.012 U	0.011 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.002 J	0.011 U	0.012 U	0.011 U	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.012 U	0.011 UJL	0.012 UJL	0.011 UJ	0.011 U
Methylene Chloride	0.00925	85 (c)	0.003 J	0.014 UJ	0.012 U	0.027 UJ	0.003 J
Tetrachloroethene	0.006	13 (c)	0.002 J	0.011 UJL	0.012 UJL	0.011 UJ	0.011 U
Toluene	0.006	55000 (c)	0.001 J	0.011 UJL	0.012 UJL	0.011 UJ	0.002 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.012 U	0.011 U	0.012 U	0.004 J	0.011 U
Trichloroethene	0.006	58 (c)	0.012 U	0.011 U	0.012 U	0.011 UJ	0.011 U
Xylene	0.006	550000 (c)	0.012 UJ	0.011 UJL	0.012 UJL	0.011 UJ	0.011 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Acenaphthylene	0.1975	27000 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Anthracene	0.1975	82000 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Benzo(a)anthracene	0.19	0.9 (c)	0.041 J	0.1 J	0.052 J	0.12 J	0.13 J
Benzo(a)pyrene	0.19	0.09 (c)	0.04 J	**0.12 J**	0.054 J	**0.14 J**	**0.12 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.049 J	0.1 J	0.088 J	0.15 J	0.11 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.036 J	0.086 J	0.05 J	0.14 J	0.092 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL031-SS-01	AL-GL032-SS-01	AL-GL033-SS-01	AL-GL034-SS-01	AL-GL039-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.046 J	0.095 J	0.4 U	0.15 J	0.11 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.72	0.78	1.4	0.19 J	0.38
Butylbenzylphthalate	0.195	55000 (c)	0.38 U	0.048 J	0.03 J	0.018 J	0.02 J
Carbazole	0.1975	32 (d)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Chrysene	0.19	9 (c)	0.046 J	0.14 J	0.066 J	0.14 J	0.17 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Dibenzofuran	0.1975	--	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Diethylphthalate	0.1975	220000 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.38 U	0.36 U	0.32 J	0.35 U	0.38 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.38 U	0.02 J	0.048 J	0.35 U	0.38 U
Fluoranthene	0.1825	11000 (c)	0.069 J	0.2 J	0.077	0.2 J	0.21 J
Fluorene	0.1975	11000 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.031 J	0.069 J	0.043 J	0.12 J	0.072 J
2-Methylnaphthalene	0.1975	--	0.38 U	0.36 U	0.4 U	0.35 U	0.38 U
Naphthalene	0.1975	1100 (c)	0.38 U	0.36 U	0.4 U	0.35 U	0.14 J
Phenanthrene	0.195	7900 (c)	0.025 J	0.097 J	0.058 J	0.075 J	0.059 J
Pyrene	0.185	8200 (c)	0.059 J	0.19 J	0.12 J	0.17 J	0.2 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
Aroclor 1260	0.02375	0.083 (d)	0.038 U	0.036 U	0.04 U	0.035 U	0.038 U
alpha-BHC	0.001175	0.1 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
beta-BHC	0.001225	0.35 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
delta-BHC	0.001225	--	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
gamma-BHC	0.0011	0.49 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
alpha-Chlordane	0.0195	0.49 (d)	0.002 U	0.0018 U	0.002 UJ	0.00259 J	0.00193 J
gamma-Chlordane	0.01058	0.49 (d)	0.002 U	0.0018 U	0.002 UJ	0.00216 J	0.002 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL031-SS-01	AL-GL032-SS-01	AL-GL033-SS-01	AL-GL034-SS-01	AL-GL039-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.0038 U
4,4'-DDE	0.115	1.9 (d)	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.0038 U
4,4'-DDT	0.119	1.9 (d)	0.0038 U	0.0036 U	0.004 U	0.00716 J	0.0038 U
Dieldrin	0.024	0.04 (d)	0.0085	0.0036 U	0.004 UJ	0.0035 U	0.00397 J
Endosulfan I	0.001225	470 (d)	0.00219 J	0.0018 U	0.002 UJ	0.0018 U	0.002 U
Endosulfan II	0.002375	470 (d)	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.0038 U
Endosulfan Sulfate	0.002275	--	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.0038 U
Endrin	0.003975	23 (d)	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.00422 J
Endrin Aldehyde	0.00621	--	0.0117 JT	0.0036 U	0.004 U	0.0145 JT	0.00818 J
Endrin Ketone	0.002375	--	0.0038 U	0.0036 U	0.004 U	0.0035 U	0.0038 U
Heptachlor	0.001225	0.14 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.002 U	0.0018 U	0.002 UJ	0.0018 U	0.002 U
Methoxychlor	0.012	390 (d)	0.02 U	0.018 U	0.02 U	0.018 U	0.02 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL041-SS-01	AL-GL042-SS-01	AL-GL048-SS-01	AL-GL049-SS-01	AL-GL050-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.011 U	0.05 UJ	0.011 U	0.03 U	0.013 U
Benzene	0.006	22 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 U
Bromodichloromethane	0.006	4.9 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 U
Bromomethane	0.006	380 (c)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
2-Butanone	0.006	47000 (d)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
Chloroform	0.006	110 (c)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
Dibromochloromethane	0.006	7.6 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U
Ethylbenzene	0.00575	27000 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 UJ
Methylene Chloride	0.00925	85 (c)	0.02 U	0.034 UJ	0.011 UJ	0.011 UJ	0.004 J
Tetrachloroethene	0.006	13 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 UJ
Toluene	0.006	55000 (c)	0.011 U	0.002 J	0.011 U	0.011 U	0.002 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.011 U	0.005 J	0.011 U	0.011 U	0.013 U
Trichloroethene	0.006	58 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 U
Xylene	0.006	550000 (c)	0.011 U	0.012 UJ	0.011 U	0.011 U	0.013 UJ
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Acenaphthylene	0.1975	27000 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Anthracene	0.1975	82000 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.023 J
Benzo(a)anthracene	0.19	0.9 (c)	0.11 J	0.078 J	0.14 J	0.078 J	0.14 J
Benzo(a)pyrene	0.19	0.09 (c)	**0.1 J**	0.082 J	**0.16 J**	0.36 U	**0.16 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.22 J	0.15 J	0.31 J	0.17 J	0.22 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.36 U	0.073 J	0.19 J	0.36 U	0.15 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL041-SS-01	AL-GL042-SS-01	AL-GL048-SS-01	AL-GL049-SS-01	AL-GL050-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.17 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.36 U	2.5	0.67 B	0.47 U	0.75
Butylbenzylphthalate	0.195	55000 (c)	0.2 J	0.12 J	0.38 U	0.36 U	0.04 J
Carbazole	0.1975	32 (d)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Chrysene	0.19	9 (c)	0.13 J	0.11 J	0.16 J	0.084 J	0.16 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Dibenzofuran	0.1975	--	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Diethylphthalate	0.1975	220000 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.27 J	0.038 J	0.022 J	0.36 U	0.028 J
di-n-Octyl Phthalate	0.1975	1600 (d)	0.36 U	0.061 J	0.046 J	0.36 U	0.024 J
Fluoranthene	0.1825	11000 (c)	0.15 J	0.13 J	0.2 J	0.074 J	0.26 J
Fluorene	0.1975	11000 (c)	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.36 U	0.057 J	0.19 J	0.36 U	0.11 J
2-Methylnaphthalene	0.1975	--	0.36 U	0.39 U	0.38 U	0.36 U	0.43 U
Naphthalene	0.1975	1100 (c)	0.36 U	0.39 U	0.029 J	0.36 U	0.43 U
Phenanthrene	0.195	7900 (c)	0.051 J	0.044 J	0.069 J	0.029 J	0.11 J
Pyrene	0.185	8200 (c)	0.2 J	0.11 J	0.14 J	0.082 J	0.22 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
Aroclor 1260	0.02375	0.083 (d)	0.036 U	0.039 U	0.037 U	0.028 U	0.043 U
alpha-BHC	0.001175	0.1 (d)	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
beta-BHC	0.001225	0.35 (d)	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
delta-BHC	0.001225	--	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
gamma-BHC	0.0011	0.49 (d)	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
alpha-Chlordane	0.0195	0.49 (d)	0.0132	0.00338 JT	0.0246 JH	0.00452	0.015 J
gamma-Chlordane	0.01058	0.49 (d)	0.0164	0.002 U	0.0254 JH	0.00211	0.00887 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL041-SS-01	AL-GL042-SS-01	AL-GL048-SS-01	AL-GL049-SS-01	AL-GL050-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0036 U	0.0039 U	0.0037 U	0.0036 U	0.0043 U
4,4'-DDE	0.115	1.9 (d)	0.0036 U	0.0088	0.00396 JH	0.0036 U	0.0043 U
4,4'-DDT	0.119	1.9 (d)	0.00658 J	0.0185 J	0.00448 J	0.0036 U	0.00992 J
Dieldrin	0.024	0.04 (d)	0.0036 U	0.0039 U	0.0037 U	0.0036 U	0.0043 U
Endosulfan I	0.001225	470 (d)	0.0019 U	0.002 U	0.0019 U	0.0018 U	0.0022 U
Endosulfan II	0.002375	470 (d)	0.0036 U	0.0039 U	0.0037 U	0.0036 U	0.0043 U
Endosulfan Sulfate	0.002275	--	0.0036 U	0.0039 U	0.00485 J	0.0036 U	0.0043 U
Endrin	0.003975	23 (d)	0.00406 J	0.00434 J	0.0037 U	0.0036 U	0.0104 J
Endrin Aldehyde	0.00621	--	0.00969 J	0.0201 J	0.00806	0.0036 U	0.02 J
Endrin Ketone	0.002375	--	0.0036 U	0.0039 U	0.0037 U	0.0036 U	0.0043 U
Heptachlor	0.001225	0.14 (d)	0.0019 U	0.002 U	0.0034 JH	0.0018 U	0.0022 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.00322 J	0.002 U	0.00477 JH	0.0018 U	0.0022 U
Methoxychlor	0.012	390 (d)	0.019 U	0.02 U	0.019 U	0.018 U	0.022 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL051-SS-01	AL-GL052-SS-01	AL-GL056-SS-01	AL-GL057-SS-01	AL-GL058-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.015 UJ	0.013 UJ	0.011 U	0.011 U	0.012 UJ
Benzene	0.006	22 (c)	0.012 UJ	0.012 UJ	0.011 U	0.011 U	0.012 UJ
Bromodichloromethane	0.006	4.9 (c)	0.012 UJ	0.012 UJ	0.011 U	0.011 U	0.012 UJ
Bromomethane	0.006	380 (c)	0.012 U	0.012 U	0.011 U	0.011 U	0.012 UJ
2-Butanone	0.006	47000 (d)	0.012 U	0.012 U	0.011 U	0.011 U	0.012 UJ
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.012 U	0.011 U	0.011 U	0.012 UJ
Chloroform	0.006	110 (c)	0.012 U	0.012 U	0.011 U	0.011 U	0.012 UJ
Dibromochloromethane	0.006	7.6 (c)	0.012 UJ	0.012 UJ	0.011 U	0.011 U	0.012 UJ
1,1-Dichloroethene	0.006	1.1 (c)	0.002 J	0.002 J	0.011 U	0.011 U	0.007 J
1,2-Dichloroethene	0.006	2700 (c)	0.002 J	0.012 U	0.011 U	0.011 U	0.002 J
Ethylbenzene	0.00575	27000 (c)	0.012 UJ	0.012 UJ	0.011 UJL	0.011 UJL	0.012 UJ
Methylene Chloride	0.00925	85 (c)	0.003 J	0.005 J	0.019 J	0.006 J	0.007 J
Tetrachloroethene	0.006	13 (c)	0.012 UJ	0.012 UJ	0.011 UJL	0.011 UJL	0.012 UJ
Toluene	0.006	55000 (c)	0.002 J	0.003 J	0.011 UJL	0.011 UJL	0.012 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.001 J	0.012 UJ	0.002 J	0.002 J	0.013 J
Trichloroethene	0.006	58 (c)	0.012 UJ	0.012 UJ	0.011 U	0.011 U	0.012 UJ
Xylene	0.006	550000 (c)	0.012 UJ	0.012 UJ	0.011 UJL	0.011 UJL	0.012 UJ
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.045 J
Acenaphthylene	0.1975	27000 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
Anthracene	0.1975	82000 (c)	0.031 J	0.4 U	0.36 U	0.35 U	0.23 J
Benzo(a)anthracene	0.19	0.9 (c)	0.12 J	0.11 J	0.12 J	0.049 J	0.73
Benzo(a)pyrene	0.19	0.09 (c)	**0.12 J**	**0.095 J**	**0.14 J**	0.056 J	**0.51**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.12 J	0.16 J	0.26 J	0.13 J	0.48
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.095 J	0.077 J	0.14 J	0.076 J	0.33 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL051-SS-01	AL-GL052-SS-01	AL-GL056-SS-01	AL-GL057-SS-01	AL-GL058-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.12 J	0.4 U	0.36 U	0.35 U	0.46
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.15 J	0.16 J	0.51 U	0.35 U	1.3
Butylbenzylphthalate	0.195	55000 (c)	0.4 U	0.025 J	0.028 J	0.35 U	0.39 U
Carbazole	0.1975	32 (d)	0.4 U	0.4 U	0.36 U	0.35 U	0.058 J
Chrysene	0.19	9 (c)	0.14 J	0.11 J	0.15 J	0.081 J	0.76
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
Dibenzofuran	0.1975	--	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
Diethylphthalate	0.1975	220000 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.4 U	0.4 U	0.044 J	0.35 U	0.03 J
Fluoranthene	0.1825	11000 (c)	0.23 J	0.18 J	0.17 J	0.077 J	1.9
Fluorene	0.1975	11000 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.046 J
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.075 J	0.06 J	0.095 J	0.059 J	0.29 J
2-Methylnaphthalene	0.1975	--	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
Naphthalene	0.1975	1100 (c)	0.4 U	0.4 U	0.36 U	0.35 U	0.39 U
Phenanthrene	0.195	7900 (c)	0.13 J	0.087 J	0.066 J	0.028 J	1
Pyrene	0.185	8200 (c)	0.18 J	0.15 J	0.19 J	0.065 J	1.5
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.00348	0.0021 U	0.0018 U	0.0018 U	0.002 U
Aroclor 1260	0.02375	0.083 (d)	0.04 U	0.04 U	0.036 U	0.035 U	0.039 U
alpha-BHC	0.001175	0.1 (d)	0.002 U	0.0021 U	0.0018 U	0.0018 U	0.002 U
beta-BHC	0.001225	0.35 (d)	0.002 U	0.0021 U	0.0018 U	0.0018 U	0.002 U
delta-BHC	0.001225	--	0.00241 T	0.0021 U	0.0018 U	0.0018 U	0.002 U
gamma-BHC	0.0011	0.49 (d)	0.002 U	0.0021 U	0.0018 U	0.0018 U	0.002 U
alpha-Chlordane	0.0195	0.49 (d)	0.059 J	0.00777	0.066 J	0.047 J	0.0114 J
gamma-Chlordane	0.01058	0.49 (d)	0.046	0.00408 J	0.058 J	0.051 J	0.00889 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL051-SS-01	AL-GL052-SS-01	AL-GL056-SS-01	AL-GL057-SS-01	AL-GL058-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.00661 J	0.0318 J	0.0036 U	0.0035 U	0.00223 J
4,4'-DDE	0.115	1.9 (d)	0.004 U	0.0894 J	0.00519	0.00569	0.0039 U
4,4'-DDT	0.119	1.9 (d)	0.0131 J	0.0549 J	0.0052 J	0.00684 J	0.00956 J
Dieldrin	0.024	0.04 (d)	0.00589 J	0.004 U	0.00432 J	0.00439 J	0.00554 J
Endosulfan I	0.001225	470 (d)	0.002 U	0.0021 U	0.0018 U	0.0018 U	0.002 U
Endosulfan II	0.002375	470 (d)	0.004 U	0.004 U	0.0036 U	0.0035 U	0.0039 J
Endosulfan Sulfate	0.002275	--	0.004 U	0.004 U	0.0036 U	0.0035 U	0.0039 U
Endrin	0.003975	23 (d)	0.0106 J	0.00513 J	0.0036 U	0.0035 U	0.012
Endrin Aldehyde	0.00621	--	0.0175 J	0.0122 J	0.00934	0.0058 J	0.0382 J
Endrin Ketone	0.002375	--	0.004 U	0.004 U	0.0036 U	0.0035 U	0.0039 U
Heptachlor	0.001225	0.14 (d)	0.00503	0.0021 U	0.00344 BH	0.0018 U	0.002 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.0128	0.0021 U	0.00431	0.00501	0.00261 J
Methoxychlor	0.012	390 (d)	0.02 UJL	0.021 UJL	0.0018 U	0.018 U	0.02 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL059-SS-01	AL-GL060-SS-01	AL-GL064-SS-01	AL-GL065-SS-01	AL-GL066-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.021 UJ	0.011 U	0.011 U	0.012 U
Benzene	0.006	22 (c)	0.012 UJL	0.01 U	0.011 U	0.006 J	0.012 U
Bromodichloromethane	0.006	4.9 (c)	0.012 UJL	0.01 U	0.011 U	0.011 U	0.012 U
Bromomethane	0.006	380 (c)	0.012 U	0.01 U	0.011 U	0.011 U	0.012 U
2-Butanone	0.006	47000 (d)	0.012 U	0.01 U	0.011 U	0.011 U	0.012 U
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.01 U	0.011 U	0.011 U	0.012 U
Chloroform	0.006	110 (c)	0.012 U	0.01 U	0.011 U	0.011 U	0.012 U
Dibromochloromethane	0.006	7.6 (c)	0.012 UJL	0.01 U	0.011 U	0.011 U	0.012 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.01 U	0.011 U	0.011 U	0.002 J
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.01 U	0.011 U	0.011 U	0.001 J
Ethylbenzene	0.00575	27000 (c)	0.012 UJL	0.01 U	0.011 U	0.011 UJL	0.012 U
Methylene Chloride	0.00925	85 (c)	0.013 J	0.01 U	0.011 UJ	0.011 U	0.002 J
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.01 U	0.011 U	0.011 UJL	0.012 U
Toluene	0.006	55000 (c)	0.012 UJL	0.01 U	0.011 U	0.011 UJL	0.001 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.007 J	0.01 U	0.011 U	0.011 U	0.012 U
Trichloroethene	0.006	58 (c)	0.012 UJL	0.01 U	0.011 U	0.011 U	0.012 U
Xylene	0.006	550000 (c)	0.012 UJL	0.01 U	0.011 U	0.011 UJL	0.012 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.38 U	0.028 J	0.36 U	0.0006 J	0.39 U
Acenaphthylene	0.1975	27000 (c)	0.38 U	0.018 J	0.36 U	0.37 U	0.39 U
Anthracene	0.1975	82000 (c)	0.062 J	0.12 J	0.36 U	0.06 J	0.39 U
Benzo(a)anthracene	0.19	0.9 (c)	0.36 J	0.38	0.22 J	0.37	0.21 J
Benzo(a)pyrene	0.19	0.09 (c)	0.41	0.54	0.25 J	0.35 J	0.28 J
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.62	0.7	0.44	0.66	0.32 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.52	0.4	0.23 J	0.31 J	0.24 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL059-SS-01	AL-GL060-SS-01	AL-GL064-SS-01	AL-GL065-SS-01	AL-GL066-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.38 U	0.34 U	0.36 U	0.37 U	0.22 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	1.6 U	0.34 U	0.39 U	0.47 U	1.5
Butylbenzylphthalate	0.195	55000 (c)	0.071 J	1	0.36 U	0.37 U	0.39 U
Carbazole	0.1975	32 (d)	0.029 J	0.028 J	0.36 U	0.075 J	0.39 U
Chrysene	0.19	9 (c)	0.39	0.48	0.22 J	0.31 J	0.26 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.38 U	0.34 U	0.36 U	**0.12 J**	**0.11 J**
Dibenzofuran	0.1975	--	0.38 U	0.019 J	0.36 U	0.37 U	0.39 U
Diethylphthalate	0.1975	220000 (c)	0.38 U	0.34 U	0.36 U	0.37 U	0.39 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.38 U	0.032 J	0.028 J	0.021 J	0.39 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.021 J	0.34 U	0.36 U	0.03 J	0.035 J
Fluoranthene	0.1825	11000 (c)	0.53	0.48	0.31 J	0.74	0.41
Fluorene	0.1975	11000 (c)	0.38 U	0.03 J	0.36 U	0.37 U	0.39 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.38 J	0.37	0.23 J	0.33 J	0.21 J
2-Methylnaphthalene	0.1975	--	0.026 J	0.23 J	0.36 U	0.37 U	0.39 U
Naphthalene	0.1975	1100 (c)	0.056 J	0.17 J	0.36 U	0.37 U	0.39 U
Phenanthrene	0.195	7900 (c)	0.22 J	0.58	0.081 J	0.31 J	0.2 J
Pyrene	0.185	8200 (c)	0.5	0.78	0.21 J	0.44	0.34 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.002 U	0.0018 U	0.0018 U	0.0019 U	0.002 U
Aroclor 1260	0.02375	0.083 (d)	**0.12 J**	0.034 U	0.036 U	0.037 U	0.039 U
alpha-BHC	0.001175	0.1 (d)	0.002 U	0.0018 U	0.0018 U	0.0019 U	0.002 U
beta-BHC	0.001225	0.35 (d)	0.002 U	0.0018 U	0.0018 U	0.0019 U	0.002 U
delta-BHC	0.001225	--	0.00216	0.0018 U	0.0018 U	0.0019 U	0.002 U
gamma-BHC	0.0011	0.49 (d)	0.002 U	0.0018 U	0.0018 U	0.00195 J	0.002 U
alpha-Chlordane	0.0195	0.49 (d)	0.0157 J	0.024 J	0.0132	0.00431 J	0.00767 J
gamma-Chlordane	0.01058	0.49 (d)	0.0147 J	0.025 J	0.0112	0.0041 J	0.00961

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL059-SS-01	AL-GL060-SS-01	AL-GL064-SS-01	AL-GL065-SS-01	AL-GL066-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.00431 J	0.042 JH	0.00336 U	0.0037 U	0.015 J
4,4'-DDE	0.115	1.9 (d)	0.0152	0.051	0.00705 J	0.00369 J	0.0244 J
4,4'-DDT	0.119	1.9 (d)	0.0124 J	0.09 J	0.0113 J	0.00266 J	0.0363 J
Dieldrin	0.024	0.04 (d)	0.0101 J	0.021	0.0036 U	0.00326 J	0.0039 U
Endosulfan I	0.001225	470 (d)	0.002 U	0.0018 U	0.0018 U	0.0019 U	0.002 U
Endosulfan II	0.002375	470 (d)	0.0038 U	0.0034 U	0.0036 U	0.0037 U	0.0039 U
Endosulfan Sulfate	0.002275	--	0.0038 U	0.0034 U	0.00414 J	0.0037 U	0.0039 U
Endrin	0.003975	23 (d)	0.00506 J	0.0034 U	0.0036 U	0.0037 U	0.00464 J
Endrin Aldehyde	0.00621	--	0.0203 J	0.0034 U	0.0103 J	0.0037 U	0.0039 U
Endrin Ketone	0.002375	--	0.0038 U	0.0034 U	0.0036 U	0.0037 U	0.0039 U
Heptachlor	0.001225	0.14 (d)	0.00216	0.0031 J	0.0018 U	0.0019 U	0.00236
Heptachlor Epoxide	0.002025	0.07 (d)	0.002 UF	0.004 J	0.0018 UF	0.002 J	0.002 U
Methoxychlor	0.012	390 (d)	0.02 U	0.018 U	0.018 U	0.019 U	0.02 UJL

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL067-SS-01	AL-GL068-SS-01	AL-GL073-SS-01	AL-GL074-SS-01	AL-GL075-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Benzene	0.006	22 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Bromodichloromethane	0.006	4.9 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Bromomethane	0.006	380 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
2-Butanone	0.006	47000 (d)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Chloroform	0.006	110 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Dibromochloromethane	0.006	7.6 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Ethylbenzene	0.00575	27000 (c)	0.012 UJL	0.011 UJ	0.011 U	0.011 U	0.013 U
Methylene Chloride	0.00925	85 (c)	0.006 J	0.011 U	0.011 U	0.022 U	0.013 U
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.011 UJ	0.011 U	0.011 U	0.013 U
Toluene	0.006	55000 (c)	0.012 UJL	0.004 J	0.011 U	0.011 U	0.013 U
1,1,1-Trichloroethane	0.006	25000 (c)	0.003 J	0.011 U	0.011 U	0.011 U	0.013 U
Trichloroethene	0.006	58 (c)	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U
Xylene	0.006	550000 (c)	0.012 UJL	0.011 UJ	0.011 U	0.011 U	0.013 U
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.4 U	0.38 U	0.36 U	0.37 U	0.44 U
Acenaphthylene	0.1975	27000 (c)	0.4 U	0.38 U	0.36 U	0.02 J	0.44 U
Anthracene	0.1975	82000 (c)	0.069 J	0.041 J	0.043 J	0.044 J	0.44 U
Benzo(a)anthracene	0.19	0.9 (c)	0.4 J	0.23 J	0.13 J	0.24 J	0.18 J
Benzo(a)pyrene	0.19	0.09 (c)	**0.45 J**	**0.33 J**	**0.14 J**	**0.19 J**	**0.2 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.47 J	0.43	0.35 J	0.51	0.22 J
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.051 J	0.22 J	0.36 U	0.16 J	0.17 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL067-SS-01	AL-GL068-SS-01	AL-GL073-SS-01	AL-GL074-SS-01	AL-GL075-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.46 J	0.38 U	0.36 U	0.37 U	0.17 J
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.43 UJL	1.6	0.36 U	0.42 B	1.2
Butylbenzylphthalate	0.195	55000 (c)	0.4 UJL	1.2	0.024 NJ	0.37 U	0.44 U
Carbazole	0.1975	32 (d)	0.035 J	0.025 J	0.031 J	0.037 J	0.44 U
Chrysene	0.19	9 (c)	0.044 J	0.27 J	0.17 J	0.69	0.21 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.4 UJL	0.38 U	0.36 U	0.1 J	0.44 U
Dibenzofuran	0.1975	--	0.4 U	0.38 U	0.36 U	0.37 U	0.44 U
Diethylphthalate	0.1975	220000 (c)	0.4 U	0.38 U	0.36 U	0.37 U	0.44 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.4 UJL	0.062 J	0.032 J	0.018 NJ	0.44 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.4 UJL	0.04 J	0.36 U	0.37 U	0.033 J
Fluoranthene	0.1825	11000 (c)	0.64 J	0.29 J	0.22 J	0.29 J	0.31 J
Fluorene	0.1975	11000 (c)	0.4 U	0.38 U	0.029 J	0.37 U	0.44 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.39 J	0.19 J	0.12 J	0.16 J	0.14 J
2-Methylnaphthalene	0.1975	--	0.026 J	0.027 J	0.36 U	0.37 U	0.44 U
Naphthalene	0.1975	1100 (c)	0.043 J	0.03 J	0.36 U	0.022 J	0.44 U
Phenanthrene	0.195	7900 (c)	0.25 J	0.15 J	0.19 J	0.19 J	0.13 J
Pyrene	0.185	8200 (c)	0.53 J	0.35 J	0.22 J	0.32 J	0.28 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.002 U	0.0019 U	0.0018 U	0.019 U	0.0023 U
Aroclor 1260	0.02375	0.083 (d)	0.18 J	0.038 U	0.036 U	0.37 U	0.044 U
alpha-BHC	0.001175	0.1 (d)	0.002 U	0.0019 U	0.0018 U	0.019 U	0.0023 U
beta-BHC	0.001225	0.35 (d)	0.002 U	0.0019 U	0.0018 U	0.019 U	0.0023 U
delta-BHC	0.001225	--	0.002 U	0.0019 U	0.0018 U	0.019 U	0.0023 U
gamma-BHC	0.0011	0.49 (d)	0.002 U	0.0019 U	0.00207	0.019 U	0.0023 U
alpha-Chlordane	0.0195	0.49 (d)	0.0133 J	0.019 J	0.0018 U	1.7	0.00559 J
gamma-Chlordane	0.01058	0.49 (d)	0.0131	0.018	0.00244 J	1.8	0.00227 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL067-SS-01	AL-GL068-SS-01	AL-GL073-SS-01	AL-GL074-SS-01	AL-GL075-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.00843 J	0.0065 JH	0.0036 U	0.128 J	0.0044 U
4,4'-DDE	0.115	1.9 (d)	0.0161 J	0.013 J	0.0046 J	0.0736	0.0058 J
4,4'-DDT	0.119	1.9 (d)	0.0249 JH	0.038 JH	0.00395 J	0.139 J	0.00493 J
Dieldrin	0.024	0.04 (d)	0.00866	0.012 J	0.0036 U	**0.0821 J**	0.0074 J
Endosulfan I	0.001225	470 (d)	0.002 U	0.0019 U	0.0018 U	0.019 U	0.0023 U
Endosulfan II	0.002375	470 (d)	0.00441 J	0.0038 U	0.0036 U	0.037 U	0.0044 U
Endosulfan Sulfate	0.002275	--	0.004 U	0.0038 U	0.0036 U	0.0669 J	0.0044 U
Endrin	0.003975	23 (d)	0.0133	0.0038 U	0.0036 U	0.14 J	0.00688 J
Endrin Aldehyde	0.00621	--	0.00893 JH	0.0098 JH	0.0036 U	0.151 J	0.00624 J
Endrin Ketone	0.002375	--	0.004 U	0.0038 U	0.0036 U	0.037 U	0.0044 U
Heptachlor	0.001225	0.14 (d)	0.002 U	0.0021	0.0018 U	0.019 U	0.0023 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.002 U	0.0025 J	0.0018 U	**0.36**	0.0023 U
Methoxychlor	0.012	390 (d)	0.02 U	0.019 U	0.018 U	0.19 U	0.023 UJL

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL076-SS-01	AL-GL077-SS-01	AL-GL082-SS-01	AL-GL083-SS-01	AL-GL084-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.011 U	0.011 U	0.046 UJ	0.032 J	0.036 UJ
Benzene	0.006	22 (c)	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U
Bromodichloromethane	0.006	4.9 (c)	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U
Bromomethane	0.006	380 (c)	0.011 U	0.011 U	0.005 J	0.013 U	0.011 U
2-Butanone	0.006	47000 (d)	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U
Chloroform	0.006	110 (c)	0.011 U	0.011 U	0.001 J	0.013 U	0.011 U
Dibromochloromethane	0.006	7.6 (c)	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.011 U	0.011 U	0.004 J	0.007 J	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.011 U	0.011 U	0.007 J	0.003 J	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.011 UJL	0.011 U	0.001 J	0.013 U	0.011 UJ
Methylene Chloride	0.00925	85 (c)	0.012 J	0.011 U	0.02 UJ	0.003 J	0.011 U
Tetrachloroethene	0.006	13 (c)	0.011 UJL	0.011 U	0.002 J	0.002 J	0.011 UJ
Toluene	0.006	55000 (c)	0.011 UJL	0.014	0.007 J	0.003 J	0.001 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.003 J	0.011 U	0.011 U	0.002 J	0.001 J
Trichloroethene	0.006	58 (c)	0.011 U	0.011 U	0.001 J	0.013 U	0.011 U
Xylene	0.006	550000 (c)	0.011 UJL	0.011 U	0.004 J	0.013 U	0.011 UJ
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.38 U	0.37 UJ	0.049 J	0.44 U	0.37 U
Acenaphthylene	0.1975	27000 (c)	0.38 U	0.37 UJ	0.36 U	0.44 U	0.37 U
Anthracene	0.1975	82000 (c)	0.032 J	0.02 J	0.26 J	0.3 J	0.027 J
Benzo(a)anthracene	0.19	0.9 (c)	0.17 J	0.17 J	0.72	1.1	0.25 J
Benzo(a)pyrene	0.19	0.09 (c)	**0.18 J**	**0.16 J**	**0.52**	**1.2**	**0.3 J**
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.27 J	0.33 J	0.6	1.4	0.57
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.2 J	0.17 J	0.44	0.96	0.31 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL076-SS-01	AL-GL077-SS-01	AL-GL082-SS-01	AL-GL083-SS-01	AL-GL084-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.38 U	0.37 U	0.41	0.85	0.37 U
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.38 U	0.63 B	2.3	4.5	2.6
Butylbenzylphthalate	0.195	55000 (c)	0.17 J	0.042 J	0.044 J	0.13 J	0.37 U
Carbazole	0.1975	32 (d)	0.38 U	0.37 U	0.026 J	0.17 J	0.37 U
Chrysene	0.19	9 (c)	0.21 J	0.17 J	0.74	1.3	0.3 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.38 U	0.37 U	0.36 U	0.44 U	0.37 U
Dibenzofuran	0.1975	--	0.38 U	0.37 UJ	0.02 J	0.043 J	0.37 U
Diethylphthalate	0.1975	220000 (c)	0.38 U	0.37 UJ	0.36 U	0.44 U	0.37 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.38 U	0.021 J	0.032 J	0.44 U	0.047 J
di-n-Octyl Phthalate	0.1975	1600 (d)	0.38 U	0.02 J	0.056 J	0.11 J	0.11 J
Fluoranthene	0.1825	11000 (c)	0.24 J	0.2 J	1.3	2.3	0.28 J
Fluorene	0.1975	11000 (c)	0.38 U	0.37 UJ	0.06 J	0.079 J	0.37 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.12 J	0.14 J	0.39	0.76	0.25 J
2-Methylnaphthalene	0.1975	--	0.024 J	0.37 UJ	0.36 U	0.028 J	0.37 UJ
Naphthalene	0.1975	1100 (c)	0.024 J	0.37 UJ	0.36 U	0.44 U	0.037 J
Phenanthrene	0.195	7900 (c)	0.12 J	0.11 J	1	1.3	0.12 J
Pyrene	0.185	8200 (c)	0.25 J	0.17 J	1.1	1.8	0.23 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0019 U	0.0019 U	0.0019 UJL	0.00364 J	0.0019 U
Aroclor 1260	0.02375	0.083 (d)	0.037 U	0.037 U	0.036 U	0.044 U	0.037 U
alpha-BHC	0.001175	0.1 (d)	0.0019 U	0.0019 U	0.0019 UJL	0.0023 U	0.0019 U
beta-BHC	0.001225	0.35 (d)	0.0019 U	0.0019 U	0.0019 UJL	0.0023 U	0.0019 U
delta-BHC	0.001225	--	0.0019 U	0.0019 U	0.0019 UJL	0.0023 U	0.022 JT
gamma-BHC	0.0011	0.49 (d)	0.0019 U	0.0019 U	0.0019 UJL	0.0023 U	0.0019 U
alpha-Chlordane	0.0195	0.49 (d)	0.00374	0.011 J	0.0033 JL	0.11 J	1.6 J
gamma-Chlordane	0.01058	0.49 (d)	0.0019 U	0.0056	0.0044 JL	0.088 J	1.3 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL076-SS-01	AL-GL077-SS-01	AL-GL082-SS-01	AL-GL083-SS-01	AL-GL084-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0037 U	0.0037 U	0.004 J	0.00876 J	0.0037 U
4,4'-DDE	0.115	1.9 (d)	0.0037 U	0.0053 J	0.0036 UJL	0.0144	0.16 J
4,4'-DDT	0.119	1.9 (d)	0.00649 J	0.011 JH	0.0068 J	0.0184 J	0.13 JH
Dieldrin	0.024	0.04 (d)	0.0037 U	0.0037 U	0.0036 UJL	0.0107 J	0.033 J
Endosulfan I	0.001225	470 (d)	0.0019 U	0.0019 U	0.0019 UJL	0.0023 U	0.0019 U
Endosulfan II	0.002375	470 (d)	0.0037 U	0.0037 U	0.0036 U	0.0062 J	0.0037 U
Endosulfan Sulfate	0.002275	--	0.0037 U	0.0037 U	0.0036 U	0.0044 U	0.0037 U
Endrin	0.003975	23 (d)	0.00555 J	0.0037 U	0.0036 U	0.0141 J	0.21 J
Endrin Aldehyde	0.00621	--	0.0037 U	0.0081 JH	0.0036 U	0.00795 J	0.0037 U
Endrin Ketone	0.002375	--	0.0037 U	0.0037 U	0.0036 U	0.0044 U	0.0037 U
Heptachlor	0.001225	0.14 (d)	0.00203 U	0.0019 U	0.0019 UJL	0.00475	0.042 J
Heptachlor Epoxide	0.002025	0.07 (d)	0.0019 U	0.00099 J	0.0019 UJL	0.0198	0.23 J
Methoxychlor	0.012	390 (d)	0.019 U	0.019 U	0.019 U	0.023 UJL	0.032 JH

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL085-SS-01	AL-GL091-SS-01	AL-GL092-SS-01	AL-GL093-SS-01	AL-GL094-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.038 UJ	0.02 UJ	0.013 J	0.022 UJ	0.017 UJ
Benzene	0.006	22 (c)	0.01 U	0.012 UJ	0.015 U	0.011 U	0.012 U
Bromodichloromethane	0.006	4.9 (c)	0.001 J	0.012 UJ	0.015 U	0.011 U	0.012 U
Bromomethane	0.006	380 (c)	0.003 J	0.012 U	0.015 U	0.011 U	0.012 U
2-Butanone	0.006	47000 (d)	0.01 U	0.012 U	0.015 U	0.011 U	0.012 U
Carbon Disulfide	0.006	27000 (c)	0.01 U	0.012 U	0.015 U	0.011 U	0.012 U
Chloroform	0.006	110 (c)	0.001 J	0.012 U	0.015 U	0.011 U	0.012 U
Dibromochloromethane	0.006	7.6 (c)	0.001 J	0.012 UJ	0.015 U	0.011 U	0.012 U
1,1-Dichloroethene	0.006	1.1 (c)	0.002 J	0.012 U	0.006 J	0.011 U	0.012 U
1,2-Dichloroethene	0.006	2700 (c)	0.006 J	0.012 U	0.004 J	0.011 U	0.012 U
Ethylbenzene	0.00575	27000 (c)	0.001 J	0.012 UJ	0.015 UJL	0.011 UJ	0.012 UJ
Methylene Chloride	0.00925	85 (c)	0.02 UJ	0.012 U	0.006 J	0.011 U	0.012 U
Tetrachloroethene	0.006	13 (c)	0.002 J	0.012 UJ	0.004 J	0.011 UJ	0.012 UJ
Toluene	0.006	55000 (c)	0.008 J	0.012 UJ	0.01 UJL	0.011 UJ	0.012 UJ
1,1,1-Trichloroethane	0.006	25000 (c)	0.01 U	0.012 UJ	0.015 U	0.011 U	0.012 U
Trichloroethene	0.006	58 (c)	0.001 J	0.012 UJ	0.015 U	0.011 U	0.012 U
Xylene	0.006	550000 (c)	0.003 J	0.012 UJ	0.003 J	0.011 UJ	0.012 UJ
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.35 U	0.39 U	0.49 U	0.35 U	0.51
Acenaphthylene	0.1975	27000 (c)	0.35 U	0.39 U	0.49 U	0.35 U	0.087 J
Anthracene	0.1975	82000 (c)	0.029 J	0.025 J	0.49 U	0.35 U	1.3
Benzo(a)anthracene	0.19	0.9 (c)	0.24 J	0.26 J	0.29 J	0.067 J	4.6
Benzo(a)pyrene	0.19	0.09 (c)	**0.24 J**	**0.3 J**	**0.37 J**	0.077 J	5.2
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.28 J	0.62	0.55	0.18 J	4.8
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.29 J	0.33 J	0.33 J	0.083 J	3.1

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL085-SS-01	AL-GL091-SS-01	AL-GL092-SS-01	AL-GL093-SS-01	AL-GL094-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.24 J	0.39 U	0.28 J	0.35 U	4.9
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.35 U	0.63 B	7.8	0.41 B	1.6
Butylbenzylphthalate	0.195	55000 (c)	0.35 U	0.39 U	0.2 J	0.35 U	0.49
Carbazole	0.1975	32 (d)	0.022 J	0.39 U	0.49 U	0.35 U	1
Chrysene	0.19	9 (c)	0.3 J	0.34 J	0.39 J	0.1 J	5.7
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.35 U	0.39 U	0.48 U	0.35 U	0.41 U
Dibenzofuran	0.1975	--	0.35 U	0.39 U	0.49 U	0.35 U	0.12 J
Diethylphthalate	0.1975	220000 (c)	0.35 U	0.39 U	0.49 U	0.35 U	0.41 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.35 U	0.09 J	0.2 J	0.35 U	2.7
di-n-Octyl Phthalate	0.1975	1600 (d)	0.35 U	0.051 J	0.35 J	0.35 U	0.031 J
Fluoranthene	0.1825	11000 (c)	0.39	0.3 J	0.5	0.12 J	11
Fluorene	0.1975	11000 (c)	0.35 U	0.39 U	0.49 U	0.35 U	0.45
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.22 J	0.25 J	0.25 J	0.063 J	2.9
2-Methylnaphthalene	0.1975	--	0.35 U	0.39 U	0.49 U	0.35 U	0.24 J
Naphthalene	0.1975	1100 (c)	0.35 U	0.39 U	0.49 U	0.35 U	0.2 J
Phenanthrene	0.195	7900 (c)	0.15 J	0.13 J	0.2 J	0.05 J	5.4
Pyrene	0.185	8200 (c)	0.39	0.26 J	0.44 J	0.12 J	10
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0018 UJL	0.002 U	0.0025 U	0.0018 U	0.0021 U
Aroclor 1260	0.02375	0.083 (d)	0.035 UJL	0.039 U	0.049 U	0.035 U	0.041 U
alpha-BHC	0.001175	0.1 (d)	0.0018 UJL	0.002 U	0.0025 U	0.0018 J	0.0021 U
beta-BHC	0.001225	0.35 (d)	0.0018 UJL	0.002 U	0.0025 U	0.0018 U	0.0021 U
delta-BHC	0.001225	--	0.0018 UJL	0.002 U	0.0025 U	0.0018 U	0.0021 U
gamma-BHC	0.0011	0.49 (d)	0.0018 UJL	0.002 U	0.0025 U	0.0018 U	0.0021 U
alpha-Chlordane	0.0195	0.49 (d)	0.0018 UJL	0.021 J	0.11 J	0.043 J	0.63 J
gamma-Chlordane	0.01058	0.49 (d)	0.0018 UJL	0.018	0.0811	0.025	0.66 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL085-SS-01	AL-GL091-SS-01	AL-GL092-SS-01	AL-GL093-SS-01	AL-GL094-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0035 UJL	0.012 J	0.0162 J	0.0035 U	0.0041 U
4,4'-DDE	0.115	1.9 (d)	0.0035 UJL	0.013	0.0588	0.008 J	0.06 J
4,4'-DDT	0.119	1.9 (d)	0.0035 UJL	0.036 J	0.0749 J	0.026 J	0.061 J
Dieldrin	0.024	0.04 (d)	0.0035 UJL	0.0039 U	0.00663 J	0.0075	0.0041 U
Endosulfan I	0.001225	470 (d)	0.0018 UJL	0.002 U	0.0025 U	0.0018 U	0.0021 U
Endosulfan II	0.002375	470 (d)	0.0035 UJL	0.0039 U	0.0049 U	0.0035 U	0.0041 U
Endosulfan Sulfate	0.002275	--	0.0035 UJL	0.0039 U	0.0049 U	0.0035 U	0.0041 U
Endrin	0.003975	23 (d)	0.0035 UJL	0.0039 U	0.0141 J	0.0035 U	0.044 J
Endrin Aldehyde	0.00621	--	0.0035 UJL	0.0039 U	0.0328 J	0.0035 U	0.041 U
Endrin Ketone	0.002375	--	0.0035 UJL	0.0039 U	0.0049 U	0.0035 U	0.0041 U
Heptachlor	0.001225	0.14 (d)	0.0018 UJL	0.0027 J	0.00492 J	0.0026	0.029
Heptachlor Epoxide	0.002025	0.07 (d)	0.0018 UJL	0.0024 J	0.0173	0.0094 J	**0.091 J**
Methoxychlor	0.012	390 (d)	0.018 UJL	0.034 J	0.025 U	0.018 U	0.058 J

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL098-SS-01	AL-GL099-SS-01	AL-GL100-SS-01	AL-GL101-SS-01	AL-GL102-SS-01
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.01 U	0.012 U	0.008 J	0.011 U	0.011 U
Benzene	0.006	22 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Bromodichloromethane	0.006	4.9 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Bromomethane	0.006	380 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
2-Butanone	0.006	47000 (d)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Carbon Disulfide	0.006	27000 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Chloroform	0.006	110 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Dibromochloromethane	0.006	7.6 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
1,1-Dichloroethene	0.006	1.1 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
1,2-Dichloroethene	0.006	2700 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Ethylbenzene	0.00575	27000 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 UJL
Methylene Chloride	0.00925	85 (c)	0.01 U	0.004 J	0.027	0.022 U	0.026 UJ
Tetrachloroethene	0.006	13 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 UJL
Toluene	0.006	55000 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.001 J
1,1,1-Trichloroethane	0.006	25000 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.003 J
Trichloroethene	0.006	58 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 U
Xylene	0.006	550000 (c)	0.01 U	0.012 U	0.012 U	0.011 U	0.011 UJL
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Acenaphthylene	0.1975	27000 (c)	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Anthracene	0.1975	82000 (c)	0.04 J	0.031 J	0.38 U	0.37 U	0.37 U
Benzo(a)anthracene	0.19	0.9 (c)	0.21 J	0.16 J	0.051 J	0.14 J	0.21 J
Benzo(a)pyrene	0.19	0.09 (c)	**0.18 J**	**0.18 J**	0.057 J	**0.14 J**	0.37 U
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.25 J	0.29 J	0.061 J	0.31 J	0.45 B
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.19 J	0.17 J	0.049 J	0.13 J	0.37 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL098-SS-01	AL-GL099-SS-01	AL-GL100-SS-01	AL-GL101-SS-01	AL-GL102-SS-01
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.15 J	0.41 U	0.059 J	0.37 U	0.37 U
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.84	2.9	0.38 U	0.38 B	0.45 B
Butylbenzylphthalate	0.195	55000 (c)	0.35 U	0.11 J	0.38 U	0.023 J	0.37 U
Carbazole	0.1975	32 (d)	0.35 U	0.41 U	0.38 U	0.02 J	0.37 U
Chrysene	0.19	9 (c)	0.23 J	0.18 J	0.065 J	0.19 J	0.26 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.35 U	0.41 U	0.38 U	0.064 J	0.37 U
Dibenzofuran	0.1975	--	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Diethylphthalate	0.1975	220000 (c)	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.036 J	0.065 J	0.022 J	0.37 U	0.37 U
di-n-Octyl Phthalate	0.1975	1600 (d)	0.026 J	0.16 J	0.38 U	0.37 U	0.37 U
Fluoranthene	0.1825	11000 (c)	0.35	0.32 J	0.081 J	0.22 J	0.41
Fluorene	0.1975	11000 (c)	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.16 J	0.14 J	0.04 J	0.1 J	0.37 U
2-Methylnaphthalene	0.1975	--	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Naphthalene	0.1975	1100 (c)	0.35 U	0.41 U	0.38 U	0.37 U	0.37 U
Phenanthrene	0.195	7900 (c)	0.12 J	0.13 J	0.027 J	0.083 J	0.18 J
Pyrene	0.185	8200 (c)	0.38	0.24 J	0.068 J	0.25 J	0.34 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0018 U	0.0021 U	0.002 U	0.0019 U	0.0019 U
Aroclor 1260	0.02375	0.083 (d)	0.035 U	0.041 U	0.038 UJL	0.037 U	0.037 U
alpha-BHC	0.001175	0.1 (d)	0.0018 U	0.0021 U	0.002 U	0.0019 U	0.0019 U
beta-BHC	0.001225	0.35 (d)	0.0018 U	0.0034 JT	0.002 U	0.0019 U	0.0019 U
delta-BHC	0.001225	--	0.0018 U	0.0022 JT	0.002 U	0.0019 U	0.0019 U
gamma-BHC	0.0011	0.49 (d)	0.0018 U	0.0021 U	0.002 U	0.0019 U	0.0019 U
alpha-Chlordane	0.0195	0.49 (d)	0.011 J	0.27 J	0.44 J	0.0019 U	0.0122 JT
gamma-Chlordane	0.01058	0.49 (d)	0.012 J	0.2 J	0.394	0.0019 U	0.0019 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL098-SS-01	AL-GL099-SS-01	AL-GL100-SS-01	AL-GL101-SS-01	AL-GL102-SS-01
4,4'-DDD	0.0064	2.7 (d)	0.0035 U	0.00513 J	0.0038 U	0.0037 U	0.0037 U
4,4'-DDE	0.115	1.9 (d)	0.0035 U	0.0041 U	0.0453 J	0.0037 U	0.00728 J
4,4'-DDT	0.119	1.9 (d)	0.024	0.0382 J	0.0358 J	0.0037 U	0.025 J
Dieldrin	0.024	0.04 (d)	0.0035 U	0.0145 J	0.024	0.0037 U	0.00629 J
Endosulfan I	0.001225	470 (d)	0.0018 U	0.0021 U	0.002 U	0.0019 U	0.0019 U
Endosulfan II	0.002375	470 (d)	0.0035 U	0.00745 J	0.0038 U	0.0037 U	0.0037 U
Endosulfan Sulfate	0.002275	--	0.0035 U	0.0041 U	0.0038 UJL	0.0037 U	0.0037 U
Endrin	0.003975	23 (d)	0.0035 U	0.0215 J	0.024 J	0.0037 U	0.00938 J
Endrin Aldehyde	0.00621	--	0.0035 U	0.0644 J	0.017 J	0.00438 J	0.00752 J
Endrin Ketone	0.002375	--	0.0035 U	0.0136	0.0038 U	0.0037 U	0.0037 U
Heptachlor	0.001225	0.14 (d)	0.0018 U	0.00491	0.0098 BH	0.0019 U	0.0019 U
Heptachlor Epoxide	0.002025	0.07 (d)	0.0025	0.0164 J	0.0986	0.0019 U	0.00244 J
Methoxychlor	0.012	390 (d)	0.018 U	0.021 U	0.02 U	0.019 U	0.019 U

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL103-SS-01	AL-GL104-SS-01			
Volatile Organic Compounds							
Acetone	0.006	79000 (c)	0.014 UJ	0.012 U			
Benzene	0.006	22 (c)	0.012 UJL	0.012 U			
Bromodichloromethane	0.006	4.9 (c)	0.012 UJL	0.012 U			
Bromomethane	0.006	380 (c)	0.012 U	0.012 U			
2-Butanone	0.006	47000 (d)	0.012 U	0.012 U			
Carbon Disulfide	0.006	27000 (c)	0.012 U	0.012 U			
Chloroform	0.006	110 (c)	0.012 U	0.012 U			
Dibromochloromethane	0.006	7.6 (c)	0.012 UJL	0.012 U			
1,1-Dichloroethene	0.006	1.1 (c)	0.012 U	0.012 U			
1,2-Dichloroethene	0.006	2700 (c)	0.012 U	0.012 U			
Ethylbenzene	0.00575	27000 (c)	0.012 UJL	0.012 UJL			
Methylene Chloride	0.00925	85 (c)	0.023 UJ	0.022 U			
Tetrachloroethene	0.006	13 (c)	0.012 UJL	0.012 UJL			
Toluene	0.006	55000 (c)	0.015 J	0.012 UJL			
1,1,1-Trichloroethane	0.006	25000 (c)	0.004 J	0.002 J			
Trichloroethene	0.006	58 (c)	0.012 UJL	0.012 U			
Xylene	0.006	550000 (c)	0.012 UJL	0.012 UJL			
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.4 U	0.4 U			
Acenaphthylene	0.1975	27000 (c)	0.4 U	0.023 J			
Anthracene	0.1975	82000 (c)	0.021 J	0.059 J			
Benzo(a)anthracene	0.19	0.9 (c)	0.1 J	0.38 J			
Benzo(a)pyrene	0.19	0.09 (c)	**0.12 J**	**0.38 J**			
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.15 J	0.38 J			
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.12 J	0.34 J			

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL103-SS-01	AL-GL104-SS-01			
Benzo(k)fluoranthene	0.1875	0.9 (c)	0.12 J	0.35 J			
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	1.5	0.28 JB			
Butylbenzylphthalate	0.195	55000 (c)	0.034 J	0.057 JN			
Carbazole	0.1975	32 (d)	0.4 U	0.4 U			
Chrysene	0.19	9 (c)	0.14 J	0.44			
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.4 U	0.4 U			
Dibenzofuran	0.1975	--	0.4 U	0.4 U			
Diethylphthalate	0.1975	220000 (c)	0.4 U	0.15 J			
di-n-Butyl Phthalate	0.1975	7800 (d)	0.043 J	0.045 J			
di-n-Octyl Phthalate	0.1975	1600 (d)	0.058 J	0.4 U			
Fluoranthene	0.1825	11000 (c)	0.24 J	0.55			
Fluorene	0.1975	11000 (c)	0.4 U	0.4 U			
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.1 J	0.28 J			
2-Methylnaphthalene	0.1975	--	0.4 U	0.02 J			
Naphthalene	0.1975	1100 (c)	0.4 U	0.031 J			
Phenanthrene	0.195	7900 (c)	0.1 J	0.24 J			
Pyrene	0.185	8200 (c)	0.18 J	0.55			
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0021 U	0.002 U			
Aroclor 1260	0.02375	0.083 (d)	0.04 U	0.04 U			
alpha-BHC	0.001175	0.1 (d)	0.0021 U	0.002 U			
beta-BHC	0.001225	0.35 (d)	0.0023 J	0.002 U			
delta-BHC	0.001225	--	0.0021 U	0.002 U			
gamma-BHC	0.0011	0.49 (d)	0.0021 U	0.002 U			
alpha-Chlordane	0.0195	0.49 (d)	0.018 J	0.0085 J			
gamma-Chlordane	0.01058	0.49 (d)	0.022 J	0.006 J			

Key at end of table.

Table 4.1-36

SUMMARY OF ORGANIC RESULTS FOR DEVELOPED LANDFILL GRID SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL103-SS-01	AL-GL104-SS-01			
4,4'-DDD	0.0064	2.7 (d)	0.004 U	0.004 U			
4,4'-DDE	0.115	1.9 (d)	0.04 U	0.004 U			
4,4'-DDT	0.119	1.9 (d)	0.0078 J	0.0073 J			
Dieldrin	0.024	0.04 (d)	0.04 U	0.004 U			
Endosulfan I	0.001225	470 (d)	0.021 U	0.002 U			
Endosulfan II	0.002375	470 (d)	0.006 J	0.004 U			
Endosulfan Sulfate	0.002275	--	0.004 U	0.004 U			
Endrin	0.003975	23 (d)	0.0129 J	0.009 J			
Endrin Aldehyde	0.00621	--	0.048 J	0.012 J			
Endrin Ketone	0.002375	--	0.004 U	0.004 U			
Heptachlor	0.001225	0.14 (d)	0.0021 U	0.002 U			
Heptachlor Epoxide	0.002025	0.07 (d)	0.0037 J	0.0036 J			
Methoxychlor	0.012	390 (d)	0.021 U	0.02 U			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-37

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBCs (b)	
											Value	FOE	Value	FOE
Aluminum	112/112	100	--	--	1680	13500	5480	2170	5480	2170	5352.5	55/112	79000 (c)	0/112
Antimony	22/84	26.1	2.76	14.3	5.5	23.8	12.8	5.32	6.02	5.1	3.6	22/84	110 (c)	0/84
Arsenic	112/112	100	--	--	2.38	62.3	11.7	9.93	11.7	9.93	3.15	108/112	0.37 (c)	112/112
Barium	112/112	100	--	--	47.6	780	273	158	273	158	145	86/112	14000 (c)	0/112
Beryllium	59/112	52.6	0.15	0.79	0.18	0.68	0.4	0.11	0.32	0.13	0.3075	44/112	0.15 (c)	59/112
Cadmium	76/111	68.4	0.626	1.2	0.68	11.7	3.21	2.2	2.33	2.23	0.55	76/111	140 (c)	0/111
Calcium	112/112	100	--	--	1340	64000	8630	7170	8630	7170	4958.5	86/112	NA	NA
Chromium	112/112	100	--	--	5.93	75.4	26.2	15.9	26.2	15.9	11.15	96/112	1400 (c)	0/112
Cobalt	112/112	100	--	--	1.65	23.2	8.85	4.01	8.85	4.01	6.25	80/112	2.7 (c)	111/112
Copper	112/112	100	--	--	5.7	6150	200	584	200	584	10.05	111/112	10000 (c)	0/112
Cyanide	35/111	31.5	0.52	1.37	0.57	2.6	1.13	0.49	0.59	0.46	0.305	35/111	5500 (c)	0/111
Iron	112/112	100	--	--	5810	124000	33900	28100	33900	28100	9581.5	103/112	NA	NA
Lead	112/112	100	--	--	12	2860	515	521	515	521	36.9495	108/112	400 (c)	45/112
Magnesium	112/112	100	--	--	594	4480	2250	877	2250	877	2821	27/112	NA	NA
Manganese	112/112	100	--	--	96.2	3290	375	321	375	321	216	79/112	27000 (c)	0/112
Mercury	86/112	76.7	0.1	0.137	0.11	2.9	0.68	0.57	0.53	0.56	0.06	86/112	82 (c)	0/112
Nickel	112/112	100	--	--	7.7	85.1	28.3	15.6	28.3	15.6	10.75	108/112	5500 (c)	0/112
Potassium	100/112	89.2	485	625	270	2270	948	384	875	420	1300.5	12/112	NA	NA
Selenium	24/112	21.4	0.19	1.53	0.24	2.3	0.61	0.46	0.43	0.26	0.415	10/112	820 (c)	0/112
Silver	62/112	55.3	0.7	3.5	0.49	116	4.78	14.5	2.99	10.9	0.7	60/112	820 (c)	0/112
Sodium	101/112	90.1	57.4	347	54.9	1310	214	178	202	174	97.4	83/112	NA	NA
Thallium	6/108	5.5	0.29	2.15	1.51	3.7	2.97	0.926	0.539	0.655	0.295	6/108	19 (c)	0/108
Vanadium	112/112	100	--	--	6.7	32.2	16.4	5.02	16.4	5.02	15.3	59/112	1800 (c)	0/112
Zinc	112/112	100	--	--	34.4	3440	669	625	669	625	111	105/112	55000 (c)	0/112

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-38

STATISTICAL ANALYSIS OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Lead	112/112	100	--	--	21.4	1500	387	392	387	392	40.7	106/112	400 (c)	39/112
Percent <250 microns	94/94	100	--	--	11.9	89.2	47.4	16.2	47.4	16.2	58.35	23/94	--	NA

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG001-SS-01	AL-SG001-SS-02	AL-SG001-SS-03	AL-SG001-SS-04	AL-SG002-SS-01
Aluminum	5352.5	79000 (c)	6636	9568	6759	8732	5392.537
Antimony	3.6	110 (c)	5.9 UJ	5.8 UJ	5.7 UJ	7.6 J	11.087 U
Arsenic	3.15	0.37 (c)	11.3 J	10.4 J	8.6 J	13.3 J	6.064
Barium	145	14000 (c)	328 J	345 J	159 J	525 J	185.501
Beryllium	0.3075	0.15 (c)	0.39 UC	0.49 JH	0.45 UC	0.51 JH	0.642
Cadmium	0.55	140 (c)	1.8	1.9	1.2	4.2	0.64 U
Calcium	4958.5	NA	8028	7182	8693	10637	5252.026
Chromium	11.15	1400 (c)	28.1	25.8	14.8	32.7	18.61
Cobalt	6.25	2.7 (c)	8.7	8.8	7.3	9.9	7.682
Copper	10.05	10000 (c)	146	104	32.7	192	56.192
Cyanide	0.305	5500 (c)	0.6 U	1.9	0.58 U	1.1	1.066 U
Iron	9581.5	NA	26061 J	22568 J	12506 J	31148 J	18416.205
Lead	36.9495	400 (c)	689	395	256	661	168.55
Magnesium	2821	NA	3126	3497	3270	3888	2742.004
Manganese	216	27000 (c)	388	428	351	472	356.247
Mercury	0.06	82 (c)	0.64 J	0.64 J	0.13 J	1.1 J	0.107 U
Nickel	10.75	5500 (c)	21.4 J	23 J	19.4 J	31.4 J	21.825
Potassium	1300.5	NA	1182	2097	936	1830	1016.439 J
Selenium	0.415	820 (c)	0.29 J	0.31 J	0.21 UJ	0.37 J	0.906
Silver	0.7	820 (c)	3.1	2.2	0.79	3.1	2.537
Sodium	97.4	NA	102	88	67.4	193	169.094
Thallium	0.295	19 (c)	R	R	R	R	0.853 UF
Vanadium	15.3	1800 (c)	17.7	22.9	19.3	23.9	21.192
Zinc	111	55000 (c)	737	554	149	913	323.433 J

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG002-SS-02	AL-SG002-SS-03	AL-SG002-SS-04	AL-SG003-SS-01	AL-SG003-SS-02
Aluminum	5352.5	79000 (c)	6880.22	2441.02	6601	2744.301	5689.168
Antimony	3.6	110 (c)	11.429 U	11.052 U	R	13.472 U	11.859 U
Arsenic	3.15	0.37 (c)	**9.289**	**2.383**	**5.8 J**	**4.707**	**4.358**
Barium	145	14000 (c)	250.923	47.564	250 J	103.448	105.33
Beryllium	0.3075	0.15 (c)	**0.501**	**0.306**	**0.68**	**0.485**	**0.44**
Cadmium	0.55	140 (c)	0.659 U	0.638 U	1.5	0.777 U	0.684 U
Calcium	4958.5	NA	10040	2329.862	5407	4245.078	3553.478
Chromium	11.15	1400 (c)	25.536	8.179	17.3	9.399	15.348
Cobalt	6.25	2.7 (c)	**8.629**	**4.829**	**7.6**	**6.428**	**7.131**
Copper	10.05	10000 (c)	84.492	11.651	20.1 JL	22.171	17.218
Cyanide	0.305	5500 (c)	1.099 U	1.063 U	0.6 U	1.295 U	1.14 U
Iron	9581.5	NA	22727.473	5925.824	12157	8411.399	11528.62
Lead	36.9495	400 (c)	264.55	12.03	88.6	58.762	25.307
Magnesium	2821	NA	3981.539	1440	1918	1589.508	2641.505
Manganese	216	27000 (c)	446.022	118.517	297 J	161.111	275.599
Mercury	0.06	82 (c)	0.544	0.106 U	0.12 U	0.13 U	0.114 U
Nickel	10.75	5500 (c)	26.13	12.432	22.5	17.953	19.574
Potassium	1300.5	NA	1267.055 J	379.065 J	1049	617.565 J	1140.981 J
Selenium	0.415	820 (c)	0.68999	0.965	0.81 UJ	0.777 U	0.684 U
Silver	0.7	820 (c)	2.699	1.913 U	1.4 U	3.15	2.053 U
Sodium	97.4	NA	169.686	96.317 UC	207 UC	131.534 UC	133.008 UC
Thallium	0.295	19 (c)	0.879 UF	0.85 UF	0.62 U	1.036 UF	0.912 UF
Vanadium	15.3	1800 (c)	24.295	10.198	19.8	13.733	19.961
Zinc	111	55000 (c)	460.352 J	40.419 J	241	109.192 J	91.599 J

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG003-SS-03	AL-SG004-SS-01	AL-SG004-SS-02	AL-SG004-SS-03	AL-SG004-SS-04
Aluminum	5352.5	79000 (c)	3345	5438.601	4227.886	4142.072	4162.647
Antimony	3.6	110 (c)	R	12.545 U	11.886 U	12.984 U	11.099 U
Arsenic	3.15	0.37 (c)	5 J	7.778	8.473	5.7	7.417
Barium	145	14000 (c)	220 J	193.672	145.054	146.322	119.84
Beryllium	0.3075	0.15 (c)	0.4	0.478 JL	0.421 JL	0.41 JL	0.625 JL
Cadmium	0.55	140 (c)	1.1 U	0.724 U	0.686 U	0.749 U	0.64 U
Calcium	4958.5	NA	2683	7645.356	8547.886	14572.285	5618.783
Chromium	11.15	1400 (c)	9.9	18.772	15.447	13.361	13.522
Cobalt	6.25	2.7 (c)	5	8.335 JL	6.535 JL	6.337 JL	6.192 JL
Copper	10.05	10000 (c)	17.1 JL	58.569	51.193	39.418	25.155
Cyanide	0.305	5500 (c)	0.59 U	1.206 U	1.143 U	1.248 U	1.067 U
Iron	9581.5	NA	7112	16606.031	15432.457	10727.091	12626.894
Lead	36.9495	400 (c)	57.6	307.31	348.366	109.835	77.119
Magnesium	2821	NA	1085	2445.597	2556.114	2631.71	2429.456
Manganese	216	27000 (c)	129 J	354.717	313.006	310.062	281.878
Mercury	0.06	82 (c)	0.15 J	0.362	0.114 U	0.125 U	0.107 U
Nickel	10.75	5500 (c)	16.8	25.05	20.93	19.084	18.566
Potassium	1300.5	NA	545 U	1253.776	1126.286	1092.934	777.802
Selenium	0.415	820 (c)	0.8 UJ	0.724 U	0.686 U	0.749 U	0.756 JL
Silver	0.7	820 (c)	1.4 U	2.171 U	2.057 U	2.247 U	1.921 U
Sodium	97.4	NA	158 UC	143.481 JL	105.305 JL	149.543 JL	139.089 JL
Thallium	0.295	19 (c)	0.61 U	1.141 UC	1.079 UC	0.999 U	1.084 UC
Vanadium	15.3	1800 (c)	12.3	24.606	15.801	13.371	14.45
Zinc	111	55000 (c)	272	288.01	187.328	153.9	147.332

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG004-SS-05	AL-SG005-SS-01	AL-SG005-SS-02	AL-SG005-SS-03	AL-SG005-SS-04
Aluminum	5352.5	79000 (c)	5575	3563.237	5510	3812.401	4199
Antimony	3.6	110 (c)	R	14.266 U	12.279 U	11.725 U	8.2 UJ
Arsenic	3.15	0.37 (c)	**5.9 J**	**3.964**	**8.822**	**6.699**	**13.1 J**
Barium	145	14000 (c)	245 J	135.929	210.371	156.176	271
Beryllium	0.3075	0.15 (c)	**0.55**	0.274 U	**0.508**	**0.46 JL**	0.28 UC
Cadmium	0.55	140 (c)	2.1	0.823 U	0.708 U	0.676 U	2
Calcium	4958.5	NA	5040	23801.372	6770	5902.819	5670
Chromium	11.15	1400 (c)	20.4	11.081	20.486	8.428	21.8 J
Cobalt	6.25	2.7 (c)	**7.1**	**4.368**	**7.022**	**5.103 JL**	7.7
Copper	10.05	10000 (c)	29	58.787	85.643	35.459	94.9 J
Cyanide	0.305	5500 (c)	0.61 U	1.372 U	1.181 U	1.127 U	0.62 U
Iron	9581.5	NA	12901	8516.872	23100	10593.01	26049
Lead	36.9495	400 (c)	95.8	94.291	**476.718**	134.602	672
Magnesium	2821	NA	2342	3274.074	2840	2573.168	1888
Manganese	216	27000 (c)	339 J	195.067	475.301	222.834	332
Mercury	0.06	82 (c)	0.27 J	0.137 U	0.118 U	0.113 U	0.12 U
Nickel	10.75	5500 (c)	25.7	13.429	22.779	17.813	20.2 J
Potassium	1300.5	NA	663	1009.657 J	1090 J	769.583	570 U
Selenium	0.415	820 (c)	0.83 UJ	1.281	0.708 U	0.676 U	0.84 UJ
Silver	0.7	820 (c)	1.4 U	3.325	2.125 U	2.318	1.5 U
Sodium	97.4	NA	207 UC	169.221	189 JH	108.117 JL	167
Thallium	0.295	19 (c)	0.64 U	1.097 UF	0.945 UF	0.902 U	0.64 U
Vanadium	15.3	1800 (c)	17.2	13.462	18.453	12.377	13.7
Zinc	111	55000 (c)	213	233.451 J	411.995 J	196.584	753

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG006-SS-01	AL-SG006-SS-02	AL-SG006-SS-03	AL-SG006-SS-04	AL-SG007-SS-01
Aluminum	5352.5	79000 (c)	5284.162	3685.684	5424.629	5158	2110.74
Antimony	3.6	110 (c)	12.023 U	11.111 U	11.859 U	R	10.845 U
Arsenic	3.15	0.37 (c)	**11.207**	**3.145**	**4.978**	**5.9 J**	**6.271**
Barium	145	14000 (c)	120.763	89.526	104.873	156 J	95.13
Beryllium	0.3075	0.15 (c)	**0.451**	**0.301**	0.228 U	0.4 UC	**0.469 JL**
Cadmium	0.55	140 (c)	0.694 U	0.641 U	0.684 U	1.4	0.626 U
Calcium	4958.5	NA	4971.792	4532.265	6276.625	29578	1342.753
Chromium	11.15	1400 (c)	8.835	9.517	13.56	15.3	5.933
Cobalt	6.25	2.7 (c)	**5.408**	**3.874**	**4.176**	**5.1**	**4.695 JL**
Copper	10.05	10000 (c)	39.302	28.731	39.717	54.1	22.615
Cyanide	0.305	5500 (c)	1.156 U	1.068 U	1.14 U	0.6 U	1.043 U
Iron	9581.5	NA	10167.63	8680.556	11133.866	13867	10358.29
Lead	36.9495	400 (c)	186.53	78.763	95.471	193	125.992
Magnesium	2821	NA	1847.26	1252.244	2076.306	2367	832.993
Manganese	216	27000 (c)	212.641	138.87	136.374	171 J	155.37
Mercury	0.06	82 (c)	0.116 U	0.107 U	0.114 U	0.39 J	0.104 U
Nickel	10.75	5500 (c)	14.701	12.086	14.249	19.7	11.942
Potassium	1300.5	NA	734.173 J	624.53 J	961.186 J	614	270.094
Selenium	0.415	820 (c)	0.694 U	0.641 U	0.81	0.82 UJ	0.626 U
Silver	0.7	820 (c)	2.081 U	1.923 U	2.053 U	1.4 U	1.877 U
Sodium	97.4	NA	237.711 JL	148.66 JL	169.238 JL	270 UC	83.76 JL
Thallium	0.295	19 (c)	1.115 UC	0.855 U	0.912 U	0.63 U	0.834 U
Vanadium	15.3	1800 (c)	15.558	13.686	17.227	13.6	9.737
Zinc	111	55000 (c)	202.016	182.673	199.368	339	142.065

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG007-SS-02	AL-SG007-SS-03	AL-SG008-SS-01	AL-SG008-SS-02	AL-SG008-SS-03
Aluminum	5352.5	79000 (c)	2402.458	4555	3418	3815	6660
Antimony	3.6	110 (c)	11.62 U	R	3.09 UJ	2.78 UJ	R
Arsenic	3.15	0.37 (c)	6.932	20 J	19.8 J	9.87 J	19.2 J
Barium	145	14000 (c)	161.627	360	207	156	626
Beryllium	0.3075	0.15 (c)	0.472 JL	0.41 UC	0.4	0.32	0.5 UC
Cadmium	0.55	140 (c)	0.67 U	4.1	1.94 J	1.86 J	4.6
Calcium	4958.5	NA	4198.659	9105	3502	3481	4988
Chromium	11.15	1400 (c)	9.22	46	14.9	14.6	49.9
Cobalt	6.25	2.7 (c)	5.2 JL	13.2	8.18	6.25	15.5
Copper	10.05	10000 (c)	43.696	285	73.1 J	54.7 J	306
Cyanide	0.305	5500 (c)	1.117 U	1.1	0.59 U	0.53 U	1.4
Iron	9581.5	NA	12180.559	64525	20787	16973	76545
Lead	36.9495	400 (c)	159.77	840	267 J	198 J	1365
Magnesium	2821	NA	1183.799	1858	1342	1583	1638
Manganese	216	27000 (c)	200.941	455	319 J	209 J	553
Mercury	0.06	82 (c)	0.112 U	1 J	0.23 J	0.26 J	1.3 J
Nickel	10.75	5500 (c)	17.493	51.5	24.5	22.4	49.7
Potassium	1300.5	NA	563.62	756	392	836	964
Selenium	0.415	820 (c)	0.67 U	0.85 U	1.19 U	1.07 U	0.85 U
Silver	0.7	820 (c)	2.011 U	1.7	1.53 UC	1.11 UC	1.6
Sodium	97.4	NA	104.405 JL	230	183	190	526
Thallium	0.295	19 (c)	0.894 U	0.65 UJ	1.66 U	1.5 U	0.65 UJ
Vanadium	15.3	1800 (c)	10.95	15.5	14.1	12.4	26.9
Zinc	111	55000 (c)	296	1056	279	412	1074

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG009-SS-01	AL-SG009-SS-02	AL-SG009-SS-03	AL-SG010-SS-01	AL-SG010-SS-02
Aluminum	5352.5	79000 (c)	7772	4536	4356	6740	3907
Antimony	3.6	110 (c)	2.92 UJ	2.78 UJ	R	2.89 UJ	2.81 UJ
Arsenic	3.15	0.37 (c)	**19.7 J**	**8.18 J**	**7.4 J**	**16 J**	**6.47 J**
Barium	145	14000 (c)	213	168	187	292	99.5
Beryllium	0.3075	0.15 (c)	0.22 U	**0.29**	0.21 UC	0.22 U	**0.22**
Cadmium	0.55	140 (c)	1.97 J	1.25 J	1.4	2.4 J	0.8 J
Calcium	4958.5	NA	5000	5079	6502	18915	3614
Chromium	11.15	1400 (c)	28.5	18.9	18.3	32.2	11.3
Cobalt	6.25	2.7 (c)	**10.7**	**4.94**	**7.4**	**5.63**	**4.97**
Copper	10.05	10000 (c)	170 J	76.4 J	107	172 J	33.9 J
Cyanide	0.305	5500 (c)	0.56 U	0.53 U	0.59	0.56 U	0.54 U
Iron	9581.5	NA	51364	17876	24497	36806	10357
Lead	36.9495	400 (c)	315 J	287 J	**443**	**405 J**	95.8 J
Magnesium	2821	NA	2390	2368	1791	2589	1694
Manganese	216	27000 (c)	426 J	169 J	233	330 J	124 J
Mercury	0.06	82 (c)	0.64 J	0.4 J	0.38 J	0.58 J	0.15 J
Nickel	10.75	5500 (c)	32.2	19.3	20.2	27.3	13.1 JH
Potassium	1300.5	NA	1232	800	610	1074	713
Selenium	0.415	820 (c)	1.12 U	1.07 U	0.77 UJ	1.11 U	1.08 J
Silver	0.7	820 (c)	116	1.28 UC	2.5	2.44 UC	0.81 UC
Sodium	97.4	NA	210	227	197	270	223
Thallium	0.295	19 (c)	1.57 U	1.5 U	0.59 UJ	1.56 U	1.51 J
Vanadium	15.3	1800 (c)	20.7	13.4	14	19.6	12.3
Zinc	111	55000 (c)	434	457	562	445	141

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG010-SS-03	AL-SG011-SS-01	AL-SG011-SS-02	AL-SG011-SS-03	AL-SG012-SS-01
Aluminum	5352.5	79000 (c)	4198	6492	5698	4179	5616
Antimony	3.6	110 (c)	R	20.8 J	2.77 UJ	R	2.82 UJ
Arsenic	3.15	0.37 (c)	**7.8 J**	**17.7**	**6.2**	**11.1 J**	**6.11**
Barium	145	14000 (c)	163 J	349 J	243 J	268 J	168 J
Beryllium	0.3075	0.15 (c)	0.15 U	**0.45**	**0.43**	0.2 UC	**0.39**
Cadmium	0.55	140 (c)	2.5	2.5 J	0.68 J	2.6	0.98 J
Calcium	4958.5	NA	6125	9332	5560	7484	4792
Chromium	11.15	1400 (c)	24.7	29.5 J	16.2 J	25.4	16.8 J
Cobalt	6.25	2.7 (c)	**7.3**	1.65	**4.06**	**11.8**	**5.62**
Copper	10.05	10000 (c)	144	262 J	42.3 J	133	61.3 J
Cyanide	0.305	5500 (c)	0.55 U	0.6 U	0.53 U	0.58 U	0.54 U
Iron	9581.5	NA	30538	61967	12453	49002	16312
Lead	36.9495	400 (c)	770	**2243 J**	94.4 J	**583**	178 J
Magnesium	2821	NA	1147	2543	2021	1367	2467
Manganese	216	27000 (c)	378 J	466	177	3290 J	209
Mercury	0.06	82 (c)	0.53 J	0.31	0.11 U	0.32 J	0.11 U
Nickel	10.75	5500 (c)	22.5	41 J	13.5 J	31.1	17.6 J
Potassium	1300.5	NA	507 U	1029	1202	564	1150
Selenium	0.415	820 (c)	0.75 UJ	1.2 U	1.07 U	0.79 UJ	1.08 U
Silver	0.7	820 (c)	1.3 U	4.22 J	0.65 J	1.4 U	1.17 J
Sodium	97.4	NA	151 UC	191 J	156 J	810	227 J
Thallium	0.295	19 (c)	0.57 U	1.68 U	1.49 U	0.6 U	1.52 U
Vanadium	15.3	1800 (c)	14.8	13.9	15.6	16	15.2
Zinc	111	55000 (c)	428	820 J	164 J	1488	282 J

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG012-SS-02	AL-SG013-SS-01	AL-SG013-SS-02	AL-SG013-SS-03	AL-SG013-SS-04
Aluminum	5352.5	79000 (c)	4326	7979	6176	5298	6620
Antimony	3.6	110 (c)	2.79 UJ	3.03 UJ	3.12 UJ	3.12 UJ	R
Arsenic	3.15	0.37 (c)	4.22	7.79	53.2	10.8	10.3 J
Barium	145	14000 (c)	286 J	388 J	609 J	278 J	401 J
Beryllium	0.3075	0.15 (c)	0.24	0.42	0.48	0.46	0.38 UC
Cadmium	0.55	140 (c)	R	0.9 J	7.01 J	2.16 J	4.2
Calcium	4958.5	NA	6090	8244	18567	11653	10143
Chromium	11.15	1400 (c)	12 J	15.7 J	61.1 J	20.7 J	34.6
Cobalt	6.25	2.7 (c)	4.6	6.07	11.5	9.56	11.8
Copper	10.05	10000 (c)	24.4 J	74.7 J	418 J	128 J	296
Cyanide	0.305	5500 (c)	0.54 U	0.58 U	1.26 J	0.6 U	0.82
Iron	9581.5	NA	8181	13906	85960	29981	30363
Lead	36.9495	400 (c)	34.6 J	108 J	1115 J	335 J	781
Magnesium	2821	NA	2550	3422	2772	3016	2127
Manganese	216	27000 (c)	170	304	569	361	438 J
Mercury	0.06	82 (c)	0.11 U	0.31	1.33	0.42	0.79 J
Nickel	10.75	5500 (c)	12.3 J	18.8 J	62.5 J	28.6 J	37.2
Potassium	1300.5	NA	893	1246	1208	1027	621
Selenium	0.415	820 (c)	1.07 U	1.17 U	1.2 U	1.2 U	0.82 UJ
Silver	0.7	820 (c)	0.49 J	0.86 J	5.67 J	2.59 J	1.5
Sodium	97.4	NA	183 J	202 J	267 J	264 J	347 UC
Thallium	0.295	19 (c)	1.5 U	1.63 U	1.68 U	1.68 U	0.63 U
Vanadium	15.3	1800 (c)	12.8	18	7.79	11.9	16.9
Zinc	111	55000 (c)	80.4 J	192 J	1657 J	531 J	3436

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG014-SS-01	AL-SG014-SS-02	AL-SG014-SS-03	AL-SG015-SS-01	AL-SG015-SS-02
Aluminum	5352.5	79000 (c)	7353	3520	5627	4634	4415
Antimony	3.6	110 (c)	13.2 UC	2.76 U	R	2.98 U	2.948 U
Arsenic	3.15	0.37 (c)	**45.3**	**13.6**	**20.8 J**	**8.14**	**6.6**
Barium	145	14000 (c)	780	161	475	182	130
Beryllium	0.3075	0.15 (c)	0.31 U	0.21 U	0.55 UC	0.23 U	0.23 U
Cadmium	0.55	140 (c)	11.7 J	2.4 J	5.2	1.14 J	1.01 J
Calcium	4958.5	NA	12187 J	4456 J	10307	5891 J	7517 J
Chromium	11.15	1400 (c)	59.5	23 J	62.3	18.2	15.3
Cobalt	6.25	2.7 (c)	**13.4**	**8.5**	**13.4**	**5.1**	**5.78**
Copper	10.05	10000 (c)	498 J	132 J	411	87 J	44.5 J
Cyanide	0.305	5500 (c)	1.2	0.53 U	1	0.57 U	0.57 U
Iron	9581.5	NA	106018	55723	74986	21388	15318
Lead	36.9495	400 (c)	**1719**	309	**1724**	226	89.5
Magnesium	2821	NA	2280	1562	1611	2903	2921
Manganese	216	27000 (c)	720	340	460	216	215
Mercury	0.06	82 (c)	0.72 J	0.26 J	2.1	0.33 J	0.15 J
Nickel	10.75	5500 (c)	71.4	36.4	40.2	22.5	20.4
Potassium	1300.5	NA	874	656	572 U	917	816
Selenium	0.415	820 (c)	1.53 U	1.06 U	0.84 U	1.15 U	1.13 U
Silver	0.7	820 (c)	9.34	3.5 UC	2.3	1.9 UC	1.22 UC
Sodium	97.4	NA	315 J	194 J	346	207 J	185 J
Thallium	0.295	19 (c)	2.15 U	1.49 U	0.64 UJ	1.6 U	1.59 U
Vanadium	15.3	1800 (c)	11.8	6.78	18.7	10.8	12.1
Zinc	111	55000 (c)	2760 J	453 J	1356	298 J	213 J

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG015-SS-04	AL-SG016-SS-01	AL-SG016-SS-02	AL-SG016-SS-03	AL-SG016-SS-04
Aluminum	5352.5	79000 (c)	4777	10763	10349	8259	13517
Antimony	3.6	110 (c)	R	12.5 J	9.4 J	7.3 J	6 UJ
Arsenic	3.15	0.37 (c)	**3.3 J**	**28.7 JL**	**24.4 JL**	**9.4 JL**	**7 JL**
Barium	145	14000 (c)	153	717 J	403 J	190 J	209 J
Beryllium	0.3075	0.15 (c)	0.4 UC	**0.37**	**0.45**	**0.48**	**0.63**
Cadmium	0.55	140 (c)	1.1 U	4.7	4.8	1.7	0.96 U
Calcium	4958.5	NA	8002	16717	11875	10413	6990
Chromium	11.15	1400 (c)	11.7	64.1 J	47 J	28.6 J	32.1 J
Cobalt	6.25	2.7 (c)	**4.6**	**18.8**	**16**	**10.4**	**11**
Copper	10.05	10000 (c)	16.7	398	254	90.8	55.6
Cyanide	0.305	5500 (c)	0.6 U	2.1	1.1	0.65 U	0.61 U
Iron	9581.5	NA	8837	108418	83820	28555	29838
Lead	36.9495	400 (c)	37.1	**1156 J**	**784 J**	243 J	158 J
Magnesium	2821	NA	2734	3079	3399	3258	4477
Manganese	216	27000 (c)	168	645	683	460	574
Mercury	0.06	82 (c)	0.12 UJ	1.4 J	0.92 J	0.13 UJ	0.12 UJ
Nickel	10.75	5500 (c)	9.8	52	54.2	27.8	26.6
Potassium	1300.5	NA	912	1295	1550	1560	2269
Selenium	0.415	820 (c)	0.81 U	2.3 J	0.46 UCJ	0.37 UCJ	0.22 UJ
Silver	0.7	820 (c)	1.4 U	8.2	6.8	1.9	2.5
Sodium	97.4	NA	344	250	161	112	123
Thallium	0.295	19 (c)	0.62 UJ	3.4 J	0.52 UCJ	0.45 UCJ	0.44 UCJ
Vanadium	15.3	1800 (c)	13.6	18.9	22.9	21	32.2
Zinc	111	55000 (c)	108	1567 J	1438 J	315 J	239 J

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG016-SS-05	AL-SG017-SS-01	AL-SG017-SS-02	AL-SG017-SS-03	AL-SG018-SS-01
Aluminum	5352.5	79000 (c)	5959	8060	6924	4613	4351
Antimony	3.6	110 (c)	22.2 JH	6.2 UJ	6.1 UJ	8.8 UJ	6.6 UJ
Arsenic	3.15	0.37 (c)	14.7 J	6.9 JL	10.2 JL	7.7 J	5.8 J
Barium	145	14000 (c)	457	254 J	215 J	209	180 J
Beryllium	0.3075	0.15 (c)	0.73 UC	0.36	0.34	0.7 UC	0.36
Cadmium	0.55	140 (c)	3.7	1.6	0.97 U	1.2 U	1.7
Calcium	4958.5	NA	7808	7698	9765	12043	4019
Chromium	11.15	1400 (c)	54.5 J	24.6 J	24.6 J	15.2 J	17
Cobalt	6.25	2.7 (c)	15.7	8.5	9	7.3	7.2
Copper	10.05	10000 (c)	304 J	139	108	63.1 J	70.7
Cyanide	0.305	5500 (c)	1.9	0.75	0.62 U	0.66 U	0.67 U
Iron	9581.5	NA	83561	22193	26360	18671	20885 J
Lead	36.9495	400 (c)	834	337 J	343 J	246	285 J
Magnesium	2821	NA	1997	3543	3874	2570	1451
Manganese	216	27000 (c)	619	388	391	319	227
Mercury	0.06	82 (c)	2 J	0.73 J	0.52 J	0.67 J	0.23 J
Nickel	10.75	5500 (c)	63.2 J	22.1	24	19.1 J	23.9
Potassium	1300.5	NA	684	1886	1000	843	501
Selenium	0.415	820 (c)	0.87 UJ	0.33 UCJ	0.39 UCJ	0.89 UJ	0.24 UJ
Silver	0.7	820 (c)	1.9	2.1	2.4	1.6 U	1.8
Sodium	97.4	NA	180	165	111	244	73.7
Thallium	0.295	19 (c)	0.66 U	0.43 UCJ	0.44 UCJ	0.68 U	0.39 UCJ
Vanadium	15.3	1800 (c)	22.3	20.8	18.1	15.1	13.5
Zinc	111	55000 (c)	1175	563 J	379 J	271	337

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG018-SS-02	AL-SG018-SS-03	AL-SG019-SS-01	AL-SG019-SS-02	AL-SG019-SS-03
Aluminum	5352.5	79000 (c)	4186	4670	4733	5403	11042
Antimony	3.6	110 (c)	5.4 UJ	R	14.4 J	17.6 J	R
Arsenic	3.15	0.37 (c)	**13.1 J**	**11.1 J**	**16 J**	**24.8 J**	**37.5 J**
Barium	145	14000 (c)	205 J	369	447 J	537 J	599
Beryllium	0.3075	0.15 (c)	**0.29**	0.37 UC	**0.29**	**0.18**	0.41 UC
Cadmium	0.55	140 (c)	0.97	4.5	5.6	4.4	9.3
Calcium	4958.5	NA	3714	11474	21102	11632	10505
Chromium	11.15	1400 (c)	16.3	31.7	39.4	48.3	75.4
Cobalt	6.25	2.7 (c)	**6.7**	**9.8**	**11.6**	**14.8**	**18.9**
Copper	10.05	10000 (c)	56.8	209	364	635	629
Cyanide	0.305	5500 (c)	0.55 U	0.66	0.6 U	0.9	2.6
Iron	9581.5	NA	14855 J	50638	60452 J	86599 J	111429
Lead	36.9495	400 (c)	259 J	700	**1022 J**	**1477 J**	**1722**
Magnesium	2821	NA	1575	1622	2084	1373	1260
Manganese	216	27000 (c)	275	342	458	616	668
Mercury	0.06	82 (c)	0.29 J	1.1 J	1 J	1.2 J	2.8 J
Nickel	10.75	5500 (c)	19.7	33.6	37.4	68.4	70.3
Potassium	1300.5	NA	861	728	502	694	625 U
Selenium	0.415	820 (c)	0.2 UJ	0.8 U	0.22 UJ	0.38 J	0.92 U
Silver	0.7	820 (c)	1.6	1.4 U	6.1	8.8	3.5
Sodium	97.4	NA	81.4	257	135	1314	780
Thallium	0.295	19 (c)	0.52 UCJ	0.61 UJ	0.73 UCJ	0.64 UCJ	0.7 UJ
Vanadium	15.3	1800 (c)	13.1	15.9	11.2	8.7	20.2
Zinc	111	55000 (c)	345	929	1176	1889	2030

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG020-SS-01	AL-SG020-SS-02	AL-SG020-SS-03	AL-SG021-SS-01	AL-SG021-SS-02
Aluminum	5352.5	79000 (c)	4358	3100	5987	7094	8044
Antimony	3.6	110 (c)	5.7 U	5.3 U	R	10.7	5.7 U
Arsenic	3.15	0.37 (c)	**10.4 J**	**5.7 J**	**42.9 J**	**21.5 J**	**12.4 J**
Barium	145	14000 (c)	494 J	120 J	473	540 J	340 J
Beryllium	0.3075	0.15 (c)	**0.26**	**0.27**	0.3 UC	**0.36**	**0.41**
Cadmium	0.55	140 (c)	4.9	1.6	8.1	2.9	2.9
Calcium	4958.5	NA	6004	2360	7305	15041 J	15312 J
Chromium	11.15	1400 (c)	40 J	13.8 J	67	60.7 J	36.3 J
Cobalt	6.25	2.7 (c)	**10.9**	**7.5**	**22**	**16.4**	**12.5**
Copper	10.05	10000 (c)	243	76.7	434	340 J	228 J
Cyanide	0.305	5500 (c)	0.58 U	0.54 U	1.3	1.7	0.58 U
Iron	9581.5	NA	53849	19950	123610	87831	43830
Lead	36.9495	400 (c)	**1160 J**	**455 J**	**1534**	**1338 J**	**1108 J**
Magnesium	2821	NA	1574	1122	1678	2647	3695
Manganese	216	27000 (c)	382	182	768	621 J	565 J
Mercury	0.06	82 (c)	0.92	0.14	2.9 J	1.5	0.8
Nickel	10.75	5500 (c)	30.8	17.1	85.1	52.6	42.4
Potassium	1300.5	NA	478	750	793	1194	1233
Selenium	0.415	820 (c)	0.34 J	0.19 UJ	0.92 U	0.61 J	0.32 J
Silver	0.7	820 (c)	3.8	1.6	2	8	4
Sodium	97.4	NA	103	54.9	322	184	477
Thallium	0.295	19 (c)	0.57 UCJ	0.35 UC	0.7 UJ	3.6	3.7 J
Vanadium	15.3	1800 (c)	11.9	10.5	23.5	17.7	18.8
Zinc	111	55000 (c)	1052	255	1952	1439	2783

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG021-SS-03	AL-SG022-SS-01	AL-SG022-SS-02	AL-SG022-SS-03	AL-SG023-SS-01
Aluminum	5352.5	79000 (c)	6001	3066	10073	6267	5858
Antimony	3.6	110 (c)	9.9 JH	6.6 J	5.6 UJ	8 UJ	5.8 U
Arsenic	3.15	0.37 (c)	21.2 J	4 J	9 J	10.9 J	7.8 J
Barium	145	14000 (c)	271	153 J	236 J	279	252 J
Beryllium	0.3075	0.15 (c)	0.6 UC	0.22	0.51	0.79 UC	0.39
Cadmium	0.55	140 (c)	1.4	0.82 U	2.1	2.4	0.92 U
Calcium	4958.5	NA	7661	64040	7890	7847	6802 J
Chromium	11.15	1400 (c)	28.1 J	8.1	27.9	21.2 J	22.2 J
Cobalt	6.25	2.7 (c)	10	4.4	9.3	8.3	8.9
Copper	10.05	10000 (c)	79.5 J	36.9	76.4	75 J	93.3 J
Cyanide	0.305	5500 (c)	0.59 U	0.53 U	0.57 U	0.6 U	0.59 U
Iron	9581.5	NA	34687	12214 J	24074 J	17079	21020
Lead	36.9495	400 (c)	285	137 J	277 J	216	253 J
Magnesium	2821	NA	2584	2068	3937	2548	3395
Manganese	216	27000 (c)	409	184	556	443	369 J
Mercury	0.06	82 (c)	0.41 J	0.11 J	0.4 J	0.44 J	0.29
Nickel	10.75	5500 (c)	26.5 J	12.5	23.5	22.5 J	21.3
Potassium	1300.5	NA	1136	746	1863	958	989
Selenium	0.415	820 (c)	0.81 UJ	0.19 UJ	0.21 UJ	0.82 UJ	0.38 J
Silver	0.7	820 (c)	1.4 U	1.1	2.5	1.4 U	1.4
Sodium	97.4	NA	272	431	92.6	238	86.9
Thallium	0.295	19 (c)	0.62 U	0.32 UCJ	0.43 UCJ	0.62 U	0.34 UCJ
Vanadium	15.3	1800 (c)	18.5	9.1	25.9	19.8	17.1
Zinc	111	55000 (c)	1109	224	386	476	411

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG023-SS-02	AL-SG023-SS-03	AL-SG023-SS-04	AL-SG023-SS-05	AL-SG024-SS-01
Aluminum	5352.5	79000 (c)	5273	8520	5341	7184	4605
Antimony	3.6	110 (c)	5.8 U	5.5 U	5.7 U	R	5.5 U
Arsenic	3.15	0.37 (c)	**5.8 J**	**5.3 J**	**3.4 J**	**8.6 J**	**14.7 J**
Barium	145	14000 (c)	135 J	134 J	138 J	282	366 J
Beryllium	0.3075	0.15 (c)	**0.35**	**0.47**	**0.37**	0.55 UC	**0.29**
Cadmium	0.55	140 (c)	0.92 U	0.87 U	0.91 U	1.2 U	5.4
Calcium	4958.5	NA	4948 J	5984 J	6086 J	6202	8642 J
Chromium	11.15	1400 (c)	14.9 J	18.1 J	14.3 J	18.5	43.1 J
Cobalt	6.25	2.7 (c)	**6.5**	**7.8**	**7.2**	**6.9**	**11.3**
Copper	10.05	10000 (c)	40.2 J	26.2 J	44.3 J	58.6	241 J
Cyanide	0.305	5500 (c)	0.59 U	0.56 U	0.58 U	0.62 U	0.56 U
Iron	9581.5	NA	12478	14039	18894	18291	48709
Lead	36.9495	400 (c)	104 J	67.8 J	146 J	156	946 J
Magnesium	2821	NA	3025	3816	3604	2817	1466
Manganese	216	27000 (c)	238 J	299 J	292 J	406	376 J
Mercury	0.06	82 (c)	0.14	0.13	0.23	0.34 J	0.89
Nickel	10.75	5500 (c)	17.6	19	15.3	18.2	32.6
Potassium	1300.5	NA	1006	1685	967	946	659
Selenium	0.415	820 (c)	0.31 J	0.25 J	0.28 J	0.84 U	0.34 J
Silver	0.7	820 (c)	0.74	0.72	1.2	1.5 U	4.6
Sodium	97.4	NA	81.7	91.3	59.4	469	144
Thallium	0.295	19 (c)	0.37 UC	0.35 UC	0.35 UC	0.64 UJ	3.5
Vanadium	15.3	1800 (c)	14.7	22.5	14.8	18.7	12.8
Zinc	111	55000 (c)	173	115	190	713	1052

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG024-SS-02	AL-SG024-SS-03	AL-SG025-SS-01	AL-SG025-SS-02	AL-SG025-SS-03
Aluminum	5352.5	79000 (c)	3889	6751	6135 J	6782 J	9706
Antimony	3.6	110 (c)	5.5	R	7.7 UJ	13.6 J	R
Arsenic	3.15	0.37 (c)	**9.6 J**	**62.3 J**	**12.5 J**	**11.8 J**	**12.1 J**
Barium	145	14000 (c)	318 J	675	400 J	564 J	405
Beryllium	0.3075	0.15 (c)	**0.23**	0.57 UC	0.76 UC	0.71 UC	0.57 UC
Cadmium	0.55	140 (c)	2.5	7.9	3.9 J	5.1 J	2.3
Calcium	4958.5	NA	14551 J	21954	10692 J	17739 J	10304
Chromium	11.15	1400 (c)	37.3 J	50.6	36.8 J	42.9 J	34.5
Cobalt	6.25	2.7 (c)	**8.9**	**11.8**	**11.7**	**15.7**	**10.2**
Copper	10.05	10000 (c)	155 J	345	205 J	371 J	193
Cyanide	0.305	5500 (c)	0.68999	0.71	2	1.3	0.88
Iron	9581.5	NA	45335	57048	45568	66499	45055
Lead	36.9495	400 (c)	**577 J**	**1344**	**680 J**	**1359 J**	**505**
Magnesium	2821	NA	1400	2073	2380	2774	2202
Manganese	216	27000 (c)	332 J	469	508 J	583 J	497
Mercury	0.06	82 (c)	0.36	1.8 J	1.4	1.2	0.13 UJ
Nickel	10.75	5500 (c)	26.2	42	30.4	50	36.2
Potassium	1300.5	NA	574	803	641	1382	1452
Selenium	0.415	820 (c)	0.33 J	0.89 U	0.79 UJ	0.85 UJ	0.85 U
Silver	0.7	820 (c)	3.1	2.8	2.4	3.4	2.2
Sodium	97.4	NA	143	527	127	178	249
Thallium	0.295	19 (c)	0.47 UCJ	0.68 UJ	0.6 UJ	0.65 UJ	0.65 UJ
Vanadium	15.3	1800 (c)	11.3	21.5	20.1	22.1	28.6
Zinc	111	55000 (c)	840	1739	857	1527	910

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG027-SS-01	AL-SG027-SS-02	AL-SG028-SS-01	AL-SG028-SS-02	AL-SG028-SS-03
Aluminum	5352.5	79000 (c)	8486 J	10119 J	2238 J	2052 J	3259 J
Antimony	3.6	110 (c)	5.7 U	6.4 U	7.1 UJ	11.6 J	7.3 UJ
Arsenic	3.15	0.37 (c)	6.3	9.6	5.3 J	3.2 J	4.5 J
Barium	145	14000 (c)	306	348	124 J	104 J	237 J
Beryllium	0.3075	0.15 (c)	0.47	0.45	0.77 UC	0.78 UC	0.48 UC
Cadmium	0.55	140 (c)	2.4	2	1 UJ	1 UJ	2 J
Calcium	4958.5	NA	10108	10920	2194 J	2180 J	8526 J
Chromium	11.15	1400 (c)	23.3	36.8	9.2 J	13.4 J	19.2 J
Cobalt	6.25	2.7 (c)	8.7	10	4.8	6.3	7.6
Copper	10.05	10000 (c)	106	146	46.2 J	89.6 J	111 J
Cyanide	0.305	5500 (c)	0.8	0.65 U	0.54 U	0.54 U	0.57
Iron	9581.5	NA	22671 J	31540 J	11882	25234	23811
Lead	36.9495	400 (c)	351 J	519 J	252 J	189 J	350 J
Magnesium	2821	NA	3423 J	3762 J	910	926	2685
Manganese	216	27000 (c)	444 J	419 J	127 J	153 J	306 J
Mercury	0.06	82 (c)	0.43 JL	0.82 JL	0.17	0.13	0.35
Nickel	10.75	5500 (c)	25.1	30.6	14.9	31.5	23.8
Potassium	1300.5	NA	1726	1781	498	497 U	549
Selenium	0.415	820 (c)	0.24 J	0.23 UJ	0.73 UJ	0.73 UJ	0.75 UJ
Silver	0.7	820 (c)	2.7	3	1.3 U	1.7	1.3 U
Sodium	97.4	NA	125	157	57.4 U	57.7 U	190
Thallium	0.295	19 (c)	0.29 UCJ	0.31 UCJ	0.56 U	0.56 U	0.57 U
Vanadium	15.3	1800 (c)	22.3	24.8	9.4	8.7	12.8
Zinc	111	55000 (c)	486 J	624 J	329	408	572

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG028-SS-04	AL-SG029-SS-01	AL-SG029-SS-02	AL-SG029-SS-03	AL-SG030-SS-01
Aluminum	5352.5	79000 (c)	3357	3948	3232	6722	3588
Antimony	3.6	110 (c)	15 JH	R	R	R	R
Arsenic	3.15	0.37 (c)	13.3 J	12.5 J	3.4 J	8 J	4.1
Barium	145	14000 (c)	302	144	135	279	79.9
Beryllium	0.3075	0.15 (c)	0.18 UC	0.5	0.28	0.52 UC	0.15 U
Cadmium	0.55	140 (c)	2.2	1.4 J	1 UJ	4.2	1.1
Calcium	4958.5	NA	6145	3454	4985	5289	4250
Chromium	11.15	1400 (c)	35.1 J	14.4	13	44	10.5
Cobalt	6.25	2.7 (c)	12.4	8.8	5	9.2	6.1
Copper	10.05	10000 (c)	222 J	39	39.1	178	20.3
Cyanide	0.305	5500 (c)	0.65	0.57 U	0.55 U	0.61 U	0.53 U
Iron	9581.5	NA	76361	13177	10356	35005	10385
Lead	36.9495	400 (c)	698	143	108	962	68.5 J
Magnesium	2821	NA	1284	1260	1264	2284	2173
Manganese	216	27000 (c)	467	194	129	351	138
Mercury	0.06	82 (c)	1 J	0.24	0.14	0.53 J	0.16
Nickel	10.75	5500 (c)	44.7 J	17.6	13	33.3	8.8
Potassium	1300.5	NA	549 U	669	515	794	807
Selenium	0.415	820 (c)	0.81 UJ	0.78 UJ	0.75 UJ	0.83 U	0.72 U
Silver	0.7	820 (c)	1.4 U	0.78 U	0.75 U	1.4 U	1.2 U
Sodium	97.4	NA	223	92.6	119	440	67.8
Thallium	0.295	19 (c)	0.62 U	0.6 UJ	0.58 UJ	0.63 UJ	0.55 U
Vanadium	15.3	1800 (c)	13.1	16.5	16.3	20.7	11
Zinc	111	55000 (c)	944	187	307	1225	122

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG030-SS-02	AL-SG030-SS-03	AL-SG030-SS-04	AL-SG031-SS-01	AL-SG031-SS-02
Aluminum	5352.5	79000 (c)	7570	3306	6268	5961 J	1681 J
Antimony	3.6	110 (c)	R	R	8.3 UJ	16.3 J	7 UJ
Arsenic	3.15	0.37 (c)	**11.3**	**3.7**	**5.3 J**	**28.8**	**5.6**
Barium	145	14000 (c)	402	75.4	175	477	142
Beryllium	0.3075	0.15 (c)	0.71 UC	0.42 UC	0.53 UC	0.43 UC	0.32 UC
Cadmium	0.55	140 (c)	2.5	0.98 U	2.3	6.8	1.4
Calcium	4958.5	NA	7490	3394	3793	7740	3268
Chromium	11.15	1400 (c)	32.5	11.1	18.3 J	56.4	10.2
Cobalt	6.25	2.7 (c)	**12.1**	**6.7**	**8.5**	**18.6**	**5.1**
Copper	10.05	10000 (c)	139	17.1	76.9 J	420	58.5
Cyanide	0.305	5500 (c)	0.85	R	0.62 U	0.86	0.53 U
Iron	9581.5	NA	37921	11898	25399	103928	13175
Lead	36.9495	400 (c)	**737 J**	51.1 J	207	**1403**	225
Magnesium	2821	NA	3361	2250	2047	1427	871
Manganese	216	27000 (c)	439	164	284	603 J	153 J
Mercury	0.06	82 (c)	0.84	0.1 U	0.27 J	1.2	0.38
Nickel	10.75	5500 (c)	31.2	12.1	22.1 J	58.6	14
Potassium	1300.5	NA	1175	818	610	647	485 U
Selenium	0.415	820 (c)	0.75 U	0.71 U	0.85 UJ	0.81 UJ	0.71 UJ
Silver	0.7	820 (c)	1.5	1.2 U	1.5 U	3.5	1.2 U
Sodium	97.4	NA	142	72	150	168	57.2
Thallium	0.295	19 (c)	0.57 U	0.54 U	0.65 U	0.62 UJ	0.55 UJ
Vanadium	15.3	1800 (c)	23	11.4	19.7	23.1	7.4
Zinc	111	55000 (c)	713	97.1	358	1465	426

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG031-SS-04	AL-SG032-SS-01	AL-SG032-SS-02	AL-SG032-SS-03	AL-SG033-SS-01
Aluminum	5352.5	79000 (c)	4323 J	5395	3555	6533	1695 J
Antimony	3.6	110 (c)	11.7 J	R	R	R	7.1 UJ
Arsenic	3.15	0.37 (c)	**16.1**	**6.7**	**2.4 J**	**14 J**	**2.8**
Barium	145	14000 (c)	298	143	52.5	522	101
Beryllium	0.3075	0.15 (c)	0.64 UC	**0.39**	**0.21**	0.38 UC	0.63 UC
Cadmium	0.55	140 (c)	4.3	1.1 J	0.93 UJ	4.7	1 U
Calcium	4958.5	NA	3845	5384	1865	11305	1348
Chromium	11.15	1400 (c)	30.8	13.7	6.7	45.9	6
Cobalt	6.25	2.7 (c)	**11.6**	**5.5**	**4.2**	**8.2**	**3.9**
Copper	10.05	10000 (c)	6147	41.3	5.7	247	377
Cyanide	0.305	5500 (c)	0.63	0.54 U	0.52 U	1.3	0.53 U
Iron	9581.5	NA	51782	12206	5807	33304	6880
Lead	36.9495	400 (c)	**1049**	153	14.1	**802**	131
Magnesium	2821	NA	970	1534	1072	1685	594 J
Manganese	216	27000 (c)	393 J	159	99.5	340	96.2
Mercury	0.06	82 (c)	0.77	0.12	0.1 U	0.77 J	0.14
Nickel	10.75	5500 (c)	60.8	15.7	7.7	32.4	10.3
Potassium	1300.5	NA	542 U	730	624	853	491 U
Selenium	0.415	820 (c)	0.8 UJ	0.87 J	0.7 UJ	0.87 U	0.72 UJ
Silver	0.7	820 (c)	2.9	0.73 U	0.7 U	1.6	1.3 U
Sodium	97.4	NA	175	74.5	69.1	279	161
Thallium	0.295	19 (c)	0.61 U	0.56 UJ	0.54 UJ	0.66 UJ	0.55 UJ
Vanadium	15.3	1800 (c)	14.9	15.7	10.6	21.4	6.7
Zinc	111	55000 (c)	977	201	34.4	1179	154

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG033-SS-02	AL-SG033-SS-04	AL-SG034-SS-01	AL-SG034-SS-02	AL-SG034-SS-05
Aluminum	5352.5	79000 (c)	4156 J	5878	4744 J	2124 J	4522 J
Antimony	3.6	110 (c)	8.2 J	23.8 J	7.2 UJ	7.8 J	19.7 J
Arsenic	3.15	0.37 (c)	**14.4**	**23.4**	**4.9**	**8.1**	**9.6**
Barium	145	14000 (c)	286	549	228	132	410
Beryllium	0.3075	0.15 (c)	0.58 UC	0.33 UC	0.51 UC	0.68 UC	0.54 UC
Cadmium	0.55	140 (c)	3.4	3.6	1 U	2.1	6.1
Calcium	4958.5	NA	5523	12923 J	9767	10609	9502
Chromium	11.15	1400 (c)	33.7	54.2 J	17.2	12.7	40.2
Cobalt	6.25	2.7 (c)	**9.1**	**23.2**	**6.7**	**5.9**	**14.6**
Copper	10.05	10000 (c)	219	373	75.1	75.2	466
Cyanide	0.305	5500 (c)	1.4	1.1	0.54 U	0.53 U	0.93
Iron	9581.5	NA	39235	108102	17773	16877	75827
Lead	36.9495	400 (c)	**629**	**2864 J**	230	287	**1017**
Magnesium	2821	NA	1321	2160 J	3712	907	1460
Manganese	216	27000 (c)	296 J	716 J	208 J	181 J	615 J
Mercury	0.06	82 (c)	0.91	1.5 J	0.39	0.17	1.5
Nickel	10.75	5500 (c)	23.2	51.5	16.1	17.9	47.6
Potassium	1300.5	NA	757	888	840	489 U	654
Selenium	0.415	820 (c)	0.74 UJ	0.35 JL	0.74 UJ	0.72 UJ	0.82 UJ
Silver	0.7	820 (c)	1.3 U	9.4	1.3 U	1.2 U	2.1
Sodium	97.4	NA	75.4	614	115	101	400
Thallium	0.295	19 (c)	0.57 UJ	2.1 JL	0.57 UJ	0.55 UJ	0.62 UJ
Vanadium	15.3	1800 (c)	15.1	17.2	14.3	9.9	18.7
Zinc	111	55000 (c)	732	1452 J	319	427	1184

Key at end of table.

Table 4.1-39

SUMMARY OF INORGANIC RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG034-SS-06	AL-SG099-SS-03			
Aluminum	5352.5	79000 (c)	4463 J	5631			
Antimony	3.6	110 (c)	10 J	R			
Arsenic	3.15	0.37 (c)	13.7 J	16.8 J			
Barium	145	14000 (c)	379	364			
Beryllium	0.3075	0.15 (c)	0.56 UC	0.56 UC			
Cadmium	0.55	140 (c)	8.3	4.3			
Calcium	4958.5	NA	10531	8427			
Chromium	11.15	1400 (c)	47.6	35.2			
Cobalt	6.25	2.7 (c)	14	9.9			
Copper	10.05	10000 (c)	206	227			
Cyanide	0.305	5500 (c)	0.79	0.74			
Iron	9581.5	NA	65121	33962			
Lead	36.9495	400 (c)	791	817			
Magnesium	2821	NA	1598	1799			
Manganese	216	27000 (c)	424 J	345			
Mercury	0.06	82 (c)	0.68999	0.97 J			
Nickel	10.75	5500 (c)	54.6	30.7			
Potassium	1300.5	NA	527 U	692			
Selenium	0.415	820 (c)	0.78 UJ	0.86 U			
Silver	0.7	820 (c)	1.3 U	1.5			
Sodium	97.4	NA	152	273			
Thallium	0.295	19 (c)	0.59 UJ	0.65 UJ			
Vanadium	15.3	1800 (c)	22.4	18.8			
Zinc	111	55000 (c)	1129	1057			

Key at end of table.

Note.

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG001-SS-01	AL-SG001-SS-02	AL-SG001-SS-03	AL-SG001-SS-04	AL-SG002-SS-01
Lead	40.7	400 (c)	403	293	53.2	460	150
Percent <250 microns	58.35	--	38.5	34.3	51.4	26.9	42.3

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG002-SS-02	AL-SG002-SS-03	AL-SG002-SS-04	AL-SG003-SS-01	AL-SG003-SS-02
Lead	40.7	400 (c)	254	21.4	50.2	23.7	22
Percent <250 microns	58.35	--	42.3	54.5	33.9	72.7	58

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG003-SS-03	AL-SG004-SS-01	AL-SG004-SS-02	AL-SG004-SS-03	AL-SG004-SS-04
Lead	40.7	400 (c)	63.5	1330	1500	86.8	70.8
Percent <250 microns	58.35	--	68.9	42.9	40.6	51.2	67.3

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG004-SS-05	AL-SG005-SS-01	AL-SG005-SS-02	AL-SG005-SS-03	AL-SG005-SS-04
Lead	40.7	400 (c)	89.4	66.8	215	96	285
Percent <250 microns	58.35	--	38.3	34.2	39.6	33.4	29.4

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG006-SS-01	AL-SG006-SS-02	AL-SG006-SS-03	AL-SG006-SS-04	AL-SG007-SS-01
Lead	40.7	400 (c)	86.5	63.2	65.8	155	104
Percent <250 microns	58.35	--	26.5	67.8	51	47.2	73

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG007-SS-02	AL-SG007-SS-03	AL-SG008-SS-01	AL-SG008-SS-02	AL-SG008-SS-03
Lead	40.7	400 (c)	59.3	574	126	111	793
Percent <250 microns	58.35	--	78	67.1	60.4	68.8	46.4

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG009-SS-01	AL-SG009-SS-02	AL-SG009-SS-03	AL-SG010-SS-01	AL-SG010-SS-02
Lead	40.7	400 (c)	102	214	213	353	51.2
Percent <250 microns	58.35	--	43.8	56.4	49.1	NA	NA

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG010-SS-03	AL-SG011-SS-01	AL-SG011-SS-02	AL-SG011-SS-03	AL-SG012-SS-01
Lead	40.7	400 (c)	282	454	74.3	348	102
Percent <250 microns	58.35	--	40.6	NA	NA	28.1	NA

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG012-SS-02	AL-SG013-SS-01	AL-SG013-SS-02	AL-SG013-SS-03	AL-SG013-SS-04
Lead	40.7	400 (c)	31.6	278	924	213	1270
Percent <250 microns	58.35	--	NA	NA	NA	NA	26.4

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG014-SS-01	AL-SG014-SS-02	AL-SG014-SS-03	AL-SG015-SS-01	AL-SG015-SS-02
Lead	40.7	400 (c)	770	230	899	143	59.2
Percent <250 microns	58.35	--	NA	NA	48.8	NA	NA

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG015-SS-04	AL-SG016-SS-01	AL-SG016-SS-02	AL-SG016-SS-03	AL-SG016-SS-04
Lead	40.7	400 (c)	53	1340	645	141	122
Percent <250 microns	58.35	--	71.1	NA	NA	NA	NA

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG016-SS-05	AL-SG017-SS-01	AL-SG017-SS-02	AL-SG017-SS-03	AL-SG018-SS-01
Lead	40.7	400 (c)	925	222	179	186	130
Percent <250 microns	58.35	--	23.2	NA	34.6	43	60.5

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG018-SS-02	AL-SG018-SS-03	AL-SG019-SS-01	AL-SG019-SS-02	AL-SG019-SS-03
Lead	40.7	400 (c)	184	482	647	1890	1400
Percent <250 microns	58.35	--	62.3	60.5	53.9	34.6	48.2

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG020-SS-01	AL-SG020-SS-02	AL-SG020-SS-03	AL-SG021-SS-01	AL-SG021-SS-02
Lead	40.7	400 (c)	**494**	109	**1480**	**783**	**504**
Percent <250 microns	58.35	--	60.4	36.8	44.3	33.1	30.3

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG021-SS-03	AL-SG022-SS-01	AL-SG022-SS-02	AL-SG022-SS-03	AL-SG023-SS-01
Lead	40.7	400 (c)	323	188	211	320	115
Percent <250 microns	58.35	--	20.2	56.9	24.9	23.5	39

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG023-SS-02	AL-SG023-SS-03	AL-SG023-SS-04	AL-SG023-SS-05	AL-SG024-SS-01
Lead	40.7	400 (c)	85.841	57.5	71.5	135	594
Percent <250 microns	58.35	--	41	50.8	38.3	25	54.2

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG024-SS-02	AL-SG024-SS-03	AL-SG025-SS-01	AL-SG025-SS-02	AL-SG025-SS-03
Lead	40.7	400 (c)	391	1110	606	907	645
Percent <250 microns	58.35	--	53	42.8	35.1	13.2	22.7

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG027-SS-01	AL-SG027-SS-02	AL-SG028-SS-01	AL-SG028-SS-02	AL-SG028-SS-03
Lead	40.7	400 (c)	319	**430**	118	56.9	**540**
Percent <250 microns	58.35	--	81.7	11.9	68.7	71.5	39.9

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG028-SS-04	AL-SG029-SS-01	AL-SG029-SS-02	AL-SG029-SS-03	AL-SG030-SS-01
Lead	40.7	400 (c)	635	129	124	621	68
Percent <250 microns	58.35	--	40.1	61.5	63.4	39.2	89.2

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG030-SS-02	AL-SG030-SS-03	AL-SG030-SS-04	AL-SG031-SS-01	AL-SG031-SS-02
Lead	40.7	400 (c)	292	40	151	1380	233
Percent <250 microns	58.35	--	45.3	85	47.4	47.3	70.9

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG031-SS-04	AL-SG032-SS-01	AL-SG032-SS-02	AL-SG032-SS-03	AL-SG033-SS-01
Lead	40.7	400 (c)	**1150**	**138**	25.8	**944**	**136**
Percent <250 microns	58.35	--	57.2	52.9	35.6	36.9	48

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG033-SS-02	AL-SG033-SS-04	AL-SG034-SS-01	AL-SG034-SS-02	AL-SG034-SS-05
Lead	40.7	400 (c)	**503**	**1280**	217	170	**924**
Percent <250 microns	58.35	--	52.1	44.4	57.2	67.9	38.7

Key at end of table.

Table 4.1-40

SUMMARY OF SIEVED LEAD RESULTS FOR STUDY GROUP RESIDENCE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-SG034-SS-06	AL-SG099-SS-03			
Lead	40.7	400 (c)	553	592			
Percent <250 microns	58.35	--	45.1	39.8			

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

Table 4.1-41

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	9/9	100	--	--	1960	8630	4510	2100	4510	2100	5352.5	3/9	79000 (c)	0/9
Antimony	1/9	11.1	4.1	5.7	5.9	5.9	5.9	--	2.8	1.2	3.6	1/9	110 (c)	0/9
Arsenic	9/9	100	--	--	1.6	7.7	3.64	1.97	3.64	1.97	3.15	5/9	0.37 (c)	9/9
Barium	9/9	100	--	--	49.9	126	75.8	26.7	75.8	26.7	145	0/9	14000 (c)	0/9
Beryllium	6/9	66.6	0.15	0.16	0.17	0.33	0.237	0.0535	0.183	0.0905	0.3075	1/9	0.15 (c)	6/9
Calcium	9/9	100	--	--	3750	123000	17900	39300	17900	39300	4958.5	3/9	NA	NA
Chromium	9/9	100	--	--	4.4	12.6	8.5	2.6	8.5	2.6	11.15	2/9	1400 (c)	0/9
Cobalt	9/9	100	--	--	2.7	8.2	5.22	1.6	5.22	1.6	6.25	2/9	2.7 (c)	8/9
Copper	7/9	77.7	4.3	4.9	4.1	13.5	8.5	3.61	7.12	4.15	10.05	2/9	10000 (c)	0/9
Cyanide	2/9	22.2	0.16	0.58	0.16	5.9	3.03	4.06	0.806	1.91	0.305	1/9	5500 (c)	0/9
Iron	9/9	100	--	--	3780	13800	8350	2930	8350	2930	9581.5	3/9	NA	NA
Lead	9/9	100	--	--	7.3	21	11.2	5.21	11.2	5.21	36.9495	0/9	400 (c)	0/9
Magnesium	9/9	100	--	--	1990	4170	2950	625	2950	625	2821	5/9	NA	NA
Manganese	9/9	100	--	--	84	367	199	92.3	199	92.3	216	4/9	27000 (c)	0/9
Nickel	9/9	100	--	--	6.1	18.2	12.2	3.71	12.2	3.71	10.75	5/9	5500 (c)	0/9
Potassium	9/9	100	--	--	399	1480	815	415	815	415	1300.5	2/9	NA	NA
Selenium	1/6	16.6	0.22	0.25	0.24	0.24	0.24	--	0.137	0.0506	0.415	0/9	820 (c)	0/9
Sodium	9/9	100	--	--	44.5	838	160	256	160	256	97.4	2/9	NA	NA
Thallium	1/6	16.6	0.43	0.51	0.34	0.34	0.34	--	0.25	0.0467	0.295	1/6	19 (c)	0/6
Vanadium	9/9	100	--	--	3.4	21.2	11.9	5.22	11.9	5.22	15.3	2/9	1800 (c)	0/9
Zinc	9/9	100	--	--	25.6	83.6	45.9	18.9	45.9	18.9	111	0/9	55000 (c)	0/9

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-42

STATISTICAL ANALYSIS OF SIEVED LEAD RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Lead	9/9	100	--	--	5.1	13.6	7.64	2.83	7.64	2.83	40.7	0/9	400 (c)	0/9
Percent <250 microns	9/9	100	--	--	4.05	87.9	52.8	26.9	52.8	26.9	58.35	5/9	--	NA

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

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Table 4.1-43

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_dioxin_STATS-03/08/95-D1

Table 4.1-44

SUMMARY OF INORGANIC RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-MS003-SS-01	AL-MS004-SS-01	AL-MS005-SS-01	AL-MS006-SS-01	AL-MS007-SS-01
Aluminum	5352.5	79000 (c)	5355	3505	1959	2226	3741
Antimony	3.6	110 (c)	4.5 UJ	4.1 UJ	4.1 UJ	4.6 UJ	5.3 UJ
Arsenic	3.15	0.37 (c)	**7.7 J**	**2.7 J**	**2.2 J**	**3.3 J**	**1.6 JL**
Barium	145	14000 (c)	102	54.1	49.9	62.2	57.4
Beryllium	0.3075	0.15 (c)	**0.25**	0.15 U	0.15 U	0.16 U	**0.17**
Calcium	4958.5	NA	3903 J	3750 J	122786 J	8860 J	4428
Chromium	11.15	1400 (c)	11.3 J	7.8 J	4.4 J	7.6 J	6.4
Cobalt	6.25	2.7 (c)	**6**	**4.1**	2.7	**3.8**	**5.2**
Copper	10.05	10000 (c)	12.5	4.9 UC	4.3 UC	7.2 JH	4.9
Cyanide	0.305	5500 (c)	0.18 U	0.16 U	0.16	0.18 U	5.9
Iron	9581.5	NA	9670 J	7062 J	3777 J	5317 J	8054
Lead	36.9495	400 (c)	18.2	7.3	7.5	12	7.3
Magnesium	2821	NA	2739	2703	2347	1990	3165
Manganese	216	27000 (c)	312	133	221	84	151
Nickel	10.75	5500 (c)	13.1	9.6	6.1	9	13.6
Potassium	1300.5	NA	970	636	399	417	567
Selenium	0.415	820 (c)	0.24 U	0.22 UJ	0.22 UJ	0.24 UJ	R
Sodium	97.4	NA	72.7 JH	69.2 JH	838 J	78.3 JH	44.5
Thallium	0.295	19 (c)	0.48 UJ	0.43 UJ	0.43 U	0.47 UJ	R
Vanadium	15.3	1800 (c)	13.5	10.8	3.4	7	10.5
Zinc	111	55000 (c)	57.8 J	38.7 J	25.6 J	83.6 J	30.2

Key at end of table.

Table 4.1-44

SUMMARY OF INORGANIC RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number			
			AL-MS008-SS-01	AL-MS009-SS-01	AL-MS010-SS-01	AL-MS011-SS-01
Aluminum	5352.5	79000 (c)	4402	4185	6590	8627
Antimony	3.6	110 (c)	5.9 J	5.3 UJ	5.7 UJ	5 UJ
Arsenic	3.15	0.37 (c)	**4.3 JL**	**3.2 JL**	**2.1 JL**	**5.7 J**
Barium	145	14000 (c)	68	62.6	100	126
Beryllium	0.3075	0.15 (c)	**0.24**	**0.22**	**0.33**	**0.21**
Calcium	4958.5	NA	4518	3822	4430	4972 J
Chromium	11.15	1400 (c)	7.5	8	10.9	12.6 J
Cobalt	6.25	2.7 (c)	**5.6**	**5.1**	**6.3**	**8.2**
Copper	10.05	10000 (c)	7.4	4.1	9.9	13.5
Cyanide	0.305	5500 (c)	0.55 U	0.53 U	0.58 U	0.2 U
Iron	9581.5	NA	8849	8007	10565	13809 J
Lead	36.9495	400 (c)	7.8	7.5	12.6	21
Magnesium	2821	NA	3184	2895	3322	4171
Manganese	216	27000 (c)	170	128	229	367
Nickel	10.75	5500 (c)	13.9	10.7	15.7	18.2
Potassium	1300.5	NA	683	689	1485	1485
Selenium	0.415	820 (c)	R	R	0.24 JL	0.25 UJ
Sodium	97.4	NA	51.3	69.3	82.1	131 J
Thallium	0.295	19 (c)	R	R	0.34 JL	0.51 UJ
Vanadium	15.3	1800 (c)	11.7	12.1	17.3	21.2
Zinc	111	55000 (c)	33.3	33	50	61 J

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-45

SUMMARY OF SIEVED LEAD RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-MS003-SS-01	AL-MS004-SS-01	AL-MS005-SS-01	AL-MS006-SS-01	AL-MS007-SS-01
Lead	40.7	400 (c)	9.6	5.1	8	13.6	5.3
Percent <250 microns	58.35	--	45.6	65.5	46.6	75.1	65.1

Key at end of table.

Table 4.1-45

SUMMARY OF SIEVED LEAD RESULTS FOR MOTON SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-MS008-SS-01	AL-MS009-SS-01	AL-MS010-SS-01	AL-MS011-SS-01	
Lead	40.7	400 (c)	5.1	5.4	8.3	8.4	
Percent <250 microns	58.35	--	19.6	87.9	65.5	4.05	

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-46

SUMMARY OF DIOXIN RESULTS FOR MOTON
SCHOOL SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Sample Number	Concentration
AL-MS003-SS-01	0.0003
AL-MS004-SS-01	0.0002
AL-MS005-SS-01	0.0003
AL-MS006-SS-01	0
AL-MS007-SS-01	0.0003
AL-MS008-SS-01	0.0003
AL-MS009-SS-01	0
AL-MS010-SS-01	0
AL-MS011-SS-01	0.0002

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-47

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	5/5	100	--	--	2470	5900	4470	1480	4470	1480	5352.5	2/5	79000 (c)	0/5
Arsenic	5/5	100	--	--	5.95	37.1	19.7	12.5	19.7	12.5	3.15	5/5	0.37 (c)	5/5
Barium	5/5	100	--	--	96.7	812	502	293	502	293	145	4/5	14000 (c)	0/5
Beryllium	4/5	80	0.23	0.23	0.283	0.437	0.363	0.0793	0.314	0.131	0.3075	3/5	0.15 (c)	4/5
Cadmium	3/5	60	0.68	0.71	1.53	3.26	2.33	0.874	1.54	1.25	0.55	3/5	140 (c)	0/5
Calcium	5/5	100	--	--	6820	29100	14100	8940	14100	8940	4958.5	5/5	NA	NA
Chromium	5/5	100	--	--	7.74	75.5	40.5	28.1	40.5	28.1	11.15	4/5	1400 (c)	0/5
Cobalt	5/5	100	--	--	5.84	14.5	9.65	3.71	9.65	3.71	6.25	4/5	2.7 (c)	5/5
Copper	5/5	100	--	--	34.6	887	353	337	353	337	10.05	5/5	10000 (c)	0/5
Cyanide	2/5	40	1.1	1.18	2	2.71	2.35	0.501	1.28	1.01	0.305	2/5	5500 (c)	0/5
Iron	5/5	100	--	--	9970	104000	54700	37600	54700	37600	9581.5	5/5	NA	NA
Lead	5/5	100	--	--	92.7	3090	1170	1180	1170	1180	36.9495	5/5	400 (c)	4/5
Magnesium	5/5	100	--	--	1330	2310	1790	472	1790	472	2821	0/5	NA	NA
Manganese	5/5	100	--	--	204	969	499	304	499	304	216	4/5	27000 (c)	0/5
Mercury	3/5	60	0.113	0.118	2.11	3.37	2.81	0.641	1.71	1.57	0.06	3/5	82 (c)	0/5
Nickel	5/5	100	--	--	15.1	77	44	27.7	44	27.7	10.75	5/5	5500 (c)	0/5
Potassium	5/5	100	--	--	433	2780	1380	925	1380	925	1300.5	2/5	NA	NA
Silver	4/5	80	2.12	2.12	3.04	6.95	4.43	1.76	3.75	2.15	0.7	4/5	820 (c)	0/5
Sodium	5/5	100	--	--	121	414	233	128	233	128	97.4	5/5	NA	NA
Thallium	1/5	20	0.906	0.947	0.976	0.976	0.976	--	0.567	0.229	0.295	1/5	19 (c)	0/5
Vanadium	5/5	100	--	--	12.1	31.3	22.3	7.78	22.3	7.78	15.3	4/5	1800 (c)	0/5
Zinc	5/5	100	--	--	143	2550	1280	949	1280	949	111	5/5	55000 (c)	0/5

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.601

Table 4.1-48

STATISTICAL ANALYSIS OF SIEVED LEAD RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Lead	5/5	100	--	--	75	3280	1180	1280	1180	1280	40.7	5/5	400 (c)	3/5
Percent <250 microns	5/5	100	--	--	31.2	66.9	53	13.2	53	13.2	58.35	1/5	--	NA

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.603

Table 4.1-49

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_dioxin_STATS-03/08/95-D1

001157.605

Table 4.1-50

SUMMARY OF INORGANIC RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-PP013-SS-01	AL-PP014-SS-01	AL-PP015-SS-01	AL-PP016-SS-01	AL-PP017-SS-01
Aluminum	5352.5	79000 (c)	5900.353	4921.198	2466.138	3408.521	5642.105
Arsenic	3.15	0.37 (c)	**37.147**	**20.021**	**5.948**	**9.83**	**25.428**
Barium	145	14000 (c)	811.586	624.516	96.72	303.621	672.544
Beryllium	0.3075	0.15 (c)	**0.308**	0.23 U	**0.437**	**0.426**	**0.283**
Cadmium	0.55	140 (c)	3.264	1.532	0.68 U	0.71 U	2.189
Calcium	4958.5	NA	29099.883	8165.668	11665.006	6821.302	14855.702
Chromium	11.15	1400 (c)	75.457	36.387	7.744	20.854	62.015
Cobalt	6.25	2.7 (c)	**14.487**	**7.998**	**5.839**	**7.278**	**12.627**
Copper	10.05	10000 (c)	886.886	278.157	34.587	119.413	443.772
Cyanide	0.305	5500 (c)	1.998	2.707	1.133 U	1.183 U	1.097 U
Iron	9581.5	NA	104166.862	50016.129	9973.952	30272.189	79166.667
Lead	36.9495	400 (c)	**3085.781**	**898.848**	92.668	**401.965**	**1356.689**
Magnesium	2821	NA	2280	1549.286	1464.485	1326.13	2311.842
Manganese	216	27000 (c)	968.508	392.627	203.774	308.615	623.246
Mercury	0.06	82 (c)	3.367	2.108	0.113 U	0.118 U	2.95
Nickel	10.75	5500 (c)	77.018	36.184	15.119	22.573	69.158
Potassium	1300.5	NA	1727.709 J	1201.267 J	433.318 J	742.864 J	2783.553 J
Silver	0.7	820 (c)	2.115 U	4.32	3.037	3.401	6.945
Sodium	97.4	NA	414.242	147.924	160.618	121.162	320.219
Thallium	0.295	19 (c)	0.93999 UF	0.922 UF	0.906 UF	0.947 UF	0.976 JL
Vanadium	15.3	1800 (c)	27.669	23.581	12.118	17.058	31.287
Zinc	111	55000 (c)	2549.001 J	1399.286 J	142.673 J	584.331 J	1724.518 J

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

001157.607

Table 4.1-51

SUMMARY OF SIEVED LEAD RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-PP013-SS-01	AL-PP014-SS-01	AL-PP015-SS-01	AL-PP016-SS-01	AL-PP017-SS-01
Lead	40.7	400 (c)	**3280**	**759**	**75**	**339**	**1460**
Percent <250 microns	58.35	--	31.2	66.9	53.3	57.1	56.7

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

001157.609

Table 4.1-52

SUMMARY OF DIOXIN RESULTS FOR PRESS PARK COMMUNITY CENTER SURFACE SOIL - 0 TO 3 INCHES REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA APRIL - MAY 1994

(µg/kg)

Sample Number	Concentration
AL-PP013-SS-01	0.0866
AL-PP014-SS-01	0.0794
AL-PP015-SS-01	0.0058
AL-PP016-SS-01	0.0253
AL-PP017-SS-01	0.0155

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

Table 4.1-53

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	6/6	100	--	--	4980	25600	11100	7490	11100	7490	5352.5	5/6	79000 (c)	0/6
Antimony	1/6	16.6	8	9.1	14.3	14.3	14.3	--	5.94	4.1	3.6	1/6	110 (c)	0/6
Arsenic	6/6	100	--	--	2.5	46.9	15.2	16.3	15.2	16.3	3.15	5/6	0.37 (c)	6/6
Barium	6/6	100	--	--	140	551	328	141	328	141	145	5/6	14000 (c)	0/6
Beryllium	4/6	66.6	0.74	0.75	0.17	1.5	0.807	0.545	0.662	0.478	0.3075	3/6	0.15 (c)	4/6
Cadmium	4/6	66.6	1.2	1.3	1.7	8	4.42	2.74	3.16	2.89	0.55	4/6	140 (c)	0/6
Calcium	6/6	100	--	--	6170	44500	17300	13700	17300	13700	4958.5	6/6	NA	NA
Chromium	6/6	100	--	--	10.5	60.2	27.7	18.2	27.7	18.2	11.15	5/6	1400 (c)	0/6
Cobalt	6/6	100	--	--	6.1	13.7	9.85	2.99	9.85	2.99	6.25	5/6	2.7 (c)	6/6
Copper	6/6	100	--	--	13.6	457	137	169	137	169	10.05	6/6	10000 (c)	0/6
Cyanide	3/6	50	0.6	0.71	0.67	1.7	1.03	0.578	0.677	0.535	0.305	3/6	5500 (c)	0/6
Iron	6/6	100	--	--	13600	84400	31800	26500	31800	26500	9581.5	6/6	NA	NA
Lead	5/6	83.3	4.9	4.9	15.7	1020	435	428	363	422	36.9495	4/6	400 (c)	2/6
Magnesium	6/6	100	--	--	2350	6320	3800	1650	3800	1650	2821	4/6	NA	NA
Manganese	6/6	100	--	--	231	693	446	166	446	166	216	6/6	27000 (c)	0/6
Mercury	3/6	50	0.12	0.14	0.51	1.1	0.743	0.314	0.403	0.422	0.06	3/6	82 (c)	0/6
Nickel	6/6	100	--	--	13.4	30.2	22.6	6.53	22.6	6.53	10.75	6/6	5500 (c)	0/6
Potassium	6/6	100	--	--	721	3800	2080	1210	2080	1210	1300.5	3/6	NA	NA
Silver	1/6	16.6	1.4	1.6	3.2	3.2	3.2	--	1.17	0.997	0.7	1/6	820 (c)	0/6
Sodium	3/6	50	199	263	221	887	449	379	283	301	97.4	3/6	NA	NA
Vanadium	6/6	100	--	--	14.9	51.4	28.2	15.5	28.2	15.5	15.3	5/6	1800 (c)	0/6
Zinc	6/6	100	--	--	57.5	2060	658	746	658	746	111	4/6	55000 (c)	0/6

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.612

Table 4.1.-54

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ADJECENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Toluene	1/6	16.6	0.012	0.014	0.002	0.002	0.002	--	0.00566	0.00186	0.006	0/6	55000 (c)	0/6
Semivolatile Organic Compounds														
Acenaphthene	3/6	50	0.4	0.46	0.021	01	0.351	0.562	0.281	0.364	0.1975	1/6	16000 (c)	0/6
Acenaphthylene	1/6	16.6	0.39	0.46	0.074	0.074	0.074	--	0.188	0.0576	0.1975	0/6	27000 (c)	0/6
Anthracene	4/6	66.6	0.4	0.46	0.04	2.1	0.571	1.01	0.453	0.811	0.1975	1/6	82000 (c)	0/6
Benzo(a)anthracene	5/6	83.3	0.4	0.4	0.044	6.7	1.62	2.84	1.38	2.61	0.19	4/6	0.9 (c)	1/6
Benzo(a)pyrene	5/6	83.3	0.4	0.4	0.036	5	1.2	2.12	1.03	1.94	0.19	4/6	0.09 (c)	4/6
Benzo(b)fluoranthene	6/6	100	--	--	0.053	8.4	1.75	3.27	1.75	3.27	0.1875	4/6	0.9 (c)	2/6
Benzo(g,h,i)perylene	3/6	50	0.4	0.46	0.17	3	1.33	1.48	0.772	1.12	0.1925	2/6	1100 (c)	0/6
Bis(2-ethylhexyl)phthalate	6/6	100	--	--	0.13	2.2	0.738	0.774	0.738	0.774	0.1875	5/6	46 (c)	0/6
Butylbenzylphthalate	1/6	16.6	0.39	0.46	0.23	0.23	0.23	--	0.217	0.0157	0.195	1/6	55000 (c)	0/6
Carbazole	4/6	66.6	0.4	0.46	0.021	0.69	0.202	0.326	0.206	0.253	0.1975	1/6	32 (d)	0/6
Chrysene	6/6	100	--	--	0.041	7.8	1.57	3.06	1.57	3.06	0.19	4/6	9 (c)	0/6
Dibenz(a,h)anthracene	2/6	33.3	0.39	0.46	0.23	1.5	0.865	0.898	0.427	0.526	0.1975	2/6	0.09 (c)	2/6
Dibenzofuran	1/6	16.6	0.39	0.46	0.55	0.55	0.55	--	0.268	0.139	0.1975	1/6	--	NA
Dimethylphthalate	1/6	16.6	0.39	0.46	0.023	0.023	0.023	--	0.183	0.0797	0.1975	0/6	780000 (d)	0/6
di-n-Butyl Phthalate	3/6	50	0.39	0.46	0.037	0.062	0.0477	0.0129	0.128	0.0892	0.1975	0/6	7800 (d)	0/6
Fluoranthene	6/6	100	--	--	0.045	11	2.16	4.33	2.16	4.33	0.1825	4/6	11000 (c)	0/6
Fluorene	2/6	33.3	0.4	0.46	0.022	0.88	0.451	0.607	0.294	0.298	0.1975	1/6	11000 (c)	0/6
Indeno(1,2,3-cd)pyrene	3/6	50	0.4	0.46	0.19	3.4	1.39	1.74	0.804	1.28	0.195	2/6	0.9 (c)	1/6
2-Methylnaphthalene	2/6	33.3	0.39	0.46	0.045	1.1	0.573	0.746	0.329	0.383	0.1975	1/6	--	NA
Naphthalene	2/6	33.3	0.39	0.46	0.028	1.4	0.714	0.97	0.376	0.507	0.1975	1/6	1100 (c)	0/6
N-Nitrosodiphenylamine	1/6	16.6	0.39	0.46	0.089	0.089	0.089	--	0.191	0.0517	0.1975	0/6	130 (c)	0/6
Phenanthrene	6/6	100	--	--	0.025	9.9	1.81	3.96	1.81	3.96	0.195	4/6	7900 (c)	0/6
Pyrene	6/6	100	--	--	0.053	15	2.88	5.94	2.88	5.94	0.185	4/6	8200 (c)	0/6
Pesticides/PCBs														
Aldrin	1/6	16.6	0.002	0.012	0.00369	0.00369	0.00369	--	0.00233	0.00208	0.001225	1/6	0.038 (d)	0/6
beta-BHC	1/6	16.6	0.002	0.012	0.00429	0.00429	0.00429	--	0.00243	0.00217	0.001225	1/6	0.35 (d)	0/6
delta-BHC	1/6	16.6	0.002	0.0024	0.0204	0.0204	0.0204	--	0.0043	0.00788	0.001225	1/6	--	NA
gamma-BHC	2/6	33.3	0.0021	0.012	0.00393	0.00649	0.00521	0.00181	0.00328	0.00254	0.0011	2/6	0.49 (d)	0/6
alpha-Chlordane	2/6	33.3	0.002	0.0024	0.0278	2.4	1.21	1.67	0.405	0.977	0.0195	2/2	0.49 (d)	1/6
gamma-Chlordane	2/6	33.3	0.002	0.0024	0.045	3.9	1.97	2.72	0.658	1.58	0.01058	2/2	0.49 (d)	1/6

Key at end of table.

Table 4.1.-54

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ADJECENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
4,4'-DDD	1/6	16.6	0.0039	0.0046	0.0332	0.0332	0.0332	--	0.00729	0.0127	0.0064	1/1	2.7 (d)	0/1
4,4'-DDE	1/6	16.6	0.0039	0.0046	0.0419	0.0419	0.0419	--	0.00874	0.0162	0.115	0/1	1.9 (d)	0/1
4,4'-DDT	3/6	50	0.0039	0.0046	0.00466	0.237	0.0844	0.132	0.0432	0.095	0.119	1/3	1.9 (d)	0/3
Dieldrin	2/6	33.3	0.0039	0.0046	0.0176	0.147	0.0823	0.0915	0.0289	0.0582	0.024	1/2	0.04 (d)	1/2
Endosulfan II	1/6	16.6	0.0039	0.023	0.00485	0.00485	0.00484	--	0.0041	0.00378	0.002375	1/1	470 (d)	0/1
Endosulfan Sulfate	1/6	16.6	0.0039	0.023	0.00867	0.00867	0.00867	--	0.00474	0.00423	0.002275	1/1	--	NA
Endrin	2/6	33.3	0.0039	0.0046	0.00842	0.0502	0.0293	0.0295	0.0112	0.0193	0.003975	2/2	23 (d)	0/2
Endrin Aldehyde	1/6	16.6	0.0039	0.023	0.0126	0.0126	0.0126	--	0.00539	0.00516	0.00621	1/1	--	NA
Endrin Ketone	1/6	16.6	0.0039	0.023	0.00776	0.00776	0.00775	--	0.00459	0.00407	0.002375	1/1	--	NA
Heptachlor	1/6	16.6	0.002	0.0024	0.38	0.38	0.38	--	0.0642	0.155	0.001225	1/1	0.14 (d)	1/1
Heptachlor Epoxide	3/6	50	0.002	0.0024	0.00698	1	0.338	0.573	0.17	0.407	0.002025	3/3	0.07 (d)	1/6

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-55

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_dioxin_STATS-03/08/95-D1

Table 4.1-56

SUMMARY OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-01	AL-GL202-SS-01	AL-GL203-SS-01	AL-GL204-SS-01	AL-GL205-SS-01
Aluminum	5352.5	79000 (c)	7558	11236	6604 J	4981 J	25590 J
Antimony	3.6	110 (c)	8.3 UJ	14.3 JH	8 UJ	8.2 UJ	9.1 UJ
Arsenic	3.15	0.37 (c)	9 J	17.2 J	2.5	9.8	6.1 J
Barium	145	14000 (c)	140	551	280	353	397
Beryllium	0.3075	0.15 (c)	0.74 UC	0.83 JH	0.17	0.73	1.5
Cadmium	0.55	140 (c)	1.2 U	8	1.7	3	5
Calcium	4958.5	NA	6172	16129	14047	11510	44473
Chromium	11.15	1400 (c)	10.5 J	37 J	21.4 J	21 J	60.2 J
Cobalt	6.25	2.7 (c)	8.6	13.7	6.1	8.2	13.2
Copper	10.05	10000 (c)	13.6 J	183 J	49.4 J	94.5 J	457 J
Cyanide	0.305	5500 (c)	0.62 U	1.7	0.6 U	0.67 J	0.73
Iron	9581.5	NA	13635	84448	21045	23165	31324
Lead	36.9495	400 (c)	15.7	1020	106	733 J	300 J
Magnesium	2821	NA	3025	3107	2354	2572	5401
Manganese	216	27000 (c)	512	693	231 J	319 J	391 J
Mercury	0.06	82 (c)	0.12 U	1.1 J	0.12 U	0.51	0.62
Nickel	10.75	5500 (c)	20.7 J	30.2 J	13.4	20.8	30.2
Potassium	1300.5	NA	1291	2675	1127	721	3805
Silver	0.7	820 (c)	1.5 U	3.2	1.4 U	1.5 U	1.6 U
Sodium	97.4	NA	221	239	199 UC	263 UC	887
Vanadium	15.3	1800 (c)	17.5	42.7	14.9	15.7	51.4
Zinc	111	55000 (c)	57.5	2063	286 J	702 J	729 J

Key at end of table.

Table 4.1-56

SUMMARY OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	AL-GL206-SS-01				
Aluminum	5352.5	79000 (c)	10866 J				
Antimony	3.6	110 (c)	9.1 UJ				
Arsenic	3.15	0.37 (c)	46.9				
Barium	145	14000 (c)	248				
Beryllium	0.3075	0.15 (c)	0.75 UC				
Cadmium	0.55	140 (c)	1.3 U				
Calcium	4958.5	NA	11407				
Chromium	11.15	1400 (c)	15.9 J				
Cobalt	6.25	2.7 (c)	9.3				
Copper	10.05	10000 (c)	21.9 J				
Cyanide	0.305	5500 (c)	0.71 U				
Iron	9581.5	NA	17259				
Lead	36.9495	400 (c)	4.9 UJ				
Magnesium	2821	NA	6316				
Manganese	216	27000 (c)	533 J				
Mercury	0.06	82 (c)	0.14 U				
Nickel	10.75	5500 (c)	20.1				
Potassium	1300.5	NA	2853				
Silver	0.7	820 (c)	1.6 U				
Sodium	97.4	NA	244 UC				
Vanadium	15.3	1800 (c)	26.8				
Zinc	111	55000 (c)	108 J				

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibiiity Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-57

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-01	AL-GL202-SS-01	AL-GL203-SS-01	AL-GL204-SS-01	AL-GL205-SS-01
Volatile Organic Compounds							
Toluene	0.006	55000 (c)	0.012 U	0.014 U	0.012 UJL	0.012 U	0.002 J
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.4 U	1	0.021 J	0.41 U	0.032 J
Acenaphthylene	0.1975	27000 (c)	0.4 U	0.074 J	0.39 U	0.41 U	0.45 U
Anthracene	0.1975	82000 (c)	0.4 U	2.1	0.071 J	0.04 J	0.074 J
Benzo(a)anthracene	0.19	0.9 (c)	0.4 U	6.7 J	0.39 J	0.35 J	0.64 J
Benzo(a)pyrene	0.19	0.09 (c)	0.4 U	5 J	0.24 J	0.28 J	0.48
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.053 J	8.4 J	0.51	0.5	0.99
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.4 U	3 J	0.17 J	0.41 U	0.83
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.13 J	0.43 J	2.2 J	1 J	0.37 J
Butylbenzylphthalate	0.195	55000 (c)	0.4 U	0.45 UJL	0.39 U	0.23 J	0.45 UJL
Carbazole	0.1975	32 (d)	0.4 U	0.69	0.065 J	0.021 J	0.032 J
Chrysene	0.19	9 (c)	0.041 J	7.8 J	0.41	0.38 J	0.76 J
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.4 U	1.5 J	0.39 U	0.41 U	0.23 J
Dibenzofuran	0.1975	--	0.4 U	0.55	0.39 U	0.41 U	0.45 U
Dimethylphthalate	0.1975	780000 (d)	0.4 U	0.45 U	0.39 U	0.023 J	0.45 U
di-n-Butyl Phthalate	0.1975	7800 (d)	0.4 U	0.044 J	0.39 U	0.037 J	0.062 J
Fluoranthene	0.1825	11000 (c)	0.045 J	11	0.79	0.47	0.61
Fluorene	0.1975	11000 (c)	0.4 U	0.88	0.022 J	0.41 U	0.45 U
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.4 U	3.4 J	0.19 J	0.41 U	0.6
2-Methylnaphthalene	0.1975	--	0.4 U	1.1	0.39 U	0.41 U	0.045 J
Naphthalene	0.1975	1100 (c)	0.4 U	1.4	0.39 U	0.41 U	0.028 J
N-Nitrosodiphenylamine	0.1975	130 (c)	0.4 U	0.089 J	0.39 U	0.41 U	0.45 U
Phenanthrene	0.195	7900 (c)	0.025 J	9.9	0.43	0.2 J	0.3 J
Pyrene	0.185	8200 (c)	0.053 J	15 J	0.72	0.59	0.86 J
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0021 U	0.00369 J	0.002 U	0.0021 U	0.012 U
beta-BHC	0.001225	0.35 (d)	0.0021 U	0.00429	0.002 U	0.0021 U	0.012 U

Key at end of table.

Table 4.1-57

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-01	AL-GL202-SS-01	AL-GL203-SS-01	AL-GL204-SS-01	AL-GL205-SS-01
delta-BHC	0.001225	--	0.0021 U	0.0023 U	0.002 U	0.0021 U	0.0204 JT
gamma-BHC	0.0011	0.49 (d)	0.0021 U	0.00393 J	0.00649	0.0021 U	0.012 U
alpha-Chlordane	0.0195	0.49 (d)	0.0021 U	0.0023 U	0.002 U	0.0278	2.4
gamma-Chlordane	0.01058	0.49 (d)	0.0021 U	0.0023 U	0.002 U	0.045	3.9
4,4'-DDD	0.0064	2.7 (d)	0.004 U	0.0045 U	0.0039 U	0.0041 UJL	0.0332 J
4,4'-DDE	0.115	1.9 (d)	0.004 U	0.0045 U	0.0039 U	0.0041 U	0.0419 J
4,4'-DDT	0.119	1.9 (d)	0.004 U	0.0116 J	0.0039 U	0.00466 JL	0.237
Dieldrin	0.024	0.04 (d)	0.004 U	0.0045 U	0.0039 U	0.0176 JL	0.147 J
Endosulfan II	0.002375	470 (d)	0.004 U	0.00485 J	0.0039 U	0.0041 UJL	0.023 U
Endosulfan Sulfate	0.002275	--	0.004 U	0.00867 J	0.0039 U	0.0041 UJL	0.023 U
Endrin	0.003975	23 (d)	0.004 U	0.00842 J	0.0039 U	0.0041 UJL	0.0502 J
Endrin Aldehyde	0.00621	--	0.004 U	0.0126 J	0.0039 U	0.0041 UJL	0.023 U
Endrin Ketone	0.002375	--	0.004 U	0.00776 J	0.0039 U	0.0041 UJL	0.023 U
Heptachlor	0.001225	0.14 (d)	0.0021 U	0.0023 U	0.002 U	0.0021 U	0.38 J
Heptachlor Epoxide	0.002025	0.07 (d)	0.0021 U	0.00698	0.002 U	0.008	1

Key at end of table.

Table 4.1-57

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL206-SS-01				
Volatile Organic Compounds							
Toluene	0.006	55000 (c)	0.014 U				
Semivolatile Organic Compounds							
Acenaphthene	0.1975	16000 (c)	0.46 U				
Acenaphthylene	0.1975	27000 (c)	0.46 U				
Anthracene	0.1975	82000 (c)	0.46 U				
Benzo(a)anthracene	0.19	0.9 (c)	0.044 J				
Benzo(a)pyrene	0.19	0.09 (c)	0.036 J				
Benzo(b)fluoranthene	0.1875	0.9 (c)	0.079 J				
Benzo(g,h,i)perylene	0.1925	1100 (c)	0.46 U				
Bis(2-ethylhexyl)phthalate	0.1875	46 (c)	0.3 J				
Butylbenzylphthalate	0.195	55000 (c)	0.46 U				
Carbazole	0.1975	32 (d)	0.46 U				
Chrysene	0.19	9 (c)	0.056 J				
Dibenz(a,h)anthracene	0.1975	0.09 (c)	0.46 U				
Dibenzofuran	0.1975	--	0.46 U				
Dimethylphthalate	0.1975	780000 (d)	0.46 U				
di-n-Butyl Phthalate	0.1975	7800 (d)	0.46 U				
Fluoranthene	0.1825	11000 (c)	0.084 J				
Fluorene	0.1975	11000 (c)	0.46 U				
Indeno(1,2,3-cd)pyrene	0.195	0.9 (c)	0.46 U				
2-Methylnaphthalene	0.1975	--	0.46 U				
Naphthalene	0.1975	1100 (c)	0.46 U				
N-Nitrosodiphenylamine	0.1975	130 (c)	0.46 U				
Phenanthrene	0.195	7900 (c)	0.035 J				
Pyrene	0.185	8200 (c)	0.1 J				
Pesticides/PCBs							
Aldrin	0.001225	0.038 (d)	0.0024 U				
beta-BHC	0.001225	0.35 (d)	0.0024 U				

Key at end of table.

Table 4.1-57

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL206-SS-01				
delta-BHC	0.001225	--	0.0024 U				
gamma-BHC	0.0011	0.49 (d)	0.0024 U				
alpha-Chlordane	0.0195	0.49 (d)	0.0024 U				
gamma-Chlordane	0.01058	0.49 (d)	0.0024 U				
4,4'-DDD	0.0064	2.7 (d)	0.0046 U				
4,4'-DDE	0.115	1.9 (d)	0.0046 U				
4,4'-DDT	0.119	1.9 (d)	0.0046 U				
Dieldrin	0.024	0.04 (d)	0.0046 U				
Endosulfan II	0.002375	470 (d)	0.0046 U				
Endosulfan Sulfate	0.002275	--	0.0046 U				
Endrin	0.003975	23 (d)	0.0046 U				
Endrin Aldehyde	0.00621	--	0.0046 U				
Endrin Ketone	0.002375	--	0.0046 U				
Heptachlor	0.001225	0.14 (d)	0.0024 U				
Heptachlor Epoxide	0.002025	0.07 (d)	0.0024 U				

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-58

SUMMARY OF DIOXIN RESULTS FOR ADJACENT
OFF-SITE SURFACE SOIL - 0 TO 3 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Sample Number	Concentration
AL-GL201-SS-01	0
AL-GL202-SS-01	0
AL-GL203-SS-01	0
AL-GL204-SS-01	0
AL-GL205-SS-01	0
AL-GL206-SS-01	0

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.

00157.626

Table 4.1-59

STATISTICAL ANALYSIS OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Aluminum	6/6	100	--	--	5490	19900	12700	5970	12700	5970	17482	2/6	79000 (c)	0/6
Arsenic	6/6	100	--	--	5.5	18.1	8.95	4.72	8.95	4.72	7.15	4/6	0.37 (c)	6/6
Barium	6/6	100	--	--	123	384	270	107	270	107	190.5	4/6	14000 (c)	0/6
Beryllium	3/6	50	0.69	01	0.57	0.99	0.84	0.234	0.632	0.276	0.68	2/6	0.15 (c)	3/6
Cadmium	3/6	50	1.1	1.7	2.4	5.2	3.5	1.49	2.09	1.81	0.825	3/6	140 (c)	0/6
Calcium	6/6	100	--	--	11800	22600	15700	4440	15700	4440	4198	6/6	NA	NA
Chromium	6/6	100	--	--	11.1	126	39.2	43.7	39.2	43.7	20.75	3/6	1400 (c)	0/6
Cobalt	6/6	100	--	--	6.5	12.2	9.72	1.92	9.72	1.92	8.35	5/6	2.7 (c)	6/6
Copper	6/6	100	--	--	18.9	188	72.4	64.8	72.4	64.8	26.25	4/6	10000 (c)	0/6
Cyanide	1/6	16.6	0.56	0.88	0.86	0.86	0.86	--	0.442	0.211	0.4	1/6	5500 (c)	0/6
Iron	6/6	100	--	--	10800	53000	26800	15800	26800	15800	18507	4/6	NA	NA
Lead	6/6	100	--	--	13.5	724	250	279	250	279	21.3	5/6	400 (c)	2/6
Magnesium	6/6	100	--	--	2620	7230	4460	1670	4460	1670	4370.5	3/6	NA	NA
Manganese	6/6	100	--	--	250	716	397	173	397	173	84.85	6/6	27000 (c)	0/6
Mercury	4/6	66.6	0.11	0.13	0.35	1.2	0.637	0.386	0.445	0.422	0.0875	4/6	82 (c)	0/6
Nickel	6/6	100	--	--	16.3	29	24.1	4.95	24.1	4.95	21.2	4/6	5500 (c)	0/6
Potassium	6/6	100	--	--	635	3240	2070	983	2070	983	2486.5	2/6	NA	NA
Selenium	1/6	16.6	0.77	1.2	3.7	3.7	3.7	--	1.01	1.32	0.67	1/6	820 (c)	0/6
Sodium	2/6	33.3	194	483	339	637	488	211	264	203	144	2/6	NA	NA
Vanadium	6/6	100	--	--	15.7	45.6	30.9	11.5	30.9	11.5	36.3	3/6	1800 (c)	0/6
Zinc	6/6	100	--	--	67.8	1460	562	521	562	521	77.5	5/6	55000 (c)	0/6

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

001157.628

Table 4.1-60

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Background (a)		TBC (b)	
											Value	FOE	Value	FOE
Volatile Organic Compounds														
Toluene	2/6	33.3	0.012	0.016	0.001	0.003	0.002	0.00141	0.0055	0.00288	0.008	0/6	55000 (c)	0/6
Semivolatile Organic Compounds														
Acenaphthene	2/6	33.3	0.37	0.52	0.045	0.06	0.0525	0.0106	0.164	0.0902	0.265	0/6	16000 (c)	0/6
Acenaphthylene	1/6	16.6	0.37	0.52	0.024	0.024	0.024	--	0.194	0.0884	0.265	0/6	27000 (c)	0/6
Anthracene	4/6	66.6	0.41	0.52	0.021	0.22	0.107	0.0877	0.149	0.0954	0.265	0/6	82000 (c)	0/6
Benzo(a)anthracene	5/6	83.3	0.41	0.41	0.16	1.5	0.556	0.556	0.497	0.518	0.265	3/6	0.9 (c)	1/6
Benzo(a)pyrene	5/6	83.3	0.41	0.41	0.11	1.4	0.44	0.545	0.401	0.497	0.265	2/6	0.09 (c)	5/6
Benzo(b)fluoranthene	5/6	83.3	0.41	0.41	0.24	3	0.95	1.16	0.826	1.08	0.265	3/6	0.9 (c)	1/6
Benzo(g,h,i)perylene	5/6	83.3	0.41	0.41	0.096	0.92	0.331	0.337	0.31	0.305	0.265	2/6	1100 (c)	0/6
Bis(2-ethylhexyl)phthalate	6/6	100	--	--	0.038	0.37	0.201	0.121	0.201	0.121	0.26	2/6	46 (c)	0/6
Carbazole	3/6	50	0.37	0.52	0.028	0.14	0.0807	0.0563	0.149	0.0861	0.265	0/6	32 (d)	0/6
Chrysene	5/6	83.3	0.41	0.41	0.2	1.7	0.642	0.624	0.569	0.586	0.265	3/6	9 (c)	0/6
Dibenz(a,h)anthracene	1/6	16.6	0.37	0.52	0.35	0.35	0.35	--	0.248	0.058	0.265	1/6	0.09 (c)	1/6
Dibenzofuran	1/6	16.6	0.37	0.52	0.029	0.029	0.029	--	0.195	0.0865	0.265	0/6	--	NA
Dimethylphthalate	1/6	16.6	0.37	0.52	0.035	0.035	0.035	--	0.188	0.0789	0.265	0/6	780000 (d)	0/6
di-n-Butyl Phthalate	3/6	50	0.37	0.46	0.043	0.082	0.061	0.0197	0.134	0.082	0.265	0/6	7800 (d)	0/6
Fluoranthene	5/6	83.3	0.41	0.41	0.14	1.6	0.73	0.608	0.642	0.585	0.2775	4/6	11000 (c)	0/6
Fluorene	2/6	33.3	0.37	0.52	0.049	0.064	0.0565	0.0106	0.166	0.0882	0.265	0/6	11000 (c)	0/6
Indeno(1,2,3-cd)pyrene	5/6	83.3	0.41	0.41	0.09	01	0.342	0.376	0.319	0.341	0.265	2/6	0.9 (c)	1/6
Phenanthrene	5/6	83.3	0.41	0.41	0.037	1.3	0.513	0.514	0.462	0.476	0.2775	3/6	7900 (c)	0/6
Pyrene	5/6	83.3	0.41	0.41	0.26	3.3	1.19	1.25	1.03	1.19	0.2725	4/6	8200 (c)	0/6
Pesticides/PCBs														
delta-BHC	1/6	16.6	0.0019	0.054	0.00219	0.00219	0.00219	--	0.00562	0.0105	0.001175	1/6	--	NA
gamma-BHC	4/6	66.6	0.0021	0.054	0.00414	0.0077	0.00516	0.00169	0.00812	0.00948	0.001325	4/6	0.49 (d)	0/6
alpha-Chlordane	3/6	50	0.0019	0.0027	0.00676	3.4	1.14	1.95	0.572	1.38	0.001175	3/6	0.49 (d)	1/6
gamma-Chlordane	3/6	50	0.0019	0.0027	0.00732	5.7	1.9	3.28	0.955	2.32	0.001325	3/6	0.49 (d)	1/6
4,4'-DDD	1/6	16.6	0.0037	0.1	0.00488	0.00488	0.00487	--	0.0106	0.0193	0.002775	1/6	2.7 (d)	0/6
4,4'-DDE	3/6	50	0.0037	0.0052	0.00843	0.147	0.0575	0.0776	0.0298	0.0577	0.01065	2/6	1.9 (d)	0/6
4,4'-DDT	4/6	66.6	0.0037	0.0041	0.0053	0.457	0.128	0.219	0.0863	0.182	0.002875	4/6	1.9 (d)	0/6
Dieldrin	3/6	50	0.0037	0.0052	0.00724	0.22	0.082	0.12	0.0421	0.0874	0.002275	3/6	0.04 (d)	1/6
Endosulfan I	1/6	16.6	0.0019	0.0027	0.0539	0.0539	0.0539	--	0.00992	0.0215	0.00135	1/6	470 (d)	0/6
Endosulfan Sulfate	1/6	16.6	0.0037	0.1	0.0193	0.0193	0.0193	--	0.013	0.0194	0.002475	1/6	--	NA

Key at end of table.

Table 4.1-60

STATISTICAL ANALYSIS OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

											Background (a)		TBC (b)	
Analyte	FOD	% Det	Min DL	Max DL	Min Det	Max Det	Mean Det	St Dev Det	Mean All	St Dev All	Value	FOE	Value	FOE
Endrin Aldehyde	2/6	33.3	0.0037	0.1	0.00665	0.0238	0.0152	0.0121	0.0145	0.0193	0.002575	2/6	--	NA
Heptachlor	1/6	16.6	0.0019	0.0027	0.745	0.745	0.745	--	0.125	0.304	0.001325	1/6	0.14 (d)	1/6
Heptachlor Epoxide	2/6	33.3	0.0019	0.0027	0.00251	1.8	0.901	1.27	0.301	0.734	0.00125	2/6	0.07 (d)	1/6
Methoxychlor	2/6	33.3	0.019	0.54	0.0239	0.0274	0.0256	0.00247	0.0587	0.104	0.0135	2/6	390 (d)	0/6

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX DET = Maximum detected concentration.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN DET = Mean concentration using only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN DET = Minimum detected concentration.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which the analyte was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV DET = Standard deviation associated with the MEAN DET concentration.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007_KEY_SOIL_STATS-03/08/95-D1

Table 4.1-61

STATISTICAL ANALYSIS OF DIOXIN RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(µg/kg)

Source Area	Number of Samples	Min Det	Max Det	Mean Det	St Dev Det	Background (a)		TBC (b)	
						Value	FOE	Value	FOE
Adjacent Off-site - 0 to 3 inches	6	0	0	0	0	0.00055	0/6	0.0041	0/6
Adjacent Off-site - 0 to 24 inches	6	0	0.01	0.00167	0.00408	0. 000055	1/6	0.0041	1/6
Almonaster/Higgins Borings - 0 to 5 feet	3	0	0	0	0	0.00006	0/3	0.0041	0/3
Background Residences - 0 to 3 inches	20	0	0.0174	0.00283	0.00445	0.00055	NA	0.0041	4/20
Background Residences - 1.5 to 2.5 feet	10	0	0.0177	0.00185	0.00557	0.000055	NA	0.0041	1/10
Background Residences - 4.5 to 5.5 feet	10	0	0.0004	0.000063	0.000125	0	NA	0.0041	0/10
Florida Avenue Canal Background Sediment	2	0	0	0	0	0	NA	0.0041	0/2
Florida Avenue Canal Sediment	4	0	0.1	0.05	0.00577	0	2/4	0.0041	2/4
Moton School - 0 to 3 inches	9	0	0.0003	0.000178	0.000139	0.00055	0/9	0.0041	0/9
Moton School - 1.5 to 2.5 feet	4	0	0.0003	0.000125	0.000126	0. 000055	3/4	0.0041	0/4
Moton School - 4.5 to 5.5 feet	4	0.0003	0.2317	0.0765	0.105	0	4/4	0.0041	3/4
On-site Monitoring Well - 0 to 2 feet	1	0	0	0	0	0.00006	0/1	0.0041	0/1
On-site Monitoring Wells - 2 to 5 feet	7	0	0.15	0.0717	0.0521	0.00006	6/7	0.0041	6/7
On-site Monitoring Wells - 5 to 10 feet	8	0	0.09	0.0144	0.0309	0.00006	4/8	0.0041	4/8
On-site Monitoring Wells - 10 to 22.5 feet	8	0	0.0001	0.0000175	0.0000362	0.00006	1/8	0.0041	0/8
Open Land Background - 0 to 3 inches	10	0	0.0071	0.00232	0.00273	0.00135	NA	0.0041	3/10
Open Land Background - 1.5 to 2.5 feet	10	0	0.00899	0.00113	0.0028	0.00006	NA	0.0041	1/10
Open Land Background - 4.5 to 5.5 feet	10	0	0.0024	0.000422	0.000816	0.00006	NA	0.0041	0/10
Peoples Avenue Canal Background Sediment	2	0.0133	0.0143	0.0138	0.000707	0.0138	NA	0.0041	2/2
Peoples Avenue Canal Sediment	2	0.0038	0.0246	0.0142	0.0147	0.0138	1/2	0.0041	1/2
Press Park Community Center - 0 to 3 inches	5	0.0058	0.0866	0.0425	0.0377	0.00055	5/5	0.0041	5/5
Study Group Residences - 1.5 to 2.5 feet	33	0	0.52569	0.125	0.123	0. 000055	31/33	0.0041	30/33
Study Group Residences - 4.5 to 5.5 feet	33	0	0.3553	0.0841	0.0773	0	31/33	0.0041	29/33
Test Pits - 4 feet	3	0	0.04	0.02	0.02	0.00006	2/3	0.0041	2/3
Test Pits - 6 to 9 feet	5	0	0.03	0.014	0.0152	0.00006	3/5	0.0041	3/5
Test Pits - 13 to 15 feet	2	0	0	0	0	0.00006	0/2	0.0041	0/2
Undeveloped Landfill Grid - 0 to 3 inches	24	0.0007	0.309	0.0464	0.0743	0.00135	20/24	0.0041	16/24
Undeveloped Landfill Grid - 0 to 24 inches	18	0	0.3304	0.0544	0.0844	0.00006	13/18	0.0041	12/18

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = See Section 4.1.3 concerning the determination of median background concentrations for surface soils and Section 4.2.1 concerning the determination of median background concentrations for subsurface samples.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 Risk-Based Concentration (RBC).
d = EPA Region 3 RBC.
FOD = Frequency of detection.
FOE = Frequency of exceedance.
MAX TEF = Maximum detected toxicity equivalency factor.
MEAN ALL = Mean concentration for all samples using half the detection limit as the concentration for samples in which the analyte was not detected.
MEAN TEF = Mean toxicity equivalency factorusing only those samples in which the analyte was detected.
mg/kg = Milligrams per kilogram.
MIN TEF = Minimum detected toxicity equivalency factor.
MAX DL = Maximum detection limit for samples in which the analyte was not detected.
MIN DL = Minimum detection limit for samples in which the analyte was not detected.
NA = Not applicable.
% DET = Percentage of total samples in which dioxin was detected.
ST DEV ALL = Standard deviation associated with the MEAN ALL concentration.
ST DEV TEF = Standard deviation associated with the MEAN toxicity equivalency factor.

Source: Ecology and Environment, Inc., 1995.

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Table 4.1-62

SUMMARY OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-02	AL-GL202-SS-02	AL-GL203-SS-02	AL-GL204-SS-02	AL-GL205-SS-02
Aluminum	17482	79000 (c)	13743	19900 J	5486 J	8422 J	19328 J
Arsenic	7.15	0.37 (c)	5.8 J	9.7	5.5	18.1	7.4
Barium	190.5	14000 (c)	236	364	123	336	384
Beryllium	0.68	0.15 (c)	0.99 JH	0.96	0.57	0.68999 UC	1 UC
Cadmium	0.825	140 (c)	2.4	5.2	1.1 U	2.9	1.7 U
Calcium	4198	NA	12205	11772	12234	18950	22620
Chromium	20.75	1400 (c)	18.1 J	37.1 J	11.1 J	30.1 J	126 J
Cobalt	8.35	2.7 (c)	8.8	10.6	6.5	10	10.2
Copper	26.25	10000 (c)	36.3 J	99.5 J	18.9 J	188 J	71.8 J
Cyanide	0.4	5500 (c)	0.74 U	0.74 U	0.56 U	0.86	0.88 U
Iron	18507	NA	17262	52978	10819	38763	21486
Lead	21.3	400 (c)	113	453 J	58.5 J	724 J	137 J
Magnesium	4370.5	NA	3843	5289	3158	2615	4595
Manganese	84.85	27000 (c)	250	445 J	252 J	351 J	368 J
Mercury	0.0875	82 (c)	0.35 J	0.43	0.11 U	0.57	1.2
Nickel	21.2	5500 (c)	19.6 J	29	16.3	26.3	26.9
Potassium	2486.5	NA	2204	3237	635	1208	2854
Selenium	0.67	820 (c)	1 UJ	3.7 J	0.77 UJ	0.85 UJ	1.2 UJ
Sodium	144	NA	339	274 UC	194 UC	270 UC	483 UC
Vanadium	36.3	1800 (c)	36.9	39.8	15.7	24	45.6
Zinc	77.5	55000 (c)	522	1463 J	118 J	822 J	381 J

Key at end of table.

Table 4.1-62

SUMMARY OF INORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL206-SS-02				
Aluminum	17482	79000 (c)	9370 J				
Arsenic	7.15	0.37 (c)	7.2				
Barium	190.5	14000 (c)	177				
Beryllium	0.68	0.15 (c)	0.86 UC				
Cadmium	0.825	140 (c)	1.3 U				
Calcium	4198	NA	16325				
Chromium	20.75	1400 (c)	12.8 J				
Cobalt	8.35	2.7 (c)	12.2				
Copper	26.25	10000 (c)	20 J				
Cyanide	0.4	5500 (c)	0.67 U				
Iron	18507	NA	19568				
Lead	21.3	400 (c)	13.5 J				
Magnesium	4370.5	NA	7234				
Manganese	84.85	27000 (c)	716 J				
Mercury	0.0875	82 (c)	0.13 U				
Nickel	21.2	5500 (c)	26.3				
Potassium	2486.5	NA	2254				
Selenium	0.67	820 (c)	0.92 UJ				
Sodium	144	NA	637				
Vanadium	36.3	1800 (c)	23.6				
Zinc	77.5	55000 (c)	67.8 J				

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-63

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-02	AL-GL202-SS-02	AL-GL203-SS-02	AL-GL204-SS-02	AL-GL205-SS-02
Volatile Organic Compounds							
Toluene	0.008	55000 (c)	0.014 U	0.016 UJL	0.001 J	0.003 J	0.016 U
Semivolatile Organic Compounds							
Acenaphthene	0.265	16000 (c)	0.46 U	0.045 J	0.37 U	0.06 J	0.52 U
Acenaphthylene	0.265	27000 (c)	0.46 U	0.52 U	0.37 U	0.024 J	0.52 U
Anthracene	0.265	82000 (c)	0.058 J	0.13 J	0.021 J	0.22 J	0.52 U
Benzo(a)anthracene	0.265	0.9 (c)	0.36 J	0.59	0.16 J	1.5 J	0.17 J
Benzo(a)pyrene	0.265	0.09 (c)	**0.24 J**	0.34 J	**0.11 J**	1.4 J	**0.11 J**
Benzo(b)fluoranthene	0.265	0.9 (c)	0.45 J	0.8	0.24 J	3 J	0.26 J
Benzo(g,h,i)perylene	0.265	1100 (c)	0.19 J	0.29 J	0.096 J	0.92 J	0.16 J
Bis(2-ethylhexyl)phthalate	0.26	46 (c)	0.37 J	0.16 J	0.13 J	0.31 J	0.2 J
Carbazole	0.265	32 (d)	0.028 J	0.074 J	0.37 U	0.14 J	0.52 U
Chrysene	0.265	9 (c)	0.41 J	0.69	0.2 J	1.7 J	0.21 J
Dibenz(a,h)anthracene	0.265	0.09 (c)	0.46 U	0.52 U	0.37 U	0.35 J	0.52 U
Dibenzofuran	0.265	--	0.46 U	0.52 U	0.37 U	0.029 J	0.52 U
Dimethylphthalate	0.265	780000 (d)	0.46 U	0.52 U	0.37 U	0.42 U	0.035 J
di-n-Butyl Phthalate	0.265	7800 (d)	0.46 U	0.058 J	0.37 U	0.043 J	0.082 J
Fluoranthene	0.2775	11000 (c)	0.52	1.1	0.29 J	1.6	0.14 J
Fluorene	0.265	11000 (c)	0.46 U	0.049 J	0.37 U	0.064 J	0.52 U
Indeno(1,2,3-cd)pyrene	0.265	0.9 (c)	0.21 J	0.29 J	0.09 J	1 J	0.12 J
Phenanthrene	0.2775	7900 (c)	0.33 J	0.74	0.16 J	1.3	0.037 J
Pyrene	0.2725	8200 (c)	0.65	1.4	0.38	3.3 J	0.26 J
Pesticides/PCBs							
delta-BHC	0.001175	--	0.0024 U	0.0027 U	0.0019 U	0.00219 J	0.054 U
gamma-BHC	0.001325	0.49 (d)	0.0077	0.0046 J	0.00424 J	0.00414 J	0.054 U
alpha-Chlordane	0.001175	0.49 (d)	0.00676 J	0.0027 U	0.0019 U	0.0202	3.4
gamma-Chlordane	0.001325	0.49 (d)	0.00732 J	0.0027 U	0.0019 U	0.0199	5.7
4,4'-DDD	0.002775	2.7 (d)	0.0046 U	0.0052 U	0.0037 U	0.00488 J	0.1 U
4,4'-DDE	0.01065	1.9 (d)	0.00843	0.0052 U	0.0037 U	0.017	0.147

Key at end of table.

Table 4.1-63

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL201-SS-02	AL-GL202-SS-02	AL-GL203-SS-02	AL-GL204-SS-02	AL-GL205-SS-02
4,4'-DDT	0.002875	1.9 (d)	0.0152 J	0.0053 J	0.0037 U	0.0364 J	0.457 J
Dieldrin	0.002275	0.04 (d)	0.00724	0.0052 U	0.0037 U	0.0187	0.22 J
Endosulfan I	0.00135	470 (d)	0.0024 U	0.0027 U	0.0019 U	0.0022 U	0.0539 J
Endosulfan Sulfate	0.002475	--	0.0193	0.0052 U	0.0037 U	0.0042 U	0.1 U
Endrin Aldehyde	0.002575	--	0.0238 J	0.0052 U	0.0037 U	0.00665 JT	0.1 U
Heptachlor	0.001325	0.14 (d)	0.0024 U	0.0027 U	0.0019 U	0.0022 U	0.745
Heptachlor Epoxide	0.00125	0.07 (d)	0.00251 J	0.0027 U	0.0019 U	0.0022 U	1.8
Methoxychlor	0.0135	390 (d)	0.0239	0.0274 J	0.019 U	0.022 U	0.54 U

Key at end of table.

Table 4.1-63

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL206-SS-02				
Volatile Organic Compounds							
Toluene	0.008	55000 (c)	0.012 U				
Semivolatile Organic Compounds							
Acenaphthene	0.265	16000 (c)	0.41 U				
Acenaphthylene	0.265	27000 (c)	0.41 U				
Anthracene	0.265	82000 (c)	0.41 U				
Benzo(a)anthracene	0.265	0.9 (c)	0.41 U				
Benzo(a)pyrene	0.265	0.09 (c)	0.41 U				
Benzo(b)fluoranthene	0.265	0.9 (c)	0.41 U				
Benzo(g,h,i)perylene	0.265	1100 (c)	0.41 U				
Bis(2-ethylhexyl)phthalate	0.26	46 (c)	0.038 J				
Carbazole	0.265	32 (d)	0.41 U				
Chrysene	0.265	9 (c)	0.41 U				
Dibenz(a,h)anthracene	0.265	0.09 (c)	0.41 U				
Dibenzofuran	0.265	--	0.41 U				
Dimethylphthalate	0.265	780000 (d)	0.41 U				
di-n-Butyl Phthalate	0.265	7800 (d)	0.41 U				
Fluoranthene	0.2775	11000 (c)	0.41 U				
Fluorene	0.265	11000 (c)	0.41 U				
Indeno(1,2,3-cd)pyrene	0.265	0.9 (c)	0.41 U				
Phenanthrene	0.2775	7900 (c)	0.41 U				
Pyrene	0.2725	8200 (c)	0.41 U				
Pesticides/PCBs							
delta-BHC	0.001175	--	0.0021 U				
gamma-BHC	0.001325	--	0.0021 U				
alpha-Chlordane	0.001175	--	0.0021 U				
gamma-Chlordane	0.001325	--	0.0021 U				
4,4'-DDD	0.002775	2.7 (d)	0.0041 U				
4,4'-DDE	0.01065	1.9 (d)	0.0041 U				

Key at end of table.

Table 4.1-63

SUMMARY OF ORGANIC RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES
REMEDIAL REMOVAL INTEGRATED INVESTIGATION
AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA
APRIL - MAY 1994
(mg/kg, dry weight)

Analyte	Background Concentration (a)	TBC (b)	Sample Number				
			AL-GL206-SS-02				
4,4'-DDT	0.002875	1.9 (d)	0.0041 U				
Dieldrin	0.002275	0.04 (d)	0.0041 U				
Endosulfan I	0.00135	470 (d)	0.0021 U				
Endosulfan Sulfate	0.002475	--	0.0041 U				
Endrin Aldehyde	0.002575	--	0.0041 U				
Heptachlor	0.001325	0.14 (d)	0.0021 U				
Heptachlor Epoxide	0.00125	--	0.0021 U				
Methoxychlor	0.0135	390 (d)	0.021 U				

Key at end of table.

Note:

The to be considered (TBC) value for alpha-chlordane and gamma-chlordane (0.49 mg/kg) is designated for total chlordane, not individual isomers. The TBC criteria were not exceeded in any sample based on the sum of detected isomer concentrations.

Key:

a = Sample concentrations above background levels are shaded. See Sections 4.1.3 and 4.2.1 concerning the determination of median background concentrations for surface and subsurface soil.
b = TBC criteria are provided herein only as a reference against which to compare on-site contaminant concentrations. Sample concentrations exceeding TBC criteria appear in boldface type. Remedial action objectives (RAOs) for site-specific contaminants of concern (COCs) are provided in the Feasibility Study (FS).
c = United States Environmental Protection Agency (EPA) Region 6 risked-based concentration (RBC).
d = EPA Region 3 RBC.
B = Sample result might be biased high due to laboratory or field contamination, but is usable for evaluating site-related contamination. The reported result is above five or ten times concentration in method or field blank.
H = Sample result is biased high due to interference, background contamination, or high spike recovery, but usable for evaluating site-related contamination.
J = Sample result is estimated with unknown bias due to calibration or quality control problems, but is usable for evaluating site-related contamination. This flag is also used if reported results are below the method detection limit, but above the instrument detection limit.
L = Sample result is biased low due to low spike recovery, but usable for evaluating site-related contamination.
mg/kg = Milligrams per kilogram.
N = Qualitative identification of result is questionable due to lack of confirmatory evidence, but data are usable for evaluating site-related contamination.
NA = Not applicable.
R = Sample results are rejected and data are unusable.
T = Qualitative identification of result is questionable due to absence of other commonly co-occurring pesticides, but data are usable for evaluating site-related contamination.
U = Parameter is undetected at reported quantitation limit. For organics, indicates that result is less than five times result in method, rinsate, or trip blank and is attributable to background contamination. For common laboratory contaminants (e.g., methylene chloride, 2-butanone, and bis-2-ethylhexy-phthalate), result is flagged if it is less than 10 times the method blank result.
UC = Parameter is undetected at reported quantitation limit. For inorganics, indicates that result is less than five times result in method or field blank and attributable to background contamination.

Source: Ecology and Environment, Inc., 1995.

06:WPUZD:ZT2061_DFW1007-KEY_SOILS_RESULTS-03/08/95-D1

Table 4.1-64

SUMMARY OF DIOXIN RESULTS FOR ADJACENT OFF-SITE SURFACE SOIL - 0 TO 24 INCHES REMEDIAL REMOVAL INTEGRATED INVESTIGATION AGRICULTURE STREET LANDFILL, NEW ORLEANS, LOUISIANA APRIL - MAY 1994

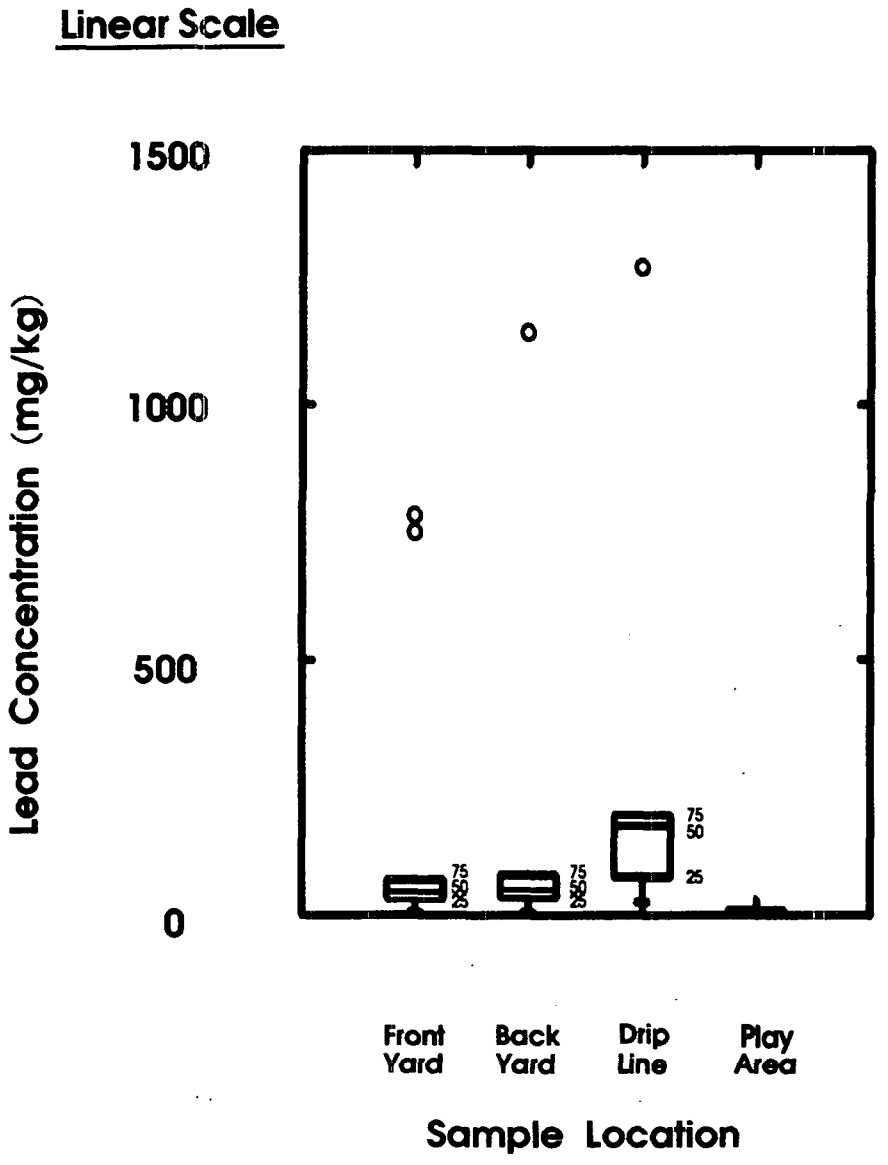
(µg/kg)

Sample Number	Concentration
AL-GL201-SS-02	0
AL-GL202-SS-02	0
AL-GL203-SS-02	0
AL-GL204-SS-02	0.01
AL-GL205-SS-02	0
AL-GL206-SS-02	0

Key:

ug/kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 1994.



KEY

25=25th percentile concentration

50=50th percentile concentration

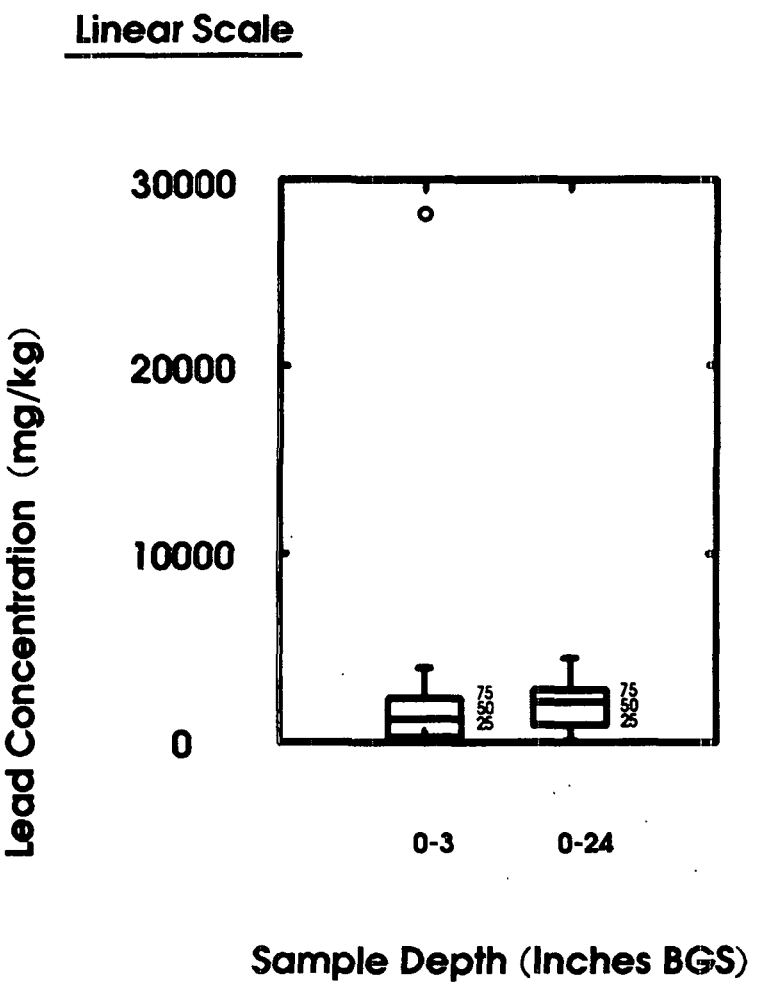
75=75th percentile concentration

o = Outside value is > ± 3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-1 LEAD CONCENTRATIONS VS. LOCATION AT BACKGROUND RESIDENCES: 0- TO 3-INCH INTERVAL AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

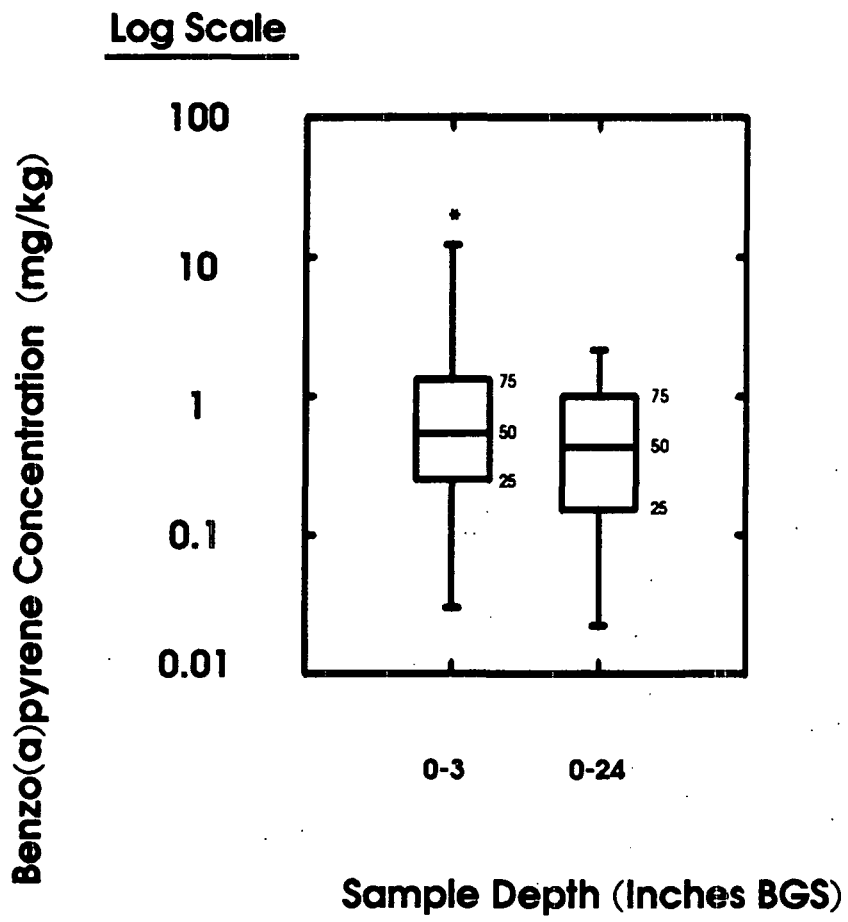
75=75th percentile concentration

o= Outside value is > ± 3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-2 LEAD CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL ON THE UNDEVELOPED LANDFILL GRID AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

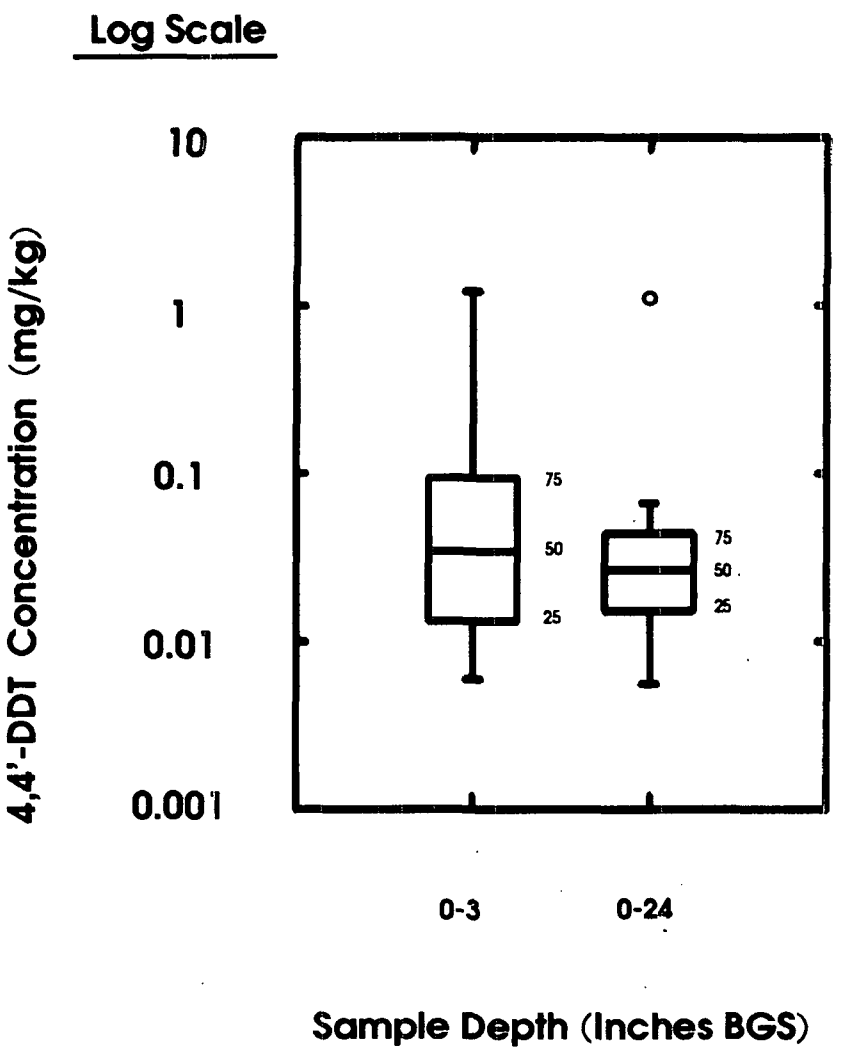
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-3 BENZO(a)PYRENE CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL ON THE UNDEVELOPED LANDFILL GRID AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

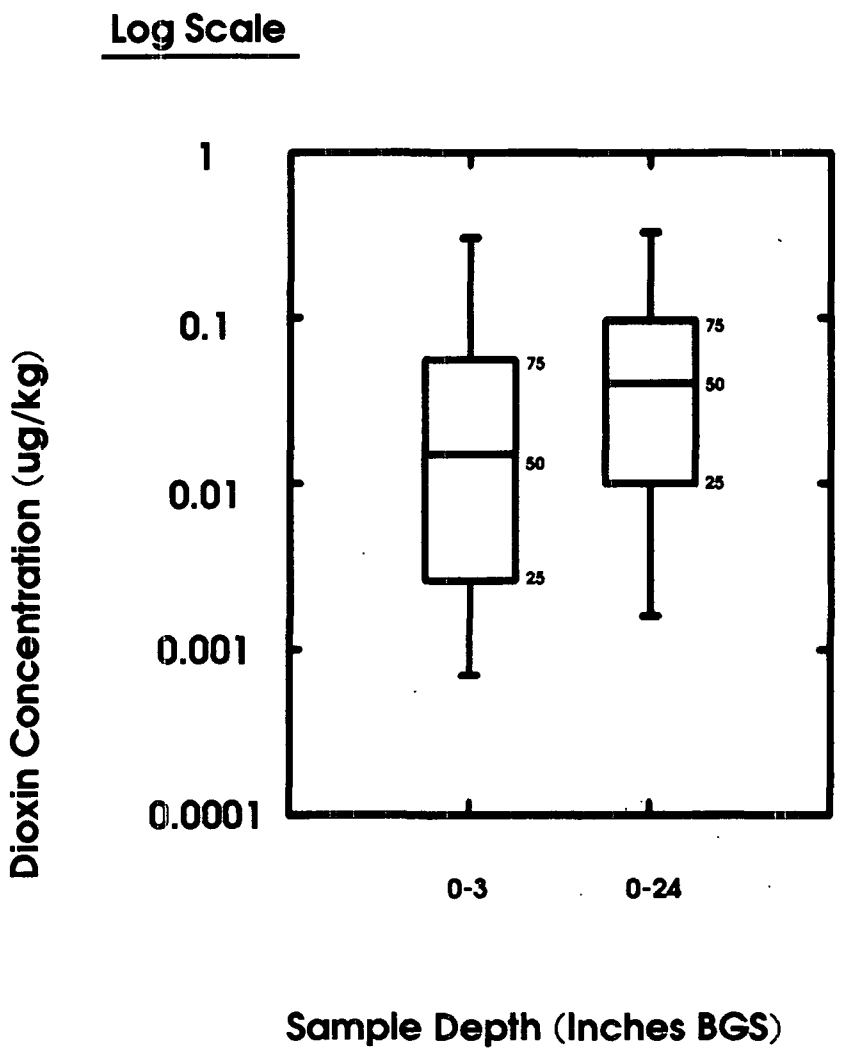
75=75th percentile concentration

o = Outside value is > ± 3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-4 4,4'-DDT CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL ON THE UNDEVELOPED LANDFILL GRID AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

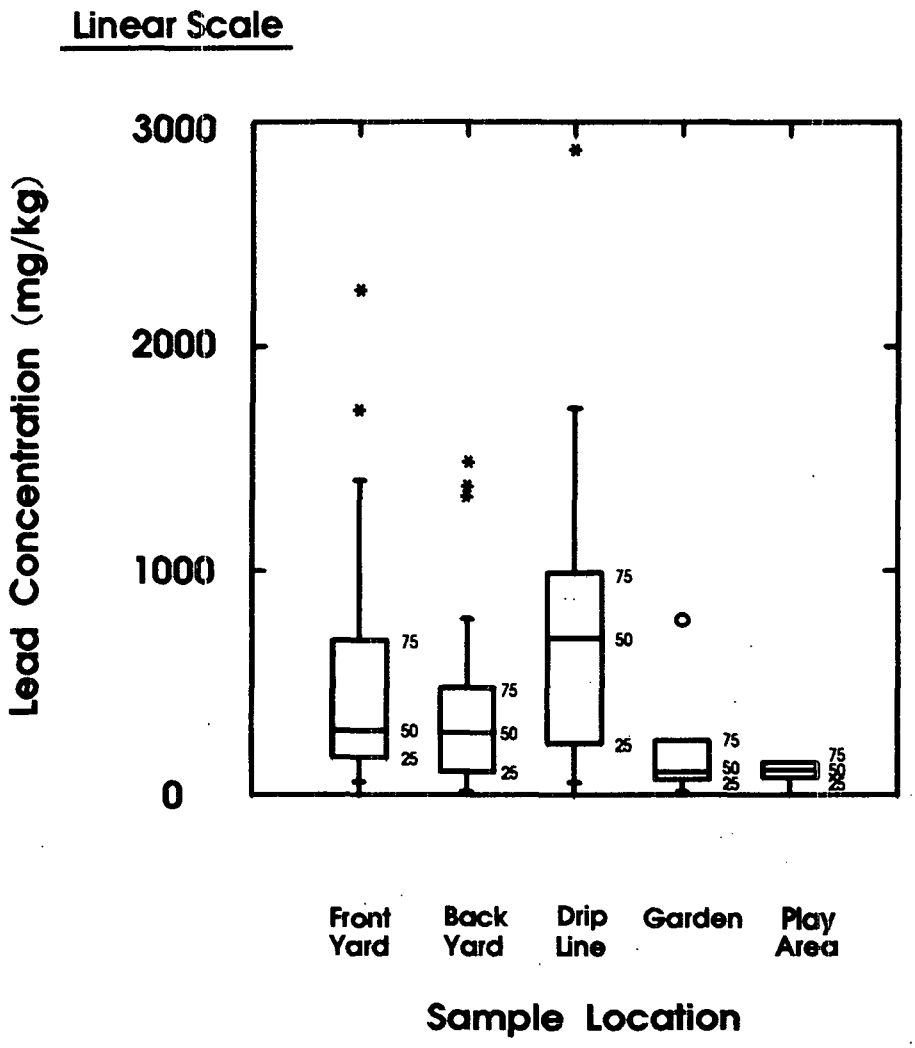
75=75th percentile concentration

(See Appendix for box plot definitions)

SOURCE: Ecology and Environment, Inc., 1991

Figure 4.1-5 DIOXIN CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL ON THE UNDEVELOPED LANDFILL GRID

AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

25=25th percentile concentration

50=50th percentile concentration

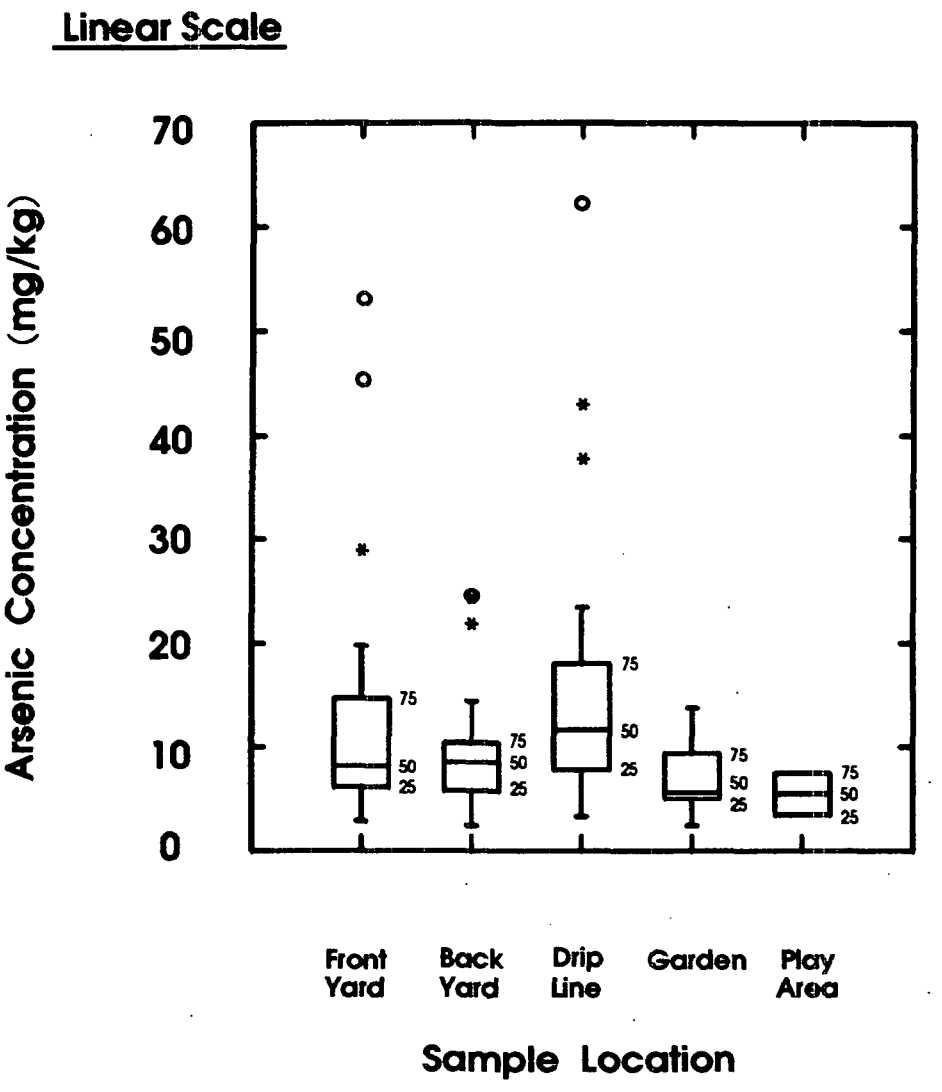
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread
o = Outside value is > ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-6 LEAD CONCENTRATIONS VS. LOCATION AT STUDY GROUP RESIDENCES: 0- TO 3-INCH INTERVAL AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

25=25th percentile concentration

50=50th percentile concentration

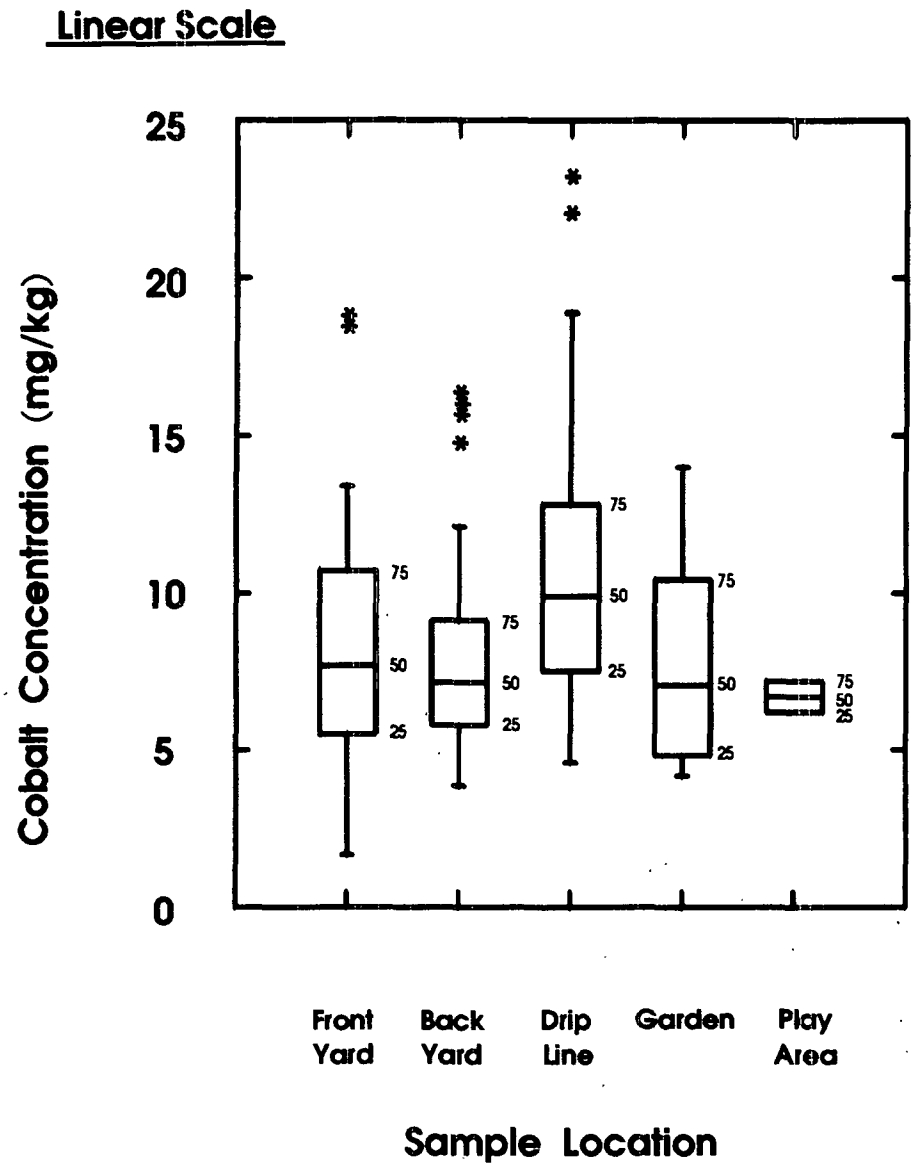
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread
o = Outside value is > ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-7 ARSENIC CONCENTRATIONS VS. LOCATION AT STUDY GROUP RESIDENCES: 0- TO 3-INCH INTERVAL AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

25=25th percentile concentration

50=50th percentile concentration

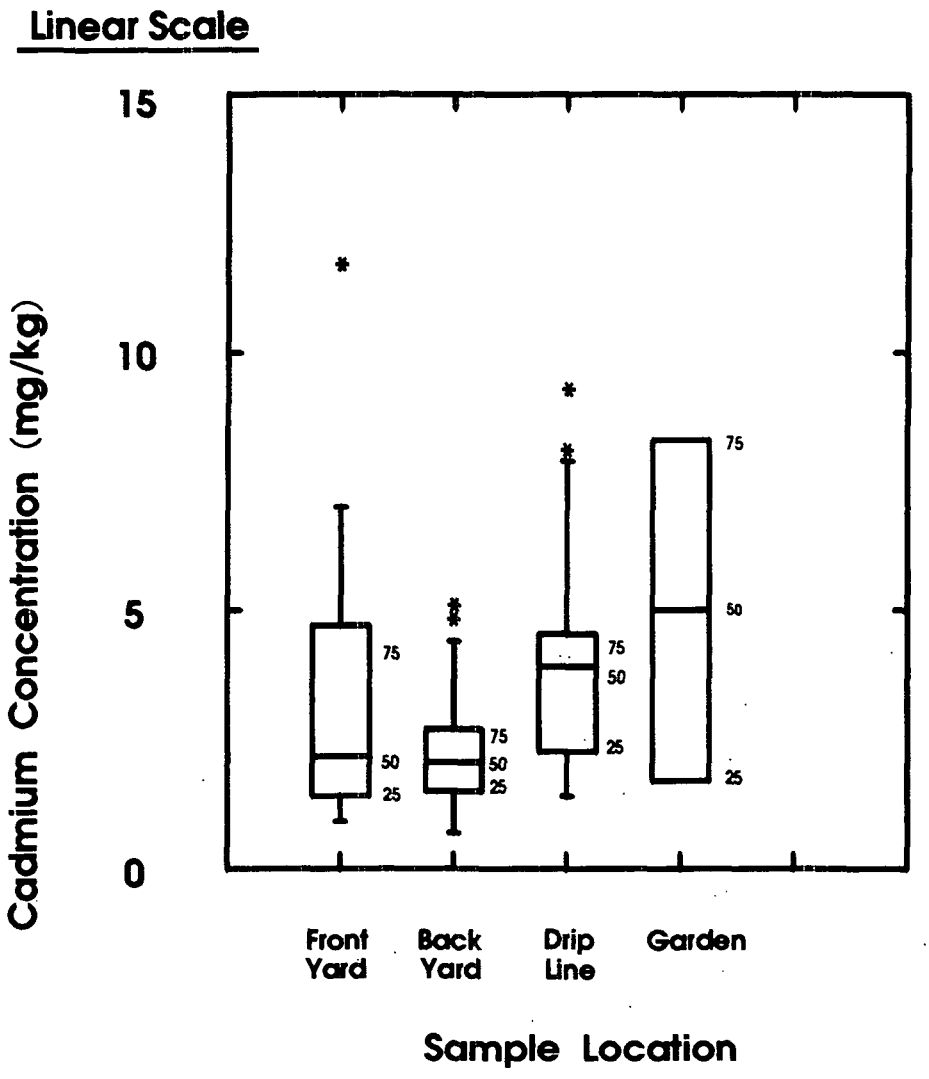
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-8 COBALT CONCENTRATIONS VS. LOCATION AT STUDY GROUP RESIDENCES: 0- TO 3-INCH INTERVAL AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

25=25th percentile concentration

50=50th percentile concentration

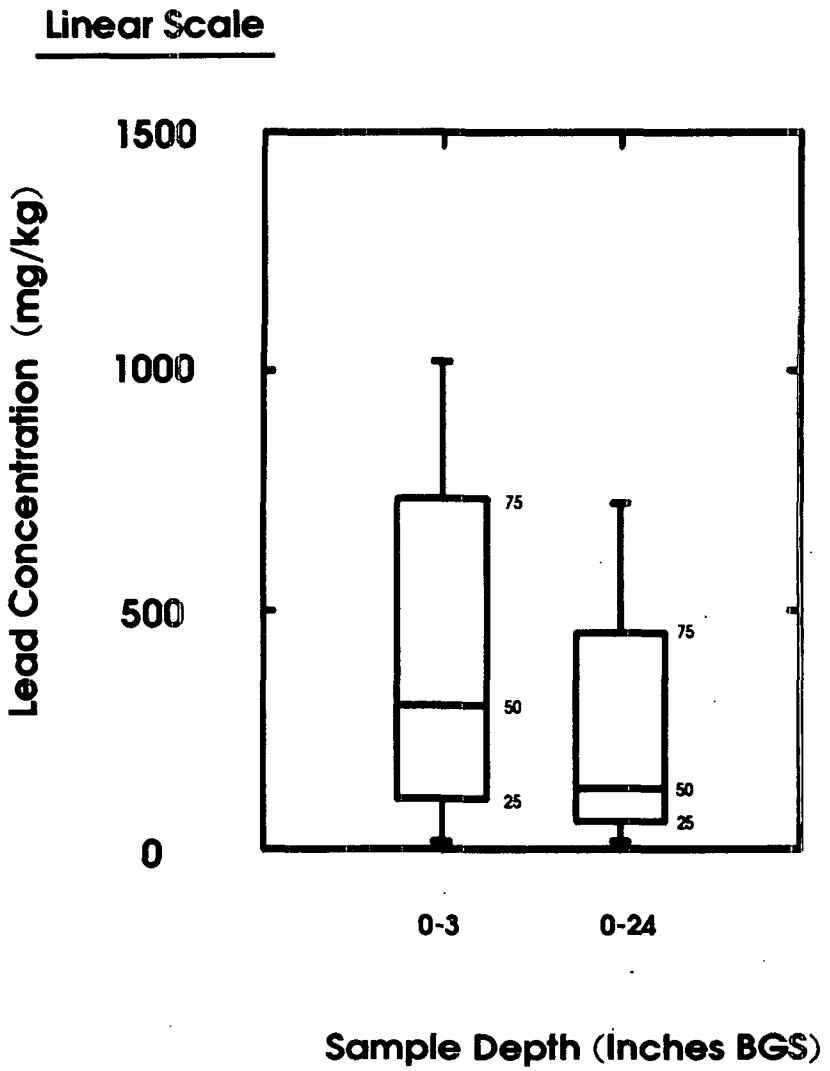
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-9 CADMIUM CONCENTRATIONS VS. LOCATION AT STUDY GROUP RESIDENCES: 0- TO 3-INCH INTERVAL AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

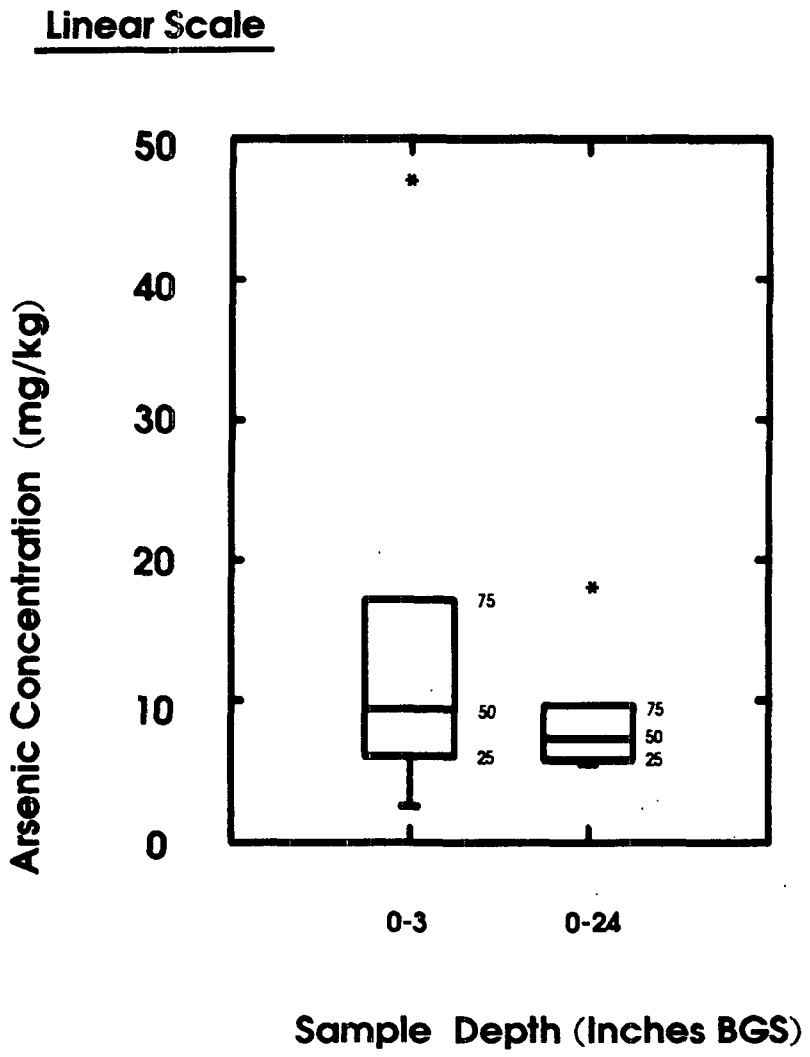
25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration
(See Appendix K for box plot definitions)

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-10 LEAD CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL FROM ADJACENT OFF-SITE AREAS
AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

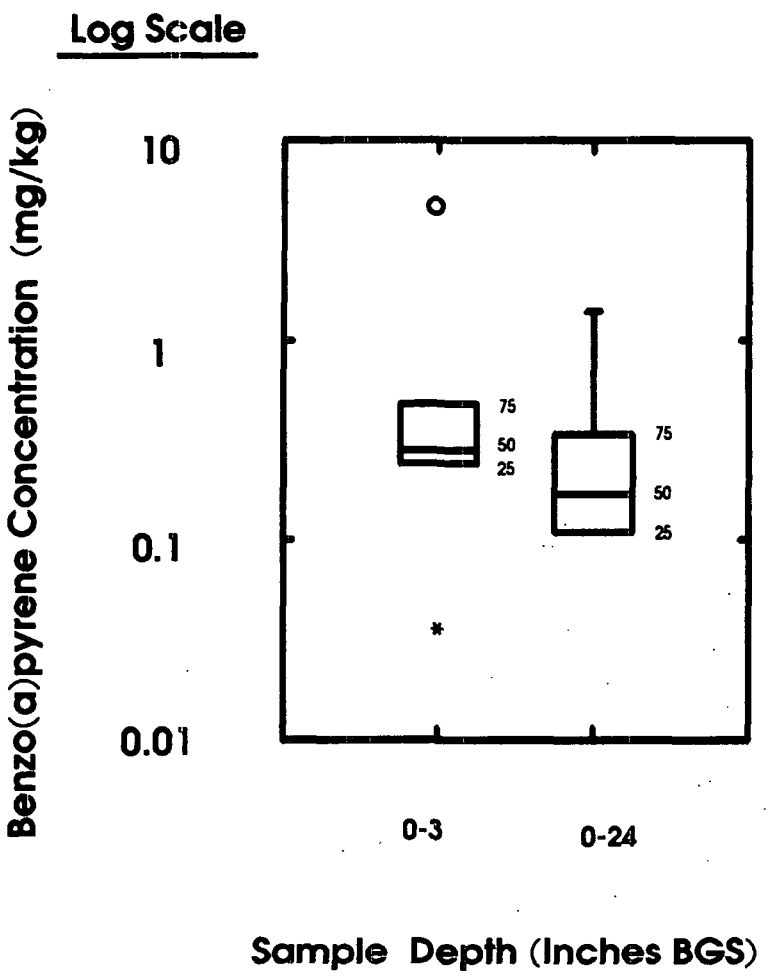
75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-11 ARSENIC CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL FROM ADJACENT OFF-SITE AREAS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA



KEY

BGS=Below ground surface

25=25th percentile concentration

50=50th percentile concentration

75=75th percentile concentration

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

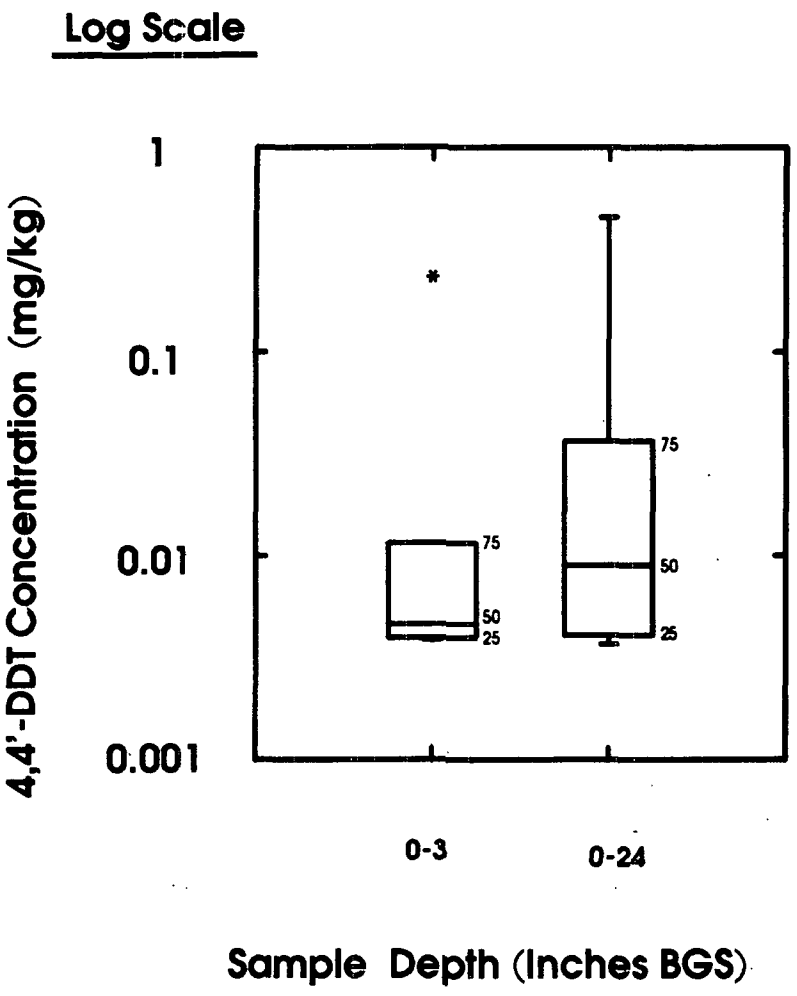
o= Outside value is > ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-12 BENZO(a)PYRENE CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL FROM ADJACENT OFF-SITE AREAS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

agf41-13.cdr



KEY

25=25th percentile concentration
50=50th percentile concentration
75=75th percentile concentration
(See Appendix K for box plot definitions)

* = Outside value is ±1.5 Hspread to ±3.0 Hspread

Hspread = interval between 25th and 75th percentile values (see Appendix K for box plot definitions).

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-13 4,4'-DDT CONCENTRATIONS VS. DEPTH FOR SURFACE SOIL FROM ADJACENT OFF-SITE AREAS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Figure 4.1-14 LEAD CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment Inc., 1994

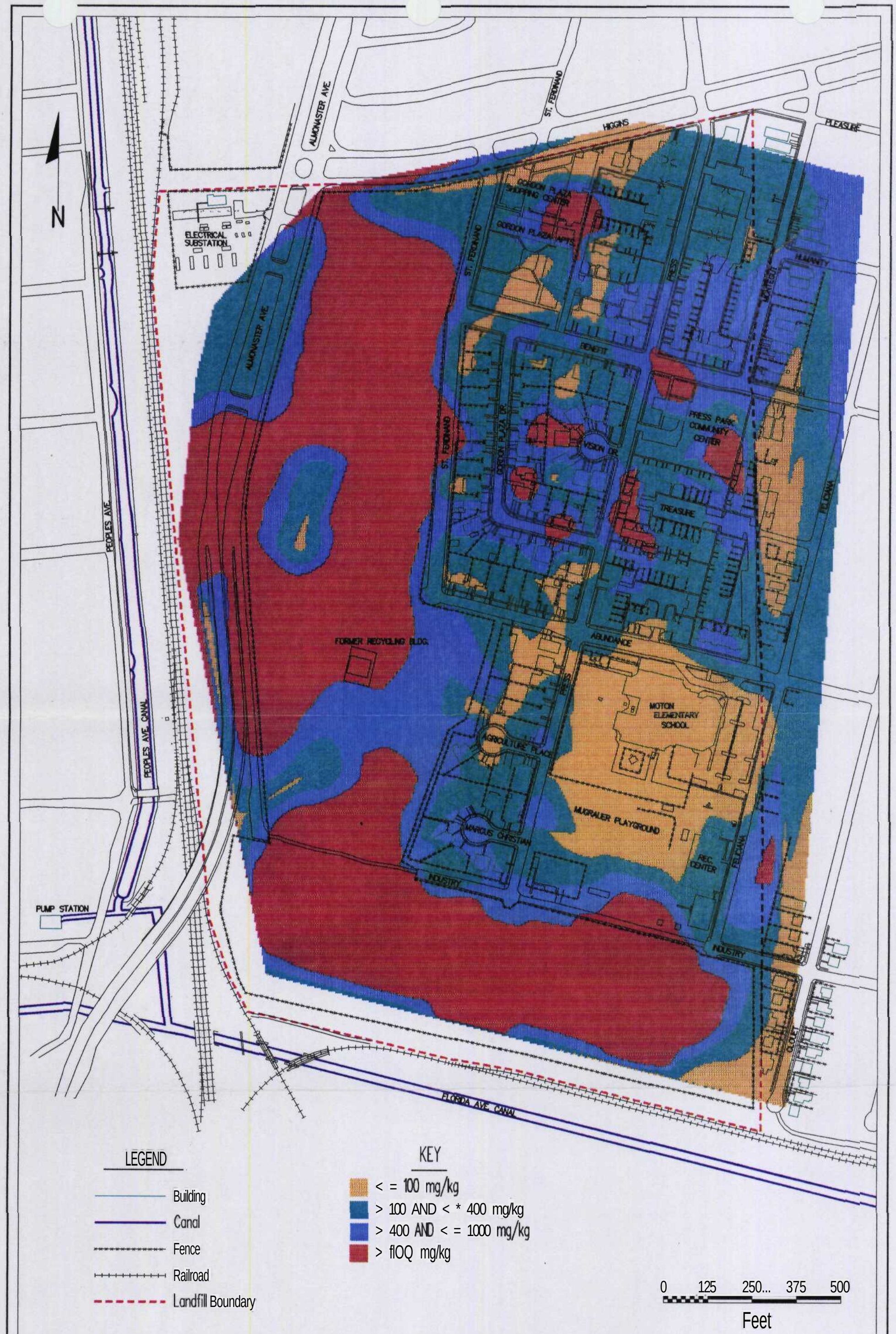


Figure 4.1-15 CONTOUR MAP FOR LEAD: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment Inc., 1994

Figure 4.1-16 LEAD CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

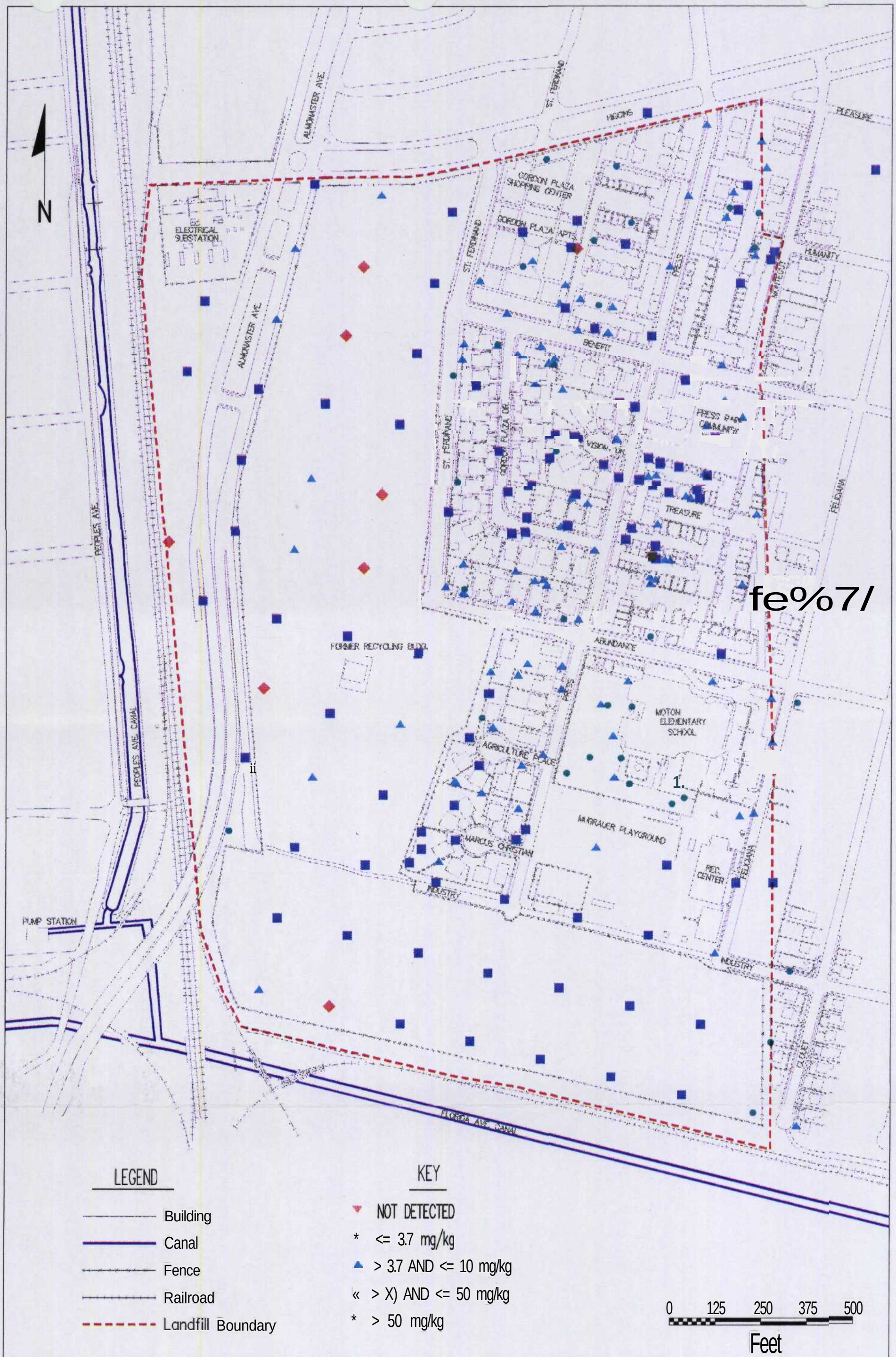


Figure 4.1-17 ARSENIC CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

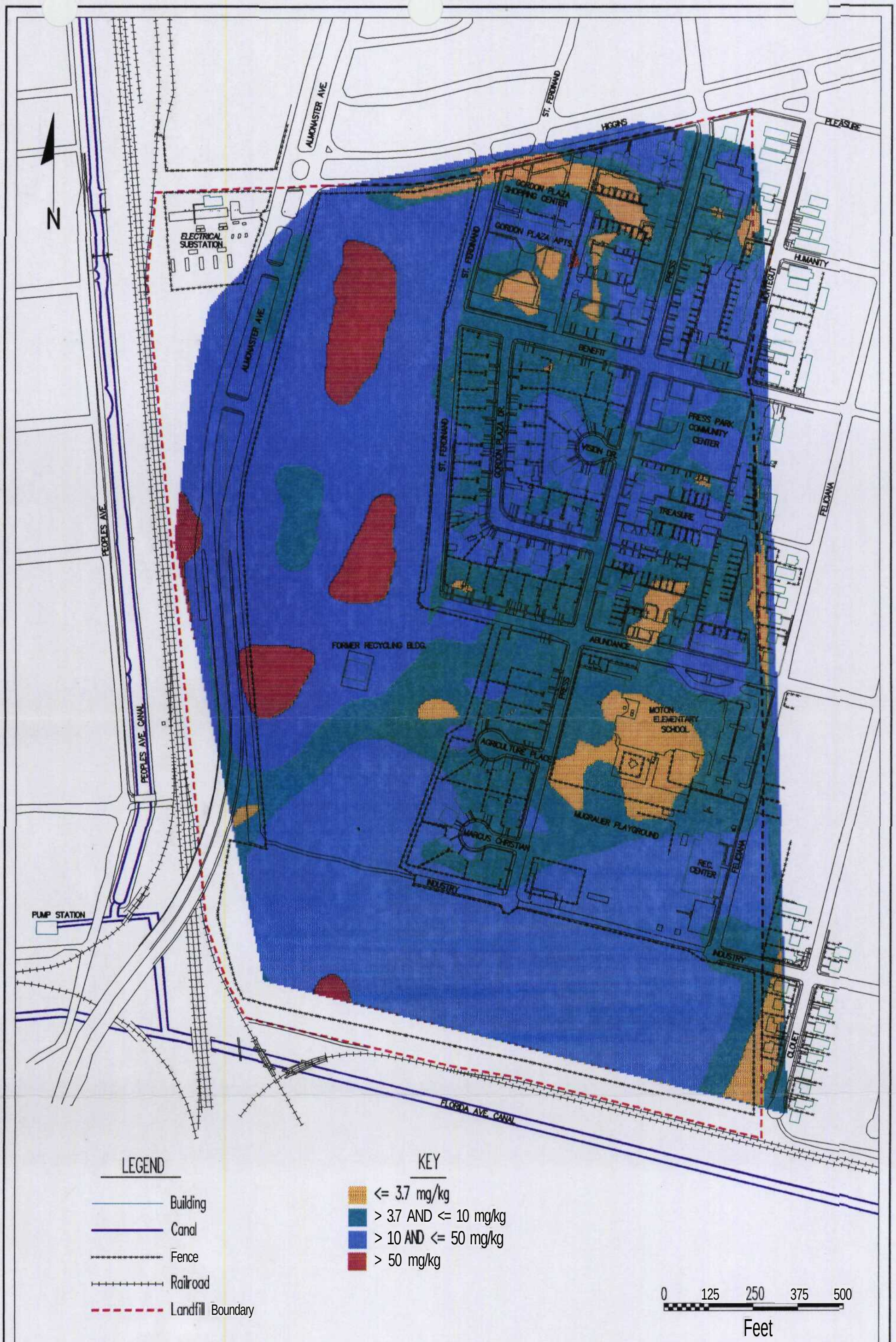


Figure 4.1-18 CONTOUR MAP FOR ARSENIC: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

S nvironment, Inc., 1994

001157.660

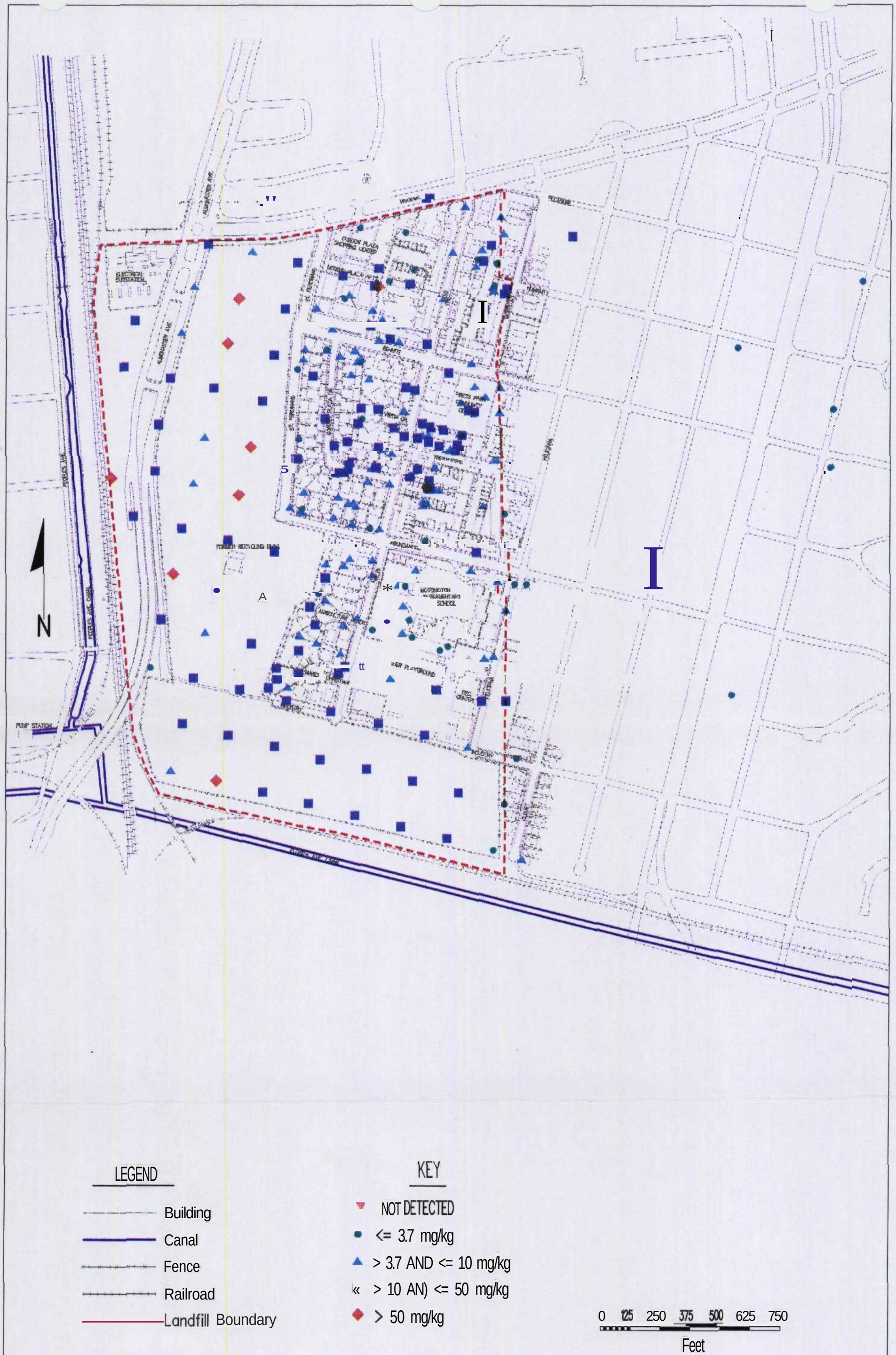


Figure 4.1-19 ARSENIC CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

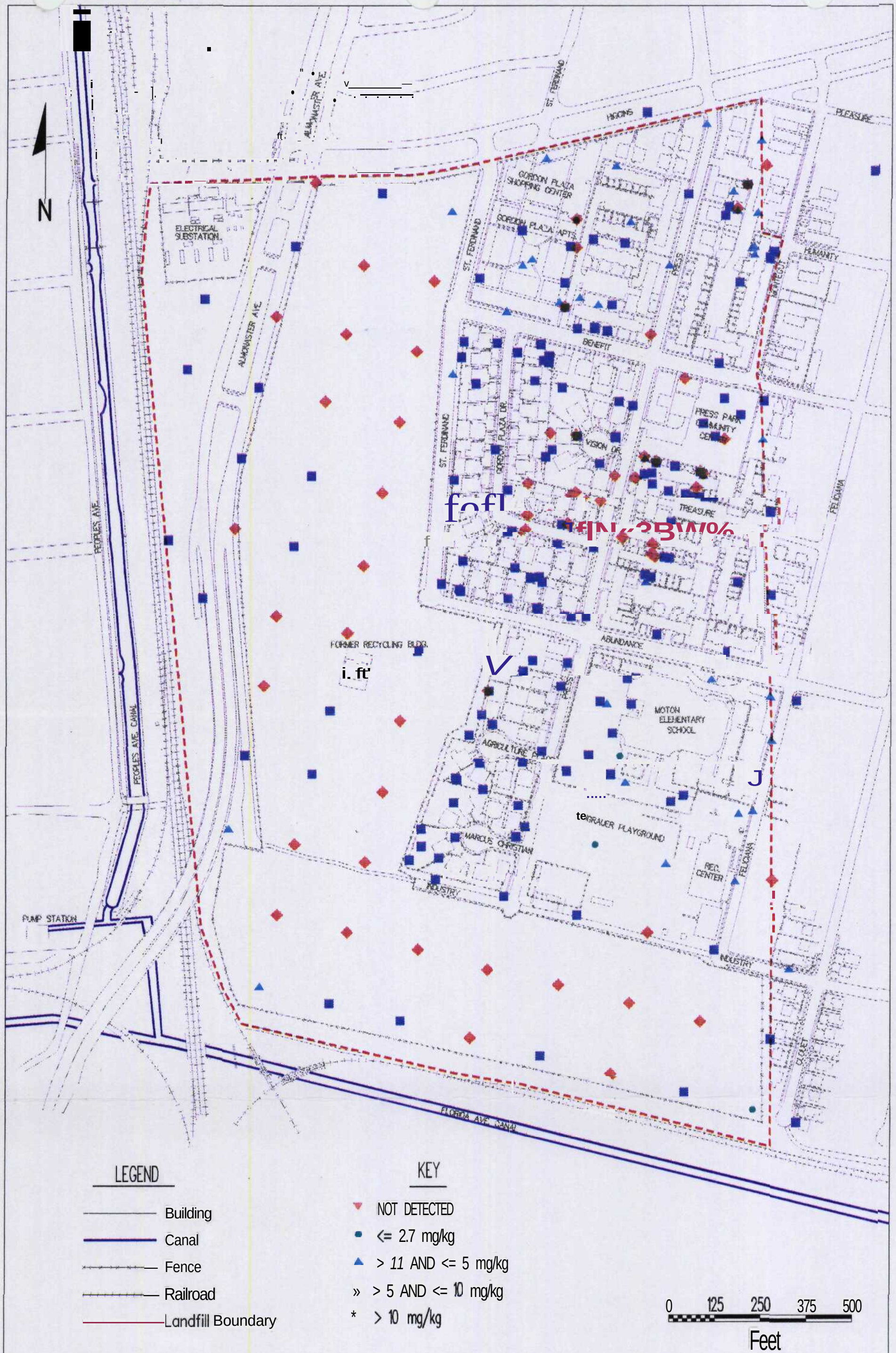


Figure 4.1-20 COBALT CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

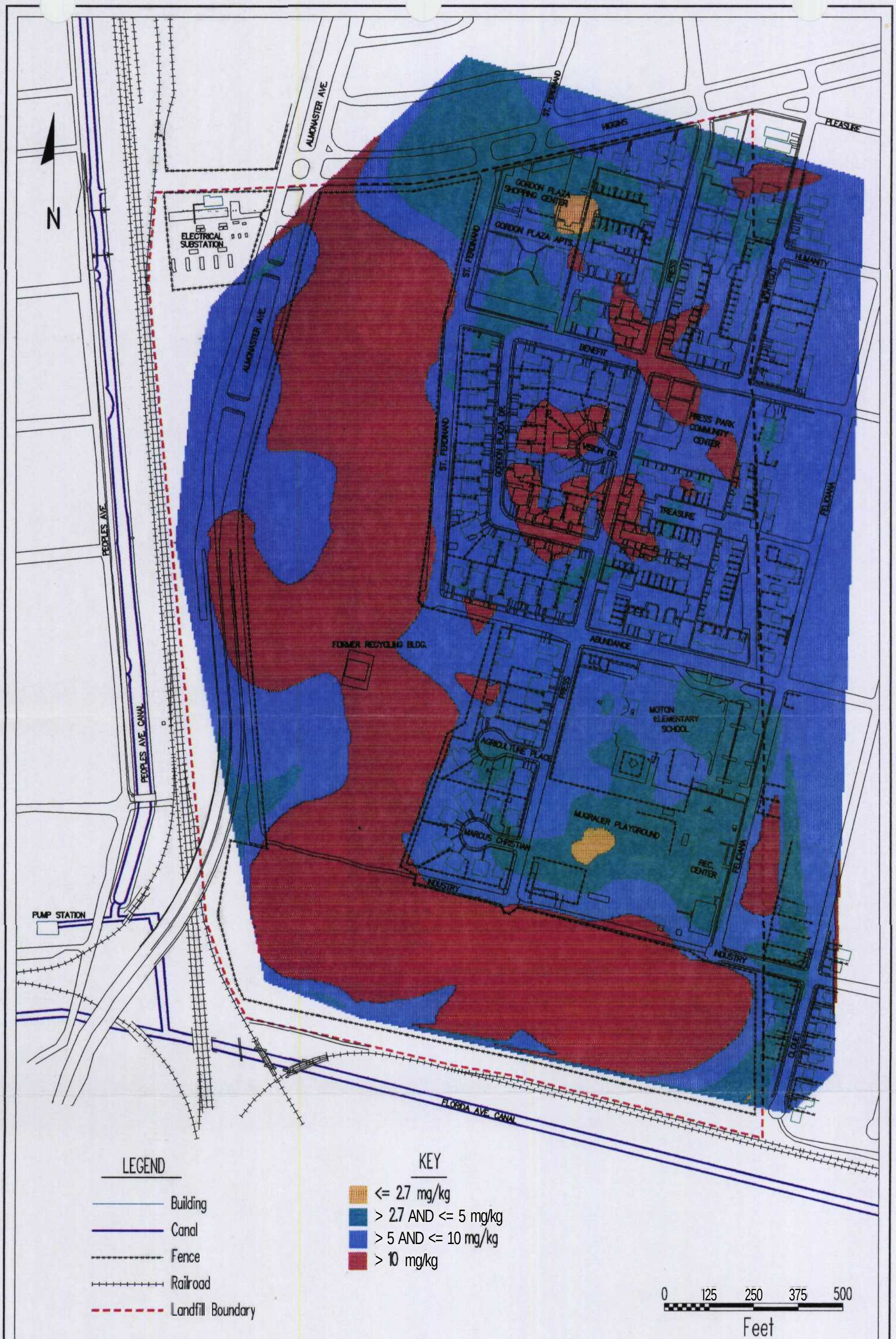


Figure 4.1-21 CONTOUR *MAP* FOR COBALT: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

nvironment, Inc., 1994

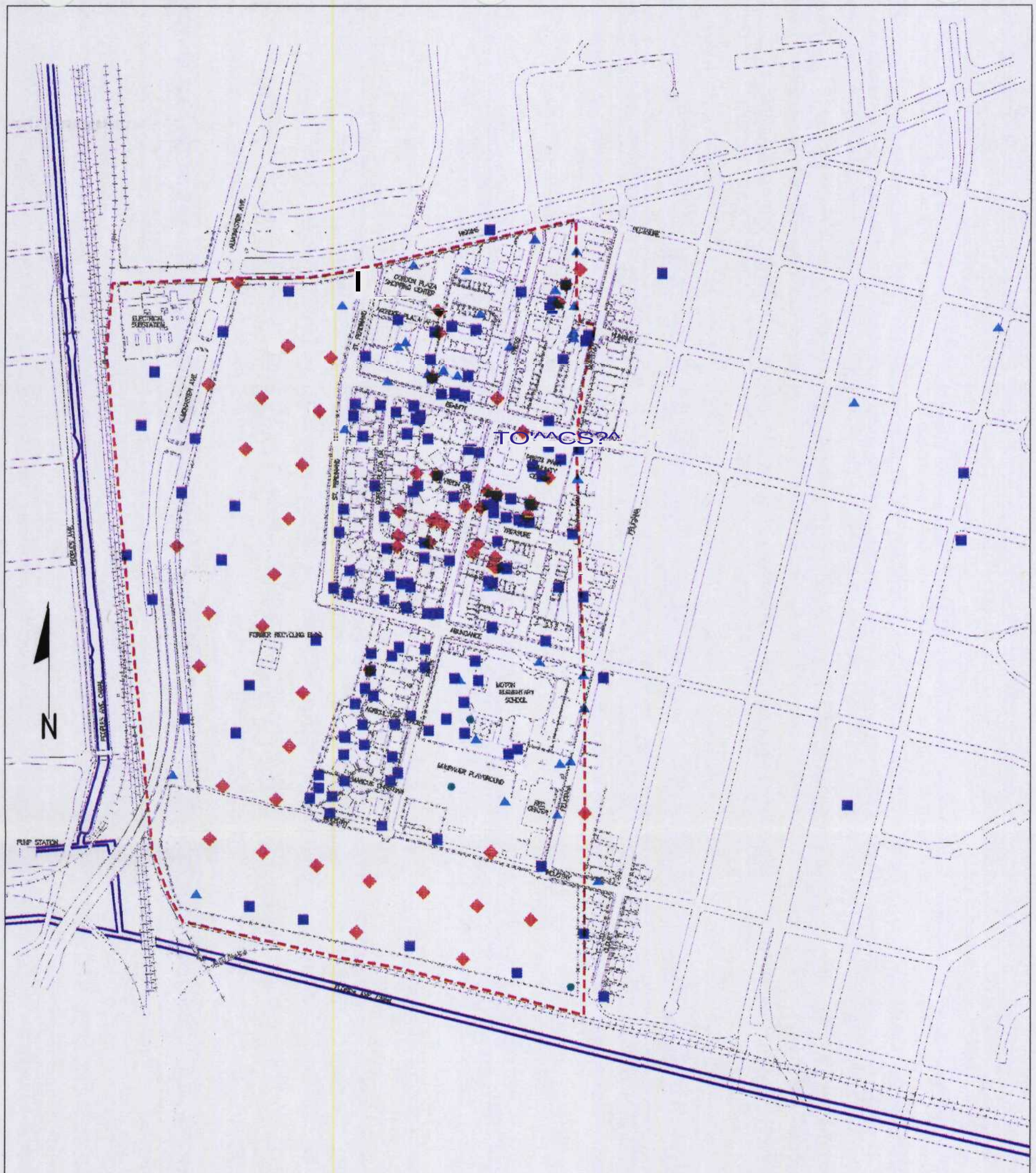


Figure 4.1-22 COBALT CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

nvironment, Inc., 1994

Figure 4.1-23 BENZO(a)PYRENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

001157.665

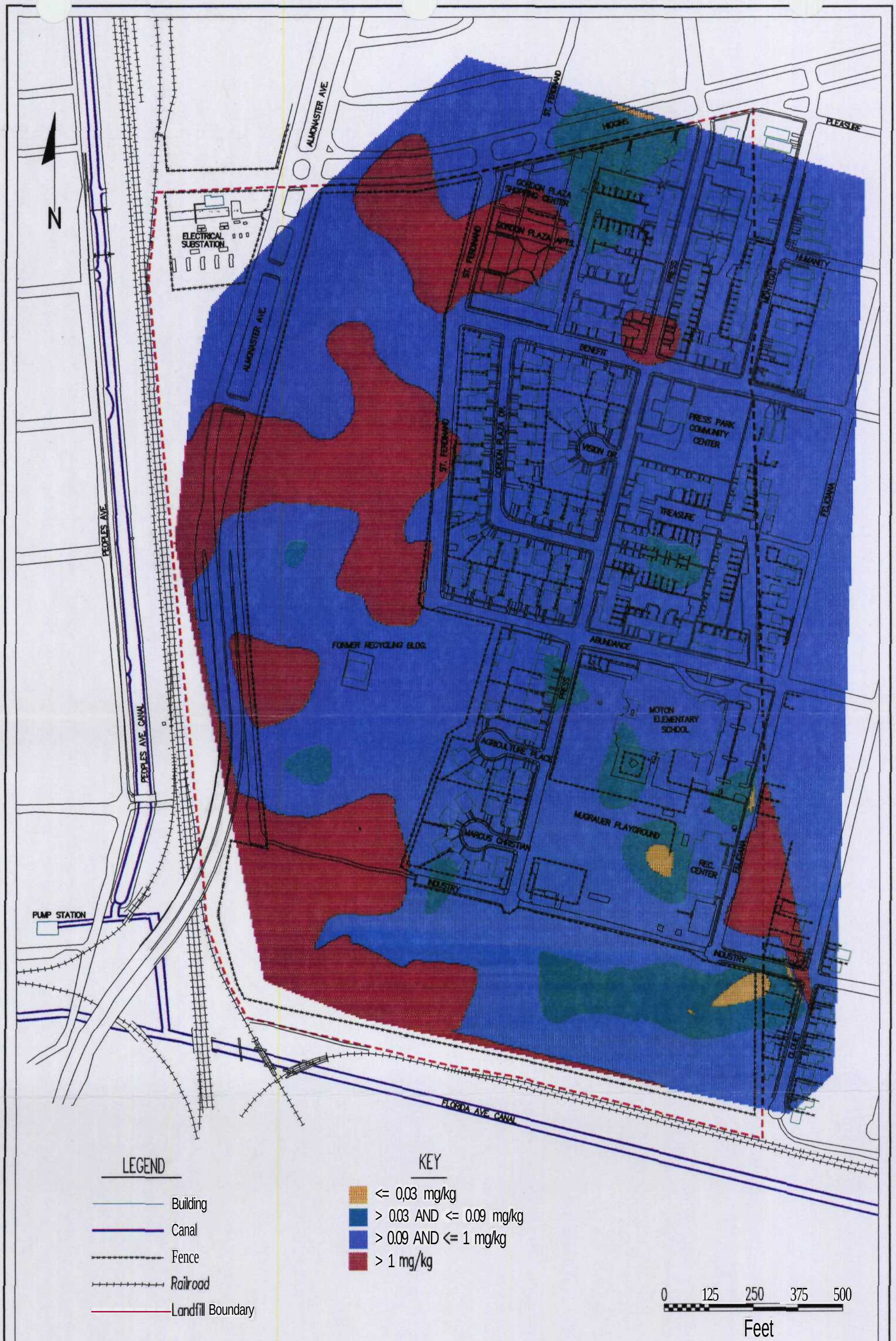


Figure 4.1-24 CONTOUR MAP FOR BENZO(a)PYRENE: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

Figure 4.1-25 BENZO(a)PYRENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

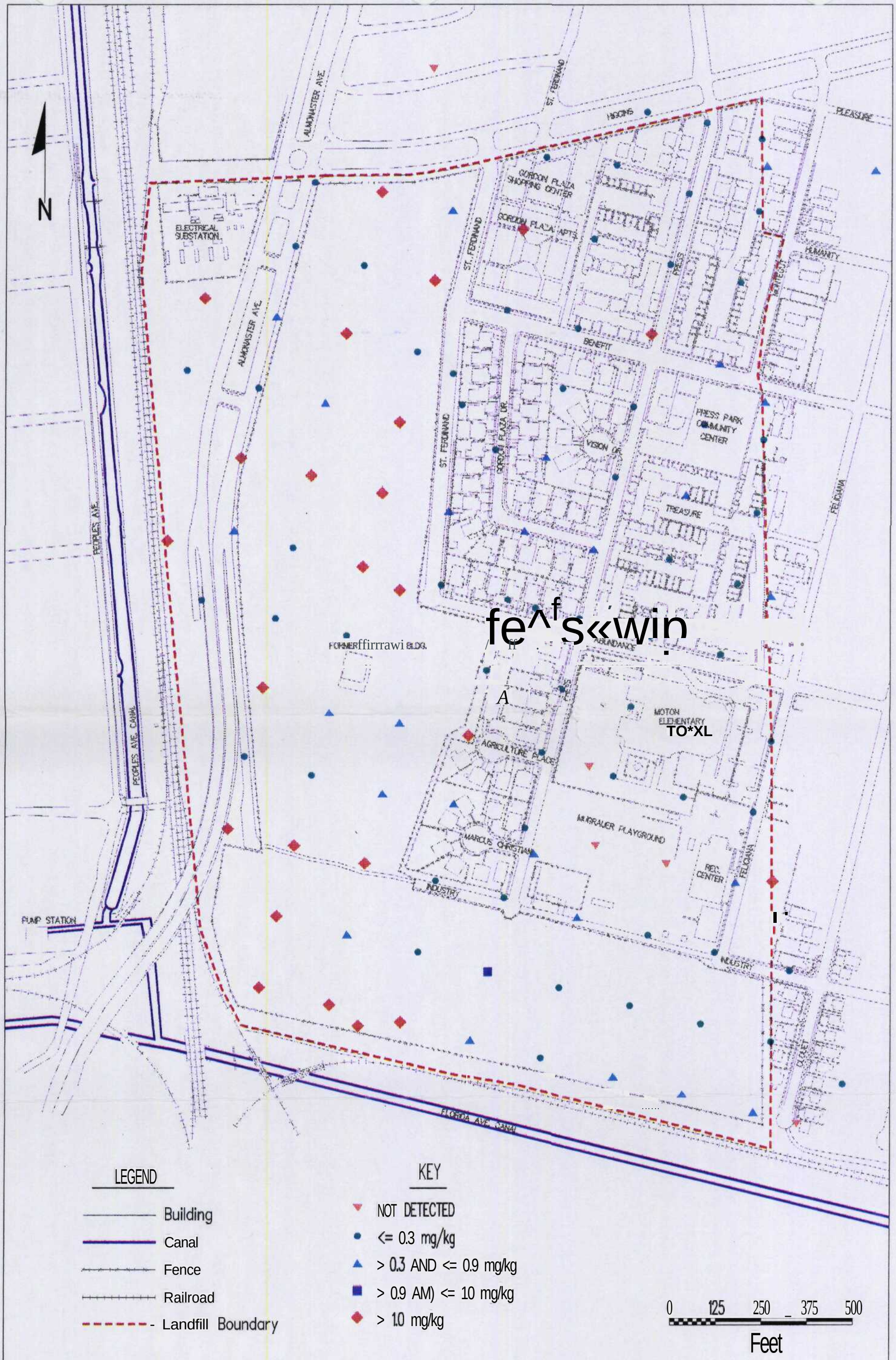


Figure 4.1-26 BENZO(a)ANTHRACENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

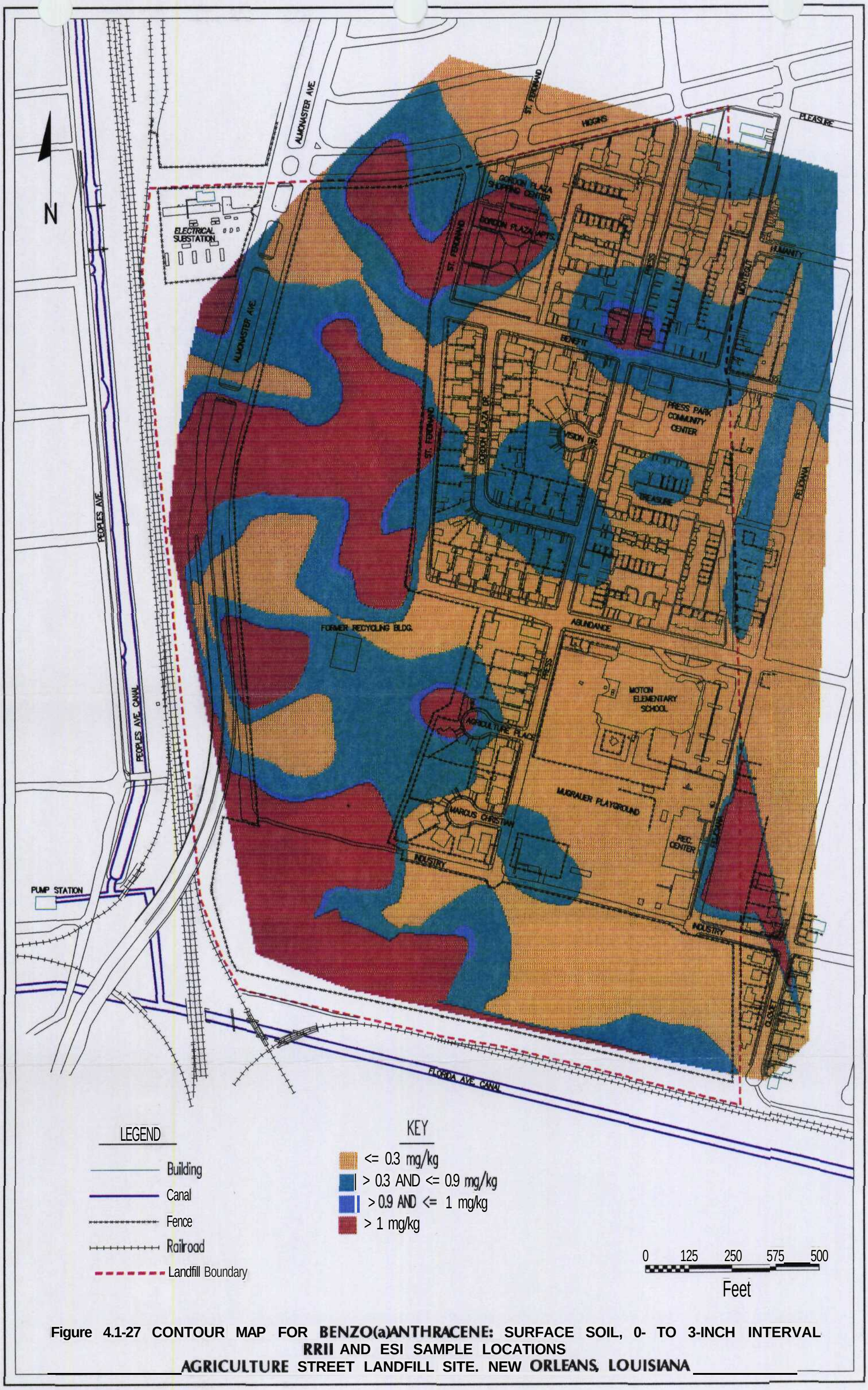


Figure 4.1-27 CONTOUR MAP FOR BENZO(a)ANTHRACENE: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

Figure 4.1-28 BENZO(a)ANTHRACENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

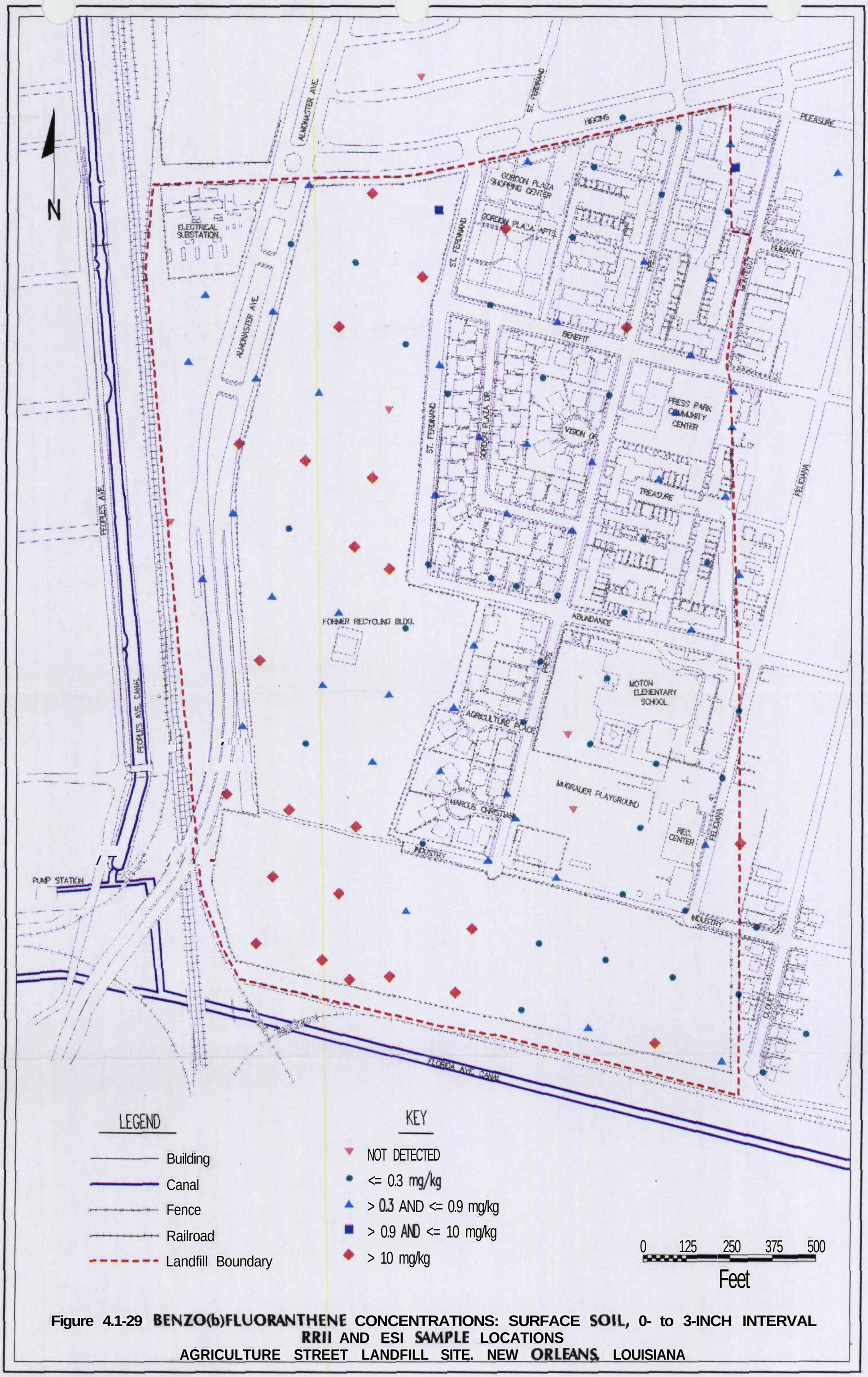


Figure 4.1-29 BENZO(b)FLUORANTHENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-30 CONTOUR *MAP* FOR BENZO(b)FLUORANTHENE: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

Environment, Inc., 1994

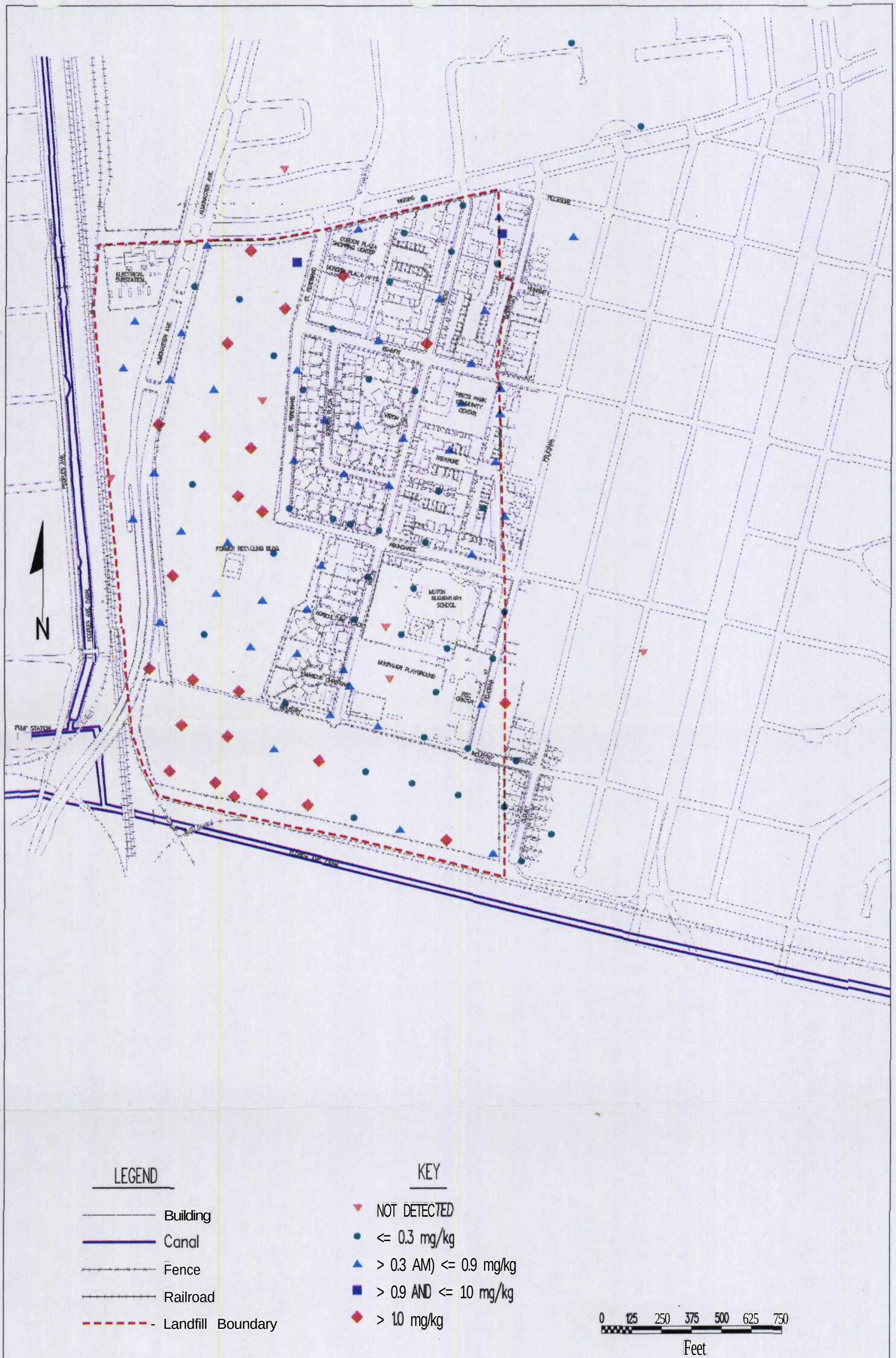


Figure 4.1-31 BENZO(b)FLUORANTHENE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

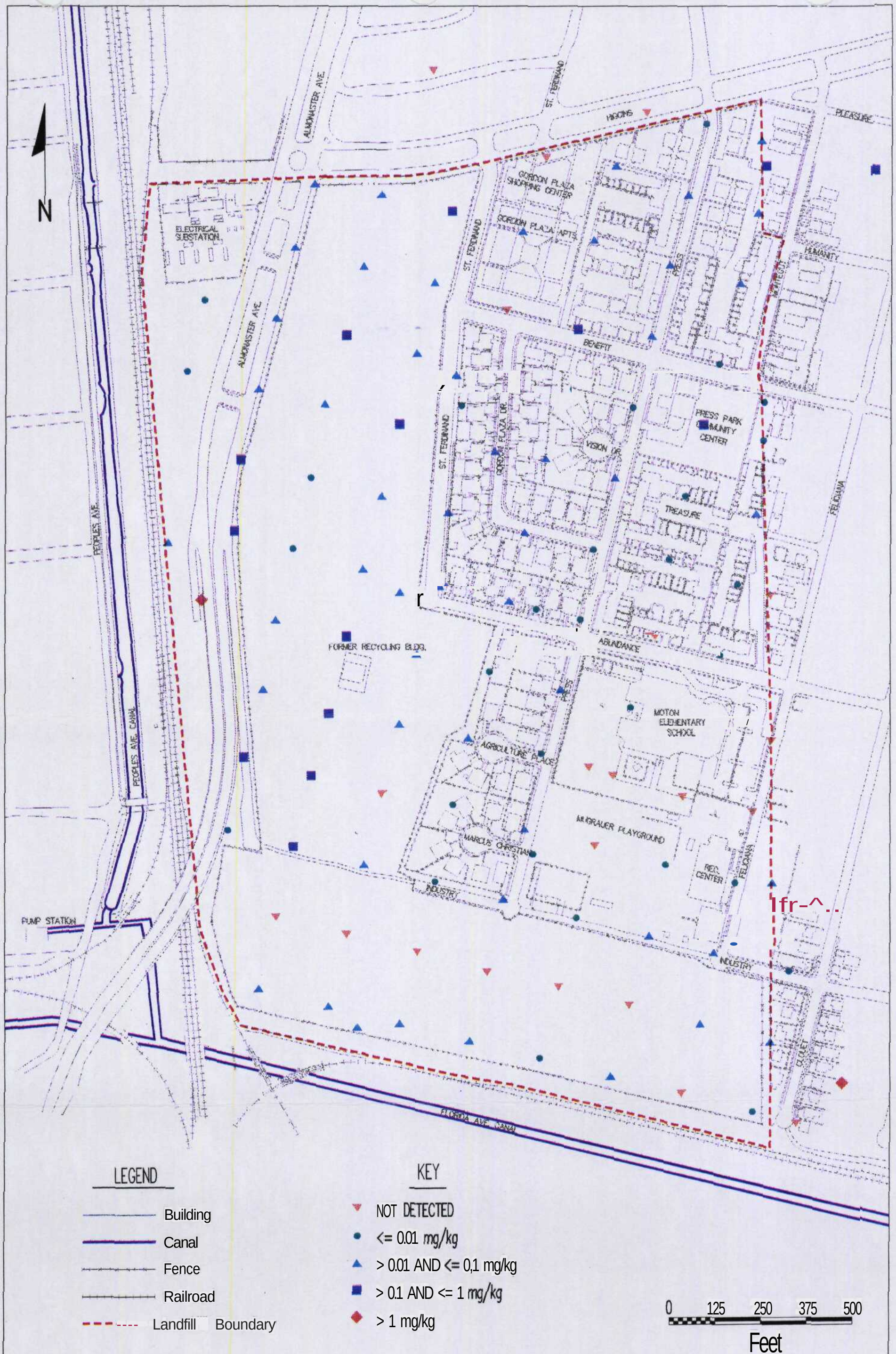


Figure 4.1-32 4,4'-DDT CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-33 4,4'-DDT CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE. NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

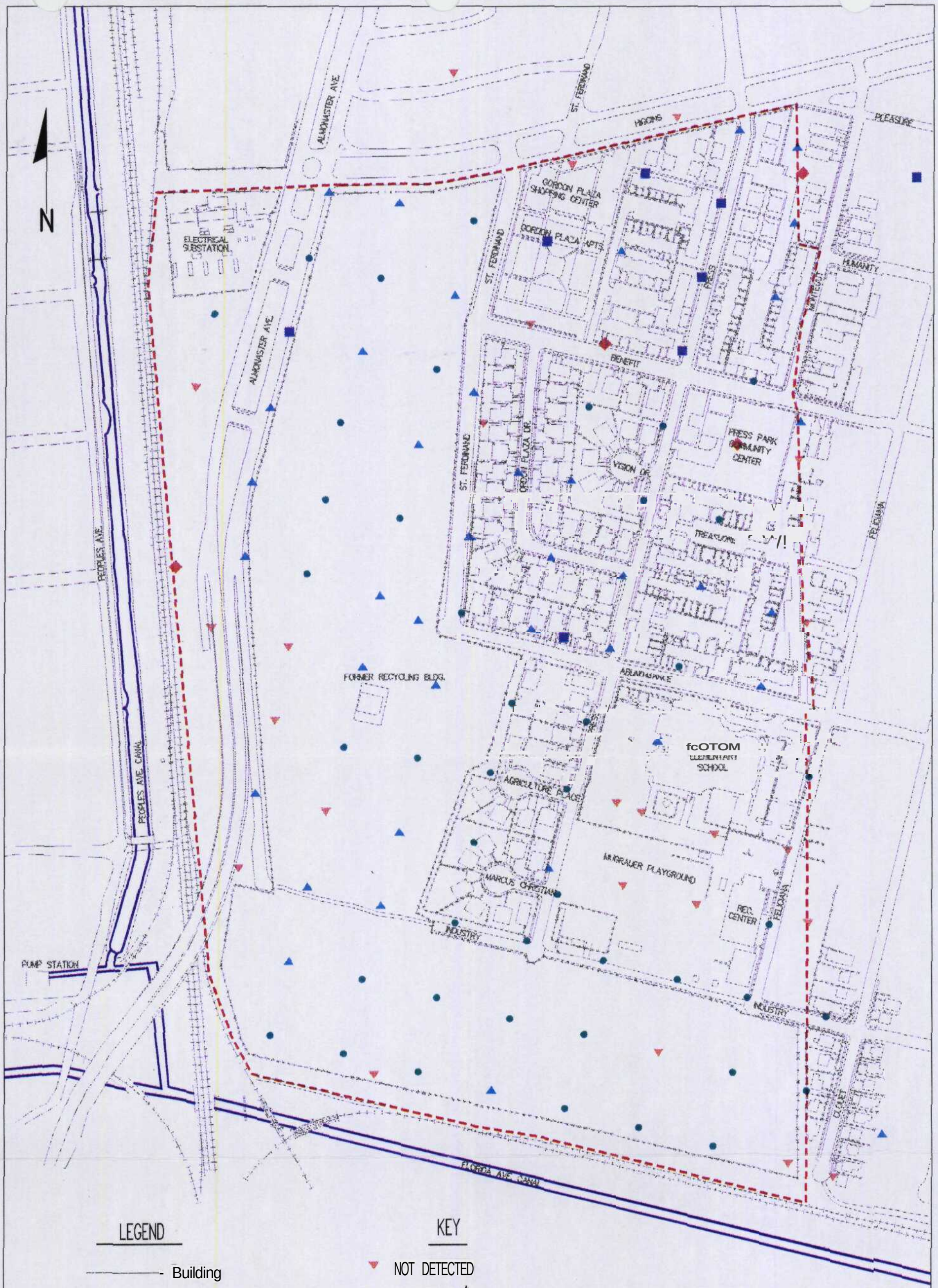


Figure 4.1-34 TOTAL CHLORDANE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RR1I AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-35 TOTAL CHLORDANE CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL EXPANDED OFF-SITE VIEW, RRII AND ESI SAMPLE LOCATIONS (EXCLUDING BACKGROUND) AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

Figure 4.1-36 DIOXIN CONCENTRATIONS: SURFACE SOIL, 0- to 3-INCH INTERVAL RRIJ SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Ecology and Environment, Inc., 1994

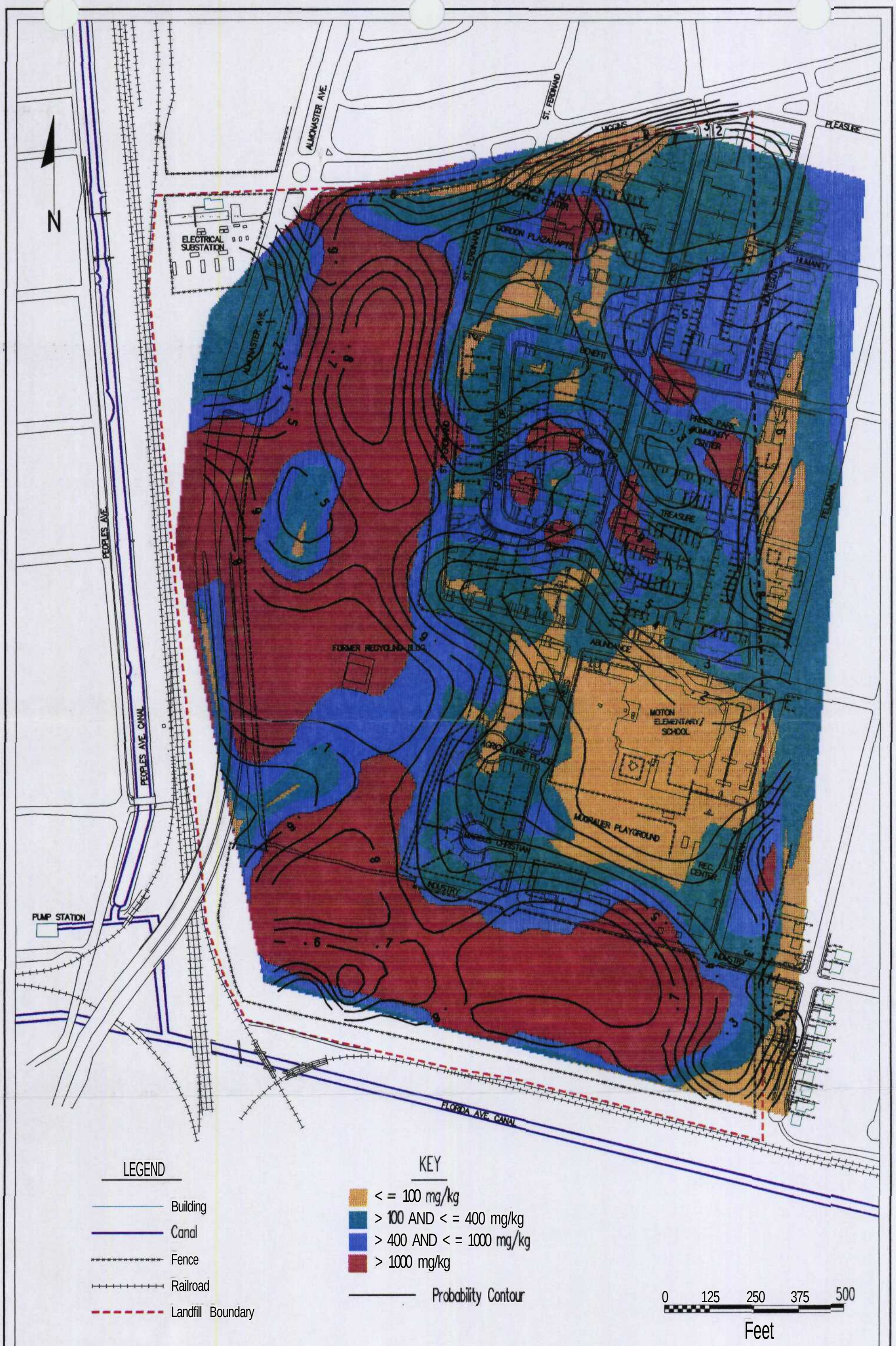


Figure 4.1-37 PROBABILITY PLOT FOR LEAD: SURFACE SOIL, 0- TO 3-INCH INTERVAL RRII AND ESI SAMPLE LOCATIONS AGRICULTURE STREET LANDFILL SITE, NEW ORLEANS, LOUISIANA

SOURCE: Foster and Environment, Inc., 1994